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Title

Field of Application for:

Halspan® Prima 30 Doorsets

Part 2: Steel or Aluminium based frames

For 30 minutes Fire Resistance

Report No.:

FEA/F97174 Part 2 Revision J

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This field of application report FEA/F97174 Revision J is Part 2 of the suite of (Prima 30 Halspan) assessments, other parts of the suite address other doorset designs.

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.

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1 Foreword

This Field of Application report has been commissioned by Halspan Limited and relates to the fire resistance of 30 minute fire resisting doorset designs in steel and aluminium frames.

The report is for National Application and 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 doorsets, 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 476-22: 1987.

This Field of Application has been written using appropriate test evidence generated at UKAS accredited laboratories[1], 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 with specific evidence for hardware listed in 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) 'Guide to Undertaking Technical Assessments of the Fire Performance of Construction Products Based on Fire Test Evidence'. 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.

This Part 2 of the suite of Prima 30 field of applications considers steel and aluminium frames.

The test evidence directly relevant to Part 2 is included in Section 3 where this test evidence is only applicable to steel and aluminium frame applications and Appendix Z includes the relevant supplementary test evidence.

CERTIFIRE and assessment supporting documentation has been used to enhance the scope of application within this evaluation. At the time of issue of this document, the relevant documentation has remaining validity. The referenced supporting documentation must retain validity, with the same conclusions maintained for the aspects considered herein, in order that the relevant scope generated within this field of application report remains valid. This may necessitate a review of more recent iterations of supporting documentation, against those referenced in this assessment report. If the scope of the relevant supporting documentation changes, then Warringtonfire must be consulted to review the changes, and to consider their effect on the outcomes of this assessment report.

[1] Test evidence from overseas laboratories has also been considered as supporting evidence for the designs in this assessment report. The test evidence is from a laboratory that has been accredited by a national accreditation body that is a signatory of the International Laboratories Accreditation Co-operation (ILAC).

The drawings provided in this report are for guidance and illustrative purposes only. Please note that the written scope of application takes precedence.

2 Proposal

It is proposed to consider the fire resistance performance of the specified proprietary Prima 30 doorset designs with 4No. steel and 1No. aluminium frame designs, for 30 minutes fire resistance integrity and insulation (where applicable), if the doorset designs 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.

The assessment will cover 3 leaf types listed below:

- Prima 44 mm thick - (Leaf 1)
- Prima 54mm thick - (Leaf 2)
- Prima 44 mm thick bond up construction consisting of 38mm thick core and 3mm thick additional facings. - (Leaf 3)

The assessment will cover 4No. steel and 1No. aluminium frame types and for the purpose of this assessment it has been deemed necessary to provide each of the frame types considered with a specific reference, see table below for frame types and their associated references:

Frame Reference	Description
M1	One part steel wrap around or flush frame with cement backfill and single rebate.
M2	One part steel flush or wrap around cement backfill frame and double rebate
M3	One part steel hollow or backfilled with cement frame wrapped around one side of the wall only.
M4	Two part steel hollow wrap around frame
M5	Aluminium frame with sapele timber insert including integral stop and steel FM trim architrave

Whilst specific items are included within this Field of Application report that may be used to provide additional performance characteristics (such as acoustic or smoke control for example), it is beyond the remit of this Field of Application report to provide scope for performance characteristics other than fire resistance integrity and (where applicable) insulation performance. Any other performance requirement for the door designs contained herein is to be subject to a separate analysis.

2.1 Assumptions

- All densities referred to in this document are based upon an assumed moisture content of 10 to 12%.
- It is assumed that unless otherwise documented in the field of application sections of this report, the doorset subject to this report will be constructed in accordance with the test evidence referred to herein.
- For components created using solid timber sections referred to in this assessment, it is assumed that, for all timbers, they will be of a quality deemed to meet or exceed class J30 as specified in BS EN 942: 2007, subject to adequate repairs, other than glazing beads which must meet a minimum class J10. Note that areas under intumescent seals/gaskets are not considered to be concealed faces and defects must be repaired.
- Where timber is referred to within this document it is assumed that the timber element is made from a continuous solid piece, unless specifically detailed otherwise.

3 Test Data

The test data used to support this product has been gathered over 20 years and has been deemed relevant to support the scope detailed in this assessment, as the basic core composition has remained unchanged over this period of time. Furthermore, the older data has been supported and supplemented with more recent data, which provides additional confidence that the evidence cited in this assessment is suitable to support the scope of the designs in this field of application. Other test evidence on designs that are fundamentally the same as the Halspan Prima design have been included where appropriate.

The evidence has been generated to BS 476 Part 22: 1987 and EN 1634-1. The latter is known to be more onerous than the BS 476: Part 22: 1987 standard, primarily due to the use of plate thermocouples within the furnace to record the furnace temperature.

The same time temperature curve is used to control the temperature within the furnace for both test methods (the heating curve given within ISO 834-1). However, the plate thermocouple used to record the temperature within the furnace for the EN test method, requires a longer thermal exposure to read the same temperature as the probe thermocouple that is used for the BS 476: Part 22: 1987 test, particularly during the early stages of the test. Furthermore, the neutral pressure regime is positioned lower relative to the specimen height in a European fire door test, therefore resulting in greater relative positive pressure conditions than those expected in a BS 476-22: 1987 test, which has the potential to increase hot gases and flaming on the unexposed side. These factors result in more onerous test conditions for doorsets tested to the BS EN 1634-1 test standard compared with the BS 476: Part 22: 1987 test standard, which has been demonstrated by testing the same products to both standards.

Both the EN 1634-1 and BS 476: Part 22 methods monitor the insulation performance of a doorset with unexposed face fixed thermocouples. Whilst the specification and positioning of the unexposed face thermocouples is comparable between both standards, the EN 1634-1 typically requires additional thermocouples to be applied on the leaf face and door frame than would be required by the BS 476: Part 22 method. Additionally, the temperatures recorded within CFR1905171 tested to EN 1634-1 show the insulation criteria as required in BS 476: Part 22 to have not been exceeded prior to integrity failure at 33 minutes. Based on this it is the opinion of Warringtonfire that the insulation performance achieved under EN 1634-1 conditions may be appraised against the performance criteria of BS 476: Part 22.

It is therefore the opinion of Warringtonfire that the fire resistance performance of the Prima 30 doorsets can be assessed to provide at least 30 minutes fire resistance integrity and insulation performance, if the doorsets, constructed in accordance with the specifications documented in this field of application, were to be tested in accordance with BS 476: Part 22: 1987, subject to conditions detailed in Section 11.

A summary for each test has been generated to support the fire resistance performance of the leaf types that are the subject of this field of application.

The summary of each test, used in this assessment, is given in the following sections. The summary details the key aspects of the design tested. In some summaries there is a section which identifies a particular aspect of the design that was being evaluated by Halspan for increasing the scope of the design.

Originally, the Halspan product range was called Halspan 30. Thereafter, this product was sub-divided into 2 product ranges Prima and Optima. The physical properties and respective average densities of these production options differed slightly, however, the technical attributes of Prima and Optima over the years has demonstrated, by testing, that the products performance in fire test conditions is positively comparable.

Therefore, in regard to base line data and generic performance, coupled with laboratory test results it is possible to transfer product characteristics between Halspan 30, Prima and Optima. This means that whilst the summary tables reference a core Halspan 30, Prima 30 and Optima 30 all the evidence has been deemed appropriate and relevant to this assessment.

The test evidence developed by Halspan is the primary evidence to support the different leaf types being evaluated in this assessment namely;

- Prima 44 mm thick - (Leaf 1)
- Prima 54mm thick - (Leaf 2)
- Prima 44 mm thick bond up construction with 38mm thick core and 3mm thick additional facings. - (Leaf 3)

The test evidence on the 44mm thick Prima construction has been deemed acceptable to support the 54mm thick Prima product as thicker door leaves are generally considered to be less onerous in fire test conditions as they distort less due to the higher percentage of the core that remains uncharred. There is limited test evidence for Prima 54mm for use at 30 minute applications. However the test evidence produced using the Prima 44mm thick construction has been used to support the use of the 54mm construction, because the products are made from the same materials, using the same manufacturing methods. It is therefore the opinion of Warringtonfire that increasing the leaf thickness will not reduce the doorsets fire resistance performance when tested to BS 476 Part 22; 1987.

The 3 leaf types listed above have been tested in different types of steel and aluminium frames.

Additional evidence has been produced by 3rd parties and is used to supplement the assessment. This evidence is used with the permission of the owner of the test evidence.

Note:

1. Dimensions are in mm unless otherwise stated.
2. Abbreviations: (h) = height; (w) = width; (t) = thickness, (d) = depth, (l) = long.
3. Latches fitted but disengaged for the test, are reported as ‘unlatched’.

3.1 Primary Test Evidence

3.1.1 Summary of Test Report Chilt/RF01073 Doorset A

The referenced test report, the essential details of which are summarised below, is the primary data for a 44mm thick doorset hung in frame (M1) covering latched & unlatched, single & double door designs, being considered for assessment in this report.

Date of Test:	1st August 2001
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. (previously known as Chiltern Fire International) UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Doorset - ULSADD
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Overall Size: 2135 (h) x 800/300 (w) x 44 (t). Core: Halspan 3 layer Particleboard (650kg/m^3), 44mm (t). Lipping: Sapele (640kg/m^3), 10mm (t) to vertical edges only. FRAME: Head & Jambs: 1.5 mild steel 180 (w) x 45 (t), with 15 (d) integral stop. Backfill: Cement mortar mix. Frame Fixing: 50 (l) steel screws with plastic plugs at 500 centres. SUPPORTING CONSTRUCTION: Blockwork INTUMESCENT: Head & Hanging Edges: Intumescent Seals Ltd Therm-A-Seal 20 (w) x 4 (t). Meeting Edges (Right Leaf): 1No.Intumescent Seals Ltd Therm-A-Seal 10 (w) x 4 (t) & Therm-A-Stop 10 (w) x 4 (t) fitted 10mm apart. Acoustic Seal: Proprietary neoprene buffer seal nominally 16 (h) x 13 (w). HARDWARE: Hinges: 3No Royde & Tucker 101 Hi load, lift off type, per jamb 100 x 35 (blade size). Closer: 1No Dorma TS73V Overhead closer per leaf 233 x 60 (footprint size). HARDWARE PROTECTION: Under Hinges: Intumescent Seals Ltd Therm-A-Strip 2 (t), leaf side only. GLAZING: Glass: (Right Leaf only) Sureglaze Wired 6 (t). Aperture Size: 600 (h) x 150 (w). Expansion Allowance: 2 all edges. Beading: Sapele, 17 (d) x 10 (h), square flush with 3 x 2 quirk. Bead Fixing: 38 (l) steel pins, at 30 degrees to the face of the glass, 200 centres. GLAZING SYSTEM: Glazing Perimeter: Intumescent Seals Ltd Therm-A-Strip 10 (w) x 2 (t) fitted between the bead and the glass on both faces.
Test Standard:	BS 476: Part 22:1987
Performance:	**Integrity A:** 38 minutes **Insulation A:** 38 minutes*

* In accordance with clause 7.6.2 of BS 476: Part 22: 1987 the glazing has not been evaluated for insulation.

3.1.2 Summary of Test Report Chilt/RF01073 Doorset B

The referenced test report, the essential details of which are summarised below, is the primary data for a 54mm thick doorset hung in frame (M1) covering latched & unlatched, single door designs with extended sizes, being considered for assessment in this report.

Date of Test:	1st August 2001
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. (previously known as Chiltern Fire International) UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Doorset - ULSASD
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Overall Size: 2135 (h) x 1105 (w) x 54 (t). Core: Halspan 3 layer Particleboard (650kg/m^3), 54 (t). Lipping: Sapele (640kg/m^3), 10mm (t) to vertical edges only. FRAME Head & Jambs: 1.5 mild steel 180 (w) x 45 (t), with 15 (d) integral stop. Backfill: Cement mortar mix. Frame Fixing: 50 (l) steel screws with plastic plugs at 500 centres SUPPORTING CONSTRUCTION: Blockwork INTUMESCENT: Head & Vertical Edges: Intumescent Seals Ltd Therm-A-Seal 38 (w) x 4 (t). Acoustic Seal: Proprietary neoprene buffer seal nominally 16 (h) x 13 (w). HARDWARE: Hinges: 4No Royde & Tucker H101 Hi Load per jamb 100 x 35 (blade size). Closer: 1No Dorma TS83V Overhead closer per leaf 293 x 60 (footprint size). HARDWARE PROTECTION: Under Hinges: Intumescent Seals Ltd Therm-A-Strip 2 (t), leaf side only.
Test Standard:	BS 476:Part 22:1987
Performance:	**Integrity B:** 76 minutes **Insulation B:** 76 minutes

3.1.3 Summary of Test Report Chilt/RF01074 Doorset A

The referenced test report, the essential details of which are summarised below, is the primary data for a 54mm thick doorset hung in frame (M1) covering latched & unlatched, single & double door designs, being considered for assessment in this report.

Date of Test:	9th August 2001
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. (previously known as Chiltern Fire International) UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Doorset - ULSADD
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Overall Size: 2145 (h) x 795/300 (w) x 59 (t). Core: Halspan 3 layer Particleboard (650kg/m^3), 54 (t). Lipping: Sapele (640kg/m^3), 10mm (t) to vertical edges only. Facing: 2 (t), Decostop-Laminate. FRAME: Door Leaf Head & Jambs: 1.5 (t) Mild steel, 180 (w) x 45 (t), 15 (d) integral stop. Backfilled: cement mortar mix. Facings: Decostop wrap around frame profile jambs only 2 (t). Frame Fixing: 50 (l) screws per jamb with plastic plugs at 500 centres SUPPORTING CONSTRUCTION: Blockwork INTUMESCENT: Head & Hanging Edges: 1No Intumescent seals Ltd Therm-A-Seal 38 (w) x 4 (t). Fitted centrally. Meeting Edges: Left leaf 2No. Intumescent seals Ltd Therm-A-Seal 10 (w) x 4 (t). Fitted centrally 10 apart. Right leaf 1No Intumescent seals Ltd Therm-A-Stop 10 (w) x 4 (t). Fitted centrally. Acoustic seal: Proprietary neoprene buffer seal, Nominally 16 (h) x 13 (w). fitted to doorstop. HARDWARE: Hinges: 3No Royde & Tucker H101 Hi load per jamb. 100 x 35 (blade size). Closer: Dorma TS83V overhead closer 233 x 60 (footprint size). HARDWARE PROTECTION: Under Hinges: Intumescent seals Ltd Therm-A-Strip 2 (t) (leaf side only).
Test Standard:	BS 476:Part 22: 1987
Performance:	**Integrity:** 78 minutes **Insulation:** 78 minutes

3.1.4 Summary of Test Report Chilt/RF01074 Doorset B

The referenced test report, the essential details of which are summarised below, is the primary data for a 44mm thick doorset hung in frame (M1) covering latched & unlatched, single door designs with extended sizes, being considered for assessment in this report.

Date of Test:	9th August 2001
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. (previously known as Chiltern Fire International) UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Doorset - ULSASD
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Overall Size: 2135 (h) x 1105 (w) x 44 (t). Core: Halspan 3 layer Particleboard (650kg/m3), 44 (t). Lipping: Sapele (640kg/m^3), 10 (t) to vertical edges only. FRAME: Door Leaf Head & Jambs: 1.5 (t) Mild steel, 180 (w) x 45 (t), 15 (d) integral stop. Backfilled: cement mortar mix. Frame Fixing: 50 (l) screws per jamb with plastic plugs at 500 centres SUPPORTING CONSTRUCTION: Blockwork INTUMESCENT: Head & Vertical Edges: 1No. Intumescent seals Ltd Therm-A-Seal 20 x 4. Fitted centrally. Acoustic seal: Proprietary neoprene buffer seal, Nominally 16 (h) x 13 (w). Fitted to stop. HARDWARE: Hinges: 4No Royde & Tucker 101 Hi Load per jamb. 100 x 35 (blade size). Closer: 1No Dorma TS73V overhead closer 293 x 60 (footprint size). HARDWARE PROTECTION: Under Hinges: Intumescent seals Ltd Therm-A-Strip 2 (t). (leaf side only)
Test Standard:	BS 476:Part 22: 1987
Performance:	**Integrity:** 58 minutes **Insulation:** 58 minutes

3.1.5 Summary of Test Report Chilt/RF02082 Doorset B

The referenced test report, the essential details of which are summarised below, is the primary data for a 44mm thick (Prima 38mm core bond-up core design) doorset hung in frame (M2) covering latched & unlatched, single door designs, being considered for assessment in this report.

Date of Test:	9th September 2002
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. (previously known as Chiltern Fire International) UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Doorset - ULSASD
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Overall Size: 2135 (h) x 916 (w) x 38 (t). Core: Halspan Prima 3 layer 38 Particleboard (640kg/m^3), 38 (t). Lipping: Sapele (640kg/m^3), 6mm (t) to vertical edges only. FRAME: Head & Jambs: Steel, 185 (w) x 60 (t) with 15 (d) x 63 (w) integral stop. Backfill: Sand and cement mortar mix SUPPORTING CONSTRUCTION: Blockwork INTUMESCENT: Door Leaf Head & Vertical edges: Intumescent Seals Ltd Therm-A-Seal 20 (w) x 4 (t). Fitted centrally. Buffer Seal: Slamming Gasket. HARDWARE: Hinges: 3No Royde & Tucker H105 per jamb 100 x 35 (blade size). Closer: Dorma TS73V 233 x 60 (footprint size). Latch: Tubular Mortice latch size: Forend: 57 x 26. Handle: Aluminium lever type handle 100 x 35 (footprint size). GLAZING Glass: Sureglaze wired, 6 (t). Aperture Size: 500 (h) x 500 (w). Expansion allowance: 2.5mm all round. Beading: Sapele (640kg/m^3), 20 (d) x 17 (w), chamfered, including 5 x 2 bolection return. Bead Fixing: 1.5Ø x 38 (l) steel pins, at 30-35 degrees to the face of the glass, 150 centres & 50 from corners. GLAZING SYSTEM: Glazing Perimeter: (Left leaf) Intumescent Seals Ltd Therm-A-Strip 10 (w) x 2 (t) between the glass and the bead on both faces.
Test Standard:	BS 476: Part 22:1987
Performance:	**Integrity:** 41 minutes **Insulation:** 41 minutes*

* In accordance with clause 7.6.2 of BS 476: Part 22: 1987 the glazing has not been evaluated for insulation.

3.1.6 Summary of Test Report Chilt/RF04021 Doorset B

The referenced test report, the essential details of which are summarised below, is the primary data for a 44mm thick Prima core hung in frame (M3) covering latched & unlatched, single door designs, being considered for assessment in this report.

Date of Test:	8th March 2004
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. (previously known as Chiltern International Fire) UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Doorset - ULSASD
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Overall Size: 2135 (h) x 914 (w) x 44 (t). Core: Halspan Prima particleboard (630kg/m3), 44 (t). Lipping: Sapele (650kg/m^3), 10 (t), vertical edges only. FRAME: Head & Jambs: 1.5 thick galvanised steel 100 (d) x 37 (w), integral stop 15 (d). Frame Fixing 4No wood screws with wall plugs on each frame jamb, 75 (l). SUPPORTING CONSTRUCTION: Blockwork INTUMESCENT: Leaf Edges: Intumescent Seals Ltd Therm-A-Stop 20 (w) x 4 (t) & Therm-A-Seal 10 (w) x 4 (t), fitted in the leaf head and vertical edges (3 apart with the Therm-A-Seal located 5 from the exposed face). Intumescent Seals Ltd Therm-A-Flex 38 (w) x 2 (t), fitted centrally in the bottom leaf edge. ENVIROMENTAL SEAL: Rema Standard Gasket Profile HARDWARE: Hinges: 3No per Leaf - Royde & Tucker R207 butt hinges 100 x 35. Closer: Dorma Door Controls Ltd TS73V - overhead type 223 x 60. Latch: Union 2 lever mortise latch, forend: 152 x 22mm. Handle: Aluminium handles 100 x 38mm HARDWARE PROTECTION: Under Hinges: Intumescent Seals Ltd Therm-A-Strip 2 (t). (leaf only) Under Forend & Keep & encasing the latch body: Intumescent Seals Ltd Therm-A-Strip 2 (t).
Test Standard:	BS 476 Part 22: 1987
Performance:	**Integrity:** 49 minutes **Insulation:** 30 minutes

3.1.7 Test Report CFR1905171

The referenced test report, the essential details of which are summarised below, is the primary data for a 44mm thick Prima core hung in frame (M4) covering latched, single & double door designs, being considered for assessment in this report.

Date of Test:	17th May 2019
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Double Doorset – LSADD.
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Sampling information	Sampled under Contract Reference PS190501 by BM Trada (Notified Body ID 1224)
Summary of Test Specimen:	LEAF: Overall Size: 2438 (h) x 1000/1000 (w) x 45 (t) Core: Halspan Prima 30 three-layer particleboard (630kg/m^3), 44 (t) Lipping: Sapele (640kg/m^3), 8 (t) to vertical edges Facing: 0.5 (t), sapele veneer FRAME: Head & Jambs: 2 Part Telescopic steel wrap around frame measuring 148 (d) x 65 (w) unexposed side & 55 (w) exposed side with a 56 x 13 integral stop. Frame Fixing: 5No Ø5 x 75 (l) steel screws per jamb & 1No positioned in the head. Fire Stopping: Firewise Intumescent & Acoustic Acrylic Sealant capped on both sides. SUPPORTING CONSTRUCTION: Timber Stud Partition INTUMESCENT: Leaf Edges: 1No. Halspan H30 seal 30 (w) x 6 (t) fitted to top & hanging edge Meeting Stiles: 1No. Halspan Limited SLS-PLA-100, 10 (w) x 4 (t) plain fitted 27 from flush face and Halspan Limited SLS-TWF-100, 10 (w) x 4 (t) Twin Fin fitted 8 from flush face in left leaf and Halspan Limited SLS-PLA-100, 10 (w) x 4 (t) plain fitted centrally in right leaf HARDWARE: Hinges: 4no. Halspan 30 HIN-BSS-104 hinge per leaf 101 (h) x 31 (w) x 3 (t) Closer: Halspan R60, CLR-AGN-100, Eco closer Lock/Latch: Halspan R60 lock, LCK-BSS-100, 235 (h) x 22 (w) x 3 (t) Flush Bolt: Halspan LCK-MSC-205 203 (h) x 19.5 (w) x 3.9 (t) Handle: Stanza ZCA030SA Drop seal: Halspan SLS-DRP-300 Smoke Seal: Roma AC5709 fitted to the stop HARDWARE PROTECTION: Hinges: 1 (t) Halspan SLS-PAD-103 fitted under blade on leaf side only Latch/Lock: 1 (t) Halspan SLS-PAD-109 fitted behind latch & keep forend Flush bolts: 1 (t) Halspan SLS-PAD-110 fitted lining the rebates Drop Seal: Halspan 1mm SLS-MSC-104 & 105 fitted on top and sides of drop seal
Test Standard:	BS EN 1634-1:2014+A1: 2018
Performance:	**Integrity:** 33 minutes **Insulation:** 33 minutes

3.1.8 Test Report CFR1912021

The referenced test report, the essential details of which are summarised below, is the primary data for a 54mm thick core hung in frame (M4) covering latched & unlatched, single & double door designs, being considered for assessment in this report.

Date of Test:	2nd December 2019
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Ltd.
Tested Product:	Unlatched, Single Acting, Double Doorset with glazing– ULSADD.
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Overall Size: 2850 (h) x 928/928 (w) x 54 (t) Core: Halspan Optima 60 three-layer particleboard (630kg/m3), 54 (t) Lipping: Sapele (640kg/m^3), 8 (t) all edges FRAME: Head & Jambs: 2 section folder Steel backfilled wrap around frame, 84 x 98 x 2.1 (t) exposed face and 80 x 56 x 2.1 unexposed face jamb cross section size and 104 x 98 x 2.1 (t) exposed face and 80 x 56 x 2.1 (t) unexposed face head cross section size with a 20 (h) x 40 (d) welded on stop at the head only. Backfilled with 300 x 117 x 12.5 (t) magnesium oxide board and Sealed Tight Solutions ST99 FR foam exposed section. Frame Fixing: 5No Ø5 x 70mm long steel screws per jamb, 4No. across the head. Fire Stopping: Sealed Tight Solutions ST99 FR foam. SUPPORTING CONSTRUCTION: Steel Stud Partition INTUMESCENT: Leaf Edges: 1No. Halspan H60 seals 36 (w) x 2 (t) and 37 (w) x 4 (t) fitted to top and hanging edge Meeting Stiles: 1No. Halspan Limited SLS-PLA-100, 15 (w) x 4 (t) plain and Halspan Limited SLS-TWF-100, 15 (w) x 4 (t) Twin Fin fitted centrally 8 apart in right leaf and 1No. Halspan Limited SLS-PLA-100, 15 (w) x 4 (t) plain fitted centrally in left leaf Smoke Seal: BOS / Dorsuite AADC0006 fitted to stop HARDWARE: Hinges: 4no. Zoo Hardware Ltd ZHSS243RS per leaf 102 (h) x 31 (w) x 2.9 (t) Closer: Halspan R9000 series, CLR-BSS-101, R60 Power closer Handle: Zoo Hardware Ltd ZAAD600BSA (D Pull Handle) Push plate: Zoo Hardware Ltd ZAS30RDSS (Stainless steel push plate) GLAZING: Glass: Pyrobelite 7 Glass size: 1474 (h) x 224 (w) x 7 (t) Aperture Size: 1480 (h) x 230 (w) Beading: Sapele (640kg/m^3), 23 x 24 with 15^0 chamfered & 5.4 (d) bolection. Bead Fixing: pinned at 160- 175 centres on the verticals and 105 centres on the horizontals. GLAZING SYSTEM: Glazing Perimeter: Sealed Tight Solutions STS105GT 10 (w) x 5 (t) closed cell foam tape
Test Standard:	BS 476: Part 22: 1987

Performance:	**Integrity:** 41 minutes **Insulation:** 41 minutes

3.1.9 Test Report WARRES 111201

The referenced test report, the essential details of which are summarised below, is the primary data for a 44mm thick Halspan door blank hung in frame (M3) covering latched & unlatched, single & double door designs, being considered for assessment in this report.

Date of Test:	06th January 2000
Identification of Test Body:	Warrington Fire Research Consultancy Testing. UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, single acting, double doorset - ULSADD
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Dimensions of leaf : 2042 (h) x 826/826 (w) x 44 (t) Core / lipping: Halspan 30 door blank (650kg/m^3) with 0.6 (t) veneer. 12 (t) Utile hardwood (660kg/m^3) lippings on vertical edges only. FRAME: Head & jambs: Galvanised mild steel hollow frame wrapped stop side only 151 (d) x 75 (w) x 2 (t) with 48 x 13 rebate. Fixings: 3No bolted fixings per jamb Fire stopping: Mastic capped SUPPORTING CONSTRUCTION: Blockwork INTUMESCENT: Leaf Edges: 1No. Intumescent Seals Ltd Therm-A-Flex 20 (w) x 2 (t) and Lorient Polyproducts LP2004 20 (w) x 4 (w) fitted centrally in the top & hanging edge Meeting edge: 1No. Intumescent Seals Ltd Therm-A-Seal 20 (w) x 4 (t) fitted centrally in left leaf HARDWARE: Hinges: 3No. Fireblock 101 (h) x 30 (w) per leaf Closer: 1No Dorma TS73 Door Closer Ltd, 1No. to each leaf HARDWARE PROTECTION: 2 Layers of Sealmaster graphite 20 (w) 2 (t) fitted under hinge blades
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 42 minutes Insulation: 28 minutes

3.1.10 Test Report WARRES 118289

The referenced test report, the essential details of which are summarised below, is the primary data for a 44mm thick Halspan door blank hung in frame (M5) covering latched & unlatched, single & double door designs, being considered for assessment in this report.

Date of Test:	05th June 2001
Identification of Test Body:	Warrington Fire Research Consultancy Testing. UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, single acting, double doorset - ULSADD
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Dimensions of leaf: 2700mm (h) x 835/835mm (w) x 44mm (t) Core / lipping: Halspan 30 44 (t) door blank (650kg/m^3) density with 0.6 (t) veneer finishes. FRAME: Head & Jambs: Carillion / Neslo, Aluminium frame 63.5 x 31.75 x 0.9 (t) with timber infill Sapele (660kg/m^3) sub-lining 20 (t) x 87 (w) and 35 (w) x 7.7 (d) architrave. SUPPORTING CONSTRUCTION: Associated steel stud partition. INTUMESCENT: Door Edge: Intumescent seals Ltd Therm-A-Seal 30 (w) x 4 (w) fitted to door head, 20 (w) x 4 (t) seal fitted to hanging edges of the door & 2No. 10 (w) x 4 (t) seals fitted centrally 10 apart in right leaf Environmental Seal: Carillion / Neslo GDF4 HARDWARE: Hinges: 3No. Carillion / Neslo 4S1 102 (h) x 76 (w) per leaf Closer: 1No. Briton 2003E per leaf
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 32 minutes Insulation: 32 minutes

3.1.11 Test Report WF412658 Doorset A

The referenced test report, the essential details of which are summarised below, is the primary data for a 54mm thick Halspan core hung in frame (M4) covering latched, single door designs, being considered for assessment in this report.

Date of Test:	05th December 2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Latched, single acting, single doorset with glazing - LSASD
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Dimensions of leaf : 2850 (h) x 926 (w) x 54 (t) Core / lipping: Halspan Optima 54 (t) door blank (620kg/m^3) with 8 (t) Sapele hardwood (650kg/m^3) lippings on all edges FRAME: Head & jambs: Best of Steel, 2 part steel wrap around profiled frame partially infilled 130 (w) x 80 (d) x 2 (t) with 15 (h) integral stop on jambs and 30 (h) integral stop on head. Sealed Tight Solutions Ltd ST99 PU expanding Foam injected inside the frame section 26 (w) x 68 (d) forming the frame reveal prior to the second section being fitted Fixings: 6Dia x 100 (l) Twinfast steel screws at 150 from top and bottom corners of jambs and at 600 centres SUPPORTING CONSTRUCTION: Steel Stud Partition INTUMESCENT: Leaf Edges: 1No Halspan H60 38 (w) x 6 (t) fitted centrally in top & vertical edges. Seal: BOS Elastic hollow chamber seal GLAZING: Pyroguard EW60 11.4 (t) Aperture Size: 1475 (h) x 230 (w) GLAZING SYSTEM: Sapele beading 22 x 32 including a 5 x 5 bolection return fixed with 16Gauge x 50 (l) pins angled at 35º to the glass at 50 from corners and 150 centres. Sealed Tight Solutions ST105GT 10 (w) x 5 (t) to both faces and ST302 liner 30 (w) x 2 (t). HARDWARE: Hinges: 4No. Zoo Hardware ZHS243R 101.6 (h) x 30 (w) x 3 (t) per leaf Closer: Halspan R60 CLR-BSS-101 Latch: Zoo Hardware ZDL0060LR 235 (h) x 22 (w) x 3 (t) Handle: Zoo Hardware ZCA030SA HARDWARE PROTECTION: 1 (t) SLS-PAD-103 fitted under hinge blades. Halspan SLS-PAD-110 fitted behind latch and keep forend and encasing latch body.

Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 59 minutes

3.1.12 Test Report WF412658 Doorset B

The referenced test report, the essential details of which are summarised below, is the primary data for a 54mm thick Halspan core hung in frame (M4) covering latched, single door with a flush overpanel designs, being considered for assessment in this report.

Date of Test:	05th December 2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Latched, single acting, single doorset with glazing and overpanel – LSASD+OP
Tested Orientation:	The doorset was orientated to open in towards heating conditions.
Summary of Test Specimen:	LEAF: Dimensions of leaf : 2194 (h) x 926 (w) x 54 (t) + OP: 656 (h) x 932 (w) Core / lipping: Halspan Optima 54 (t) door blank (620kg/m3) with 8 (t) Sapele hardwood (650kg/m3) lippings on all edges OVERPANEL: Halspan Optima 54 (t) door blank (620kg/m3) with 8 (t) Sapele hardwood (650kg/m3) lippings on all edges. Overpanel fixed thought the back of the frame with Ø5 x 60 (l) steel screws fitted 100 from corners and 250 centres FRAME: Head & jambs: Best of Steel, 2 part steel wrap around profiled frame partially infilled 130 (w) x 80 (d) x 2 (t) with 15 (h) integral stop on head & jambs. Sealed Tight Solutions Ltd ST99 PU expanding Foam injected inside the frame section 26 (w) x 68 (d) forming the frame reveal prior to the second section being fitted Fixings: 6Dia x 100 (l) Twinfast steel screws at 150 from top and bottom corners of jambs and at 600 centres SUPPORTING CONSTRUCTION: Steel Stud Partition INTUMESCENT: Leaf & Overpanel Edges: 1No Halspan H60 38 (w) x 6 (t) fitted centrally in top & vertical edges. Seal: BOS Elastic hollow chamber seal GLAZING: Pyrobelite 7 (t) Aperture size: 1480 (h) x 230 (w) GLAZING SYSTEM: Sapele beading 22 x 32 including a 5 x 5 bolection return fixed with 16Gauge x 50 (l) pins angled at 35º to the glass at 50 from corners and 150 centres. Seal Tight Solutions ST105GT 10 (w) x 5 (t) HARDWARE: Hinges: 4No. Zoo Hardware ZHS243R 101.6 (h) x 30 (w) x 3 (t) per leaf Closer: Halspan R60 CLR-BSS-101 Latch: Zoo Hardware ZDL0060LR 235 (h) x 22 (w) x 3 (t) Handle: Zoo Hardware ZCA030SA HARDWARE PROTECTION:

	1 (t) SLS-PAD-103 fitted under hinge blades. Halspan SLS-PAD-110 fitted behind latch and keep forend and encasing latch body.
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 44 minutes

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 designs, 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) form the assembly.

4.3 Door Leaf

Doorsets constructed using the different leaf types can include various design features as summarised below.

Specific sections within this assessment must be referred to for design limitations and construction requirements.

Section 5 gives the description of each leaf type in terms of its specification (e.g. composition and density)

The door leaves to be covered are:

Leaf 1 – Prima 30 – 44mm thick

Leaf 2 – Prima 30 – 54mm thick

Leaf 3 – Prima 30 – 44mm thick (Bond Up) – (38mm thick core with 3mm thick additional facings)

4.3.1 Leaf 1 – Halspan Prima 30 – 44mm thick

The basic construction for door leaves of this design comprises a 44mm thick particleboard, lipped on vertical edges. See section 5 for further constructional detail.

Minimum Door Leaf Thickness:

- With permitted decorative facing/finishes – 44mm.

Minimum Door Blank Thickness:

- Without decorative facings/finishes – 43mm.

The door designs can include:

1. Glazing – Test RF01073
2. Grooving – Backfilled with cement frame types only (M1, M2, & M3).
3. Decorative facings
4. Decorative planted on timber mouldings
5. Edge protectors – Double meeting edges only

4.3.2 Leaf 2 – Halspan Prima 30 – 54mm thick

The basic construction for door leaves of this design comprises a 54mm thick particleboard, lipped on vertical edges. See section 5 for further constructional detail.

Minimum Door Leaf Thickness:

- With permitted decorative facing/finishes – 54mm.

Minimum Door Blank Thickness:

- Without decorative facings/finishes – 53mm.

The door designs can include:

1. Flush Overpanel – restricted to frame M4 as tested in WF412658
2. Glazing – CFR1912021
3. Grooving - Backfilled frame types only (M1, M2, & M3). Permitted with frame M4 when backfilled with STS foam.
4. Decorative facings
5. Decorative planted on timber mouldings
6. Edge protectors – Double meeting edges only

4.3.3 Leaf 3-Halspan Prima 30 – 44mm thick (38mm thick core with 3mm thick additional facings)

The basic construction for door leaves of this design comprises a 38mm thick particleboard inner core, bonded up to 44mm with 3mm thick facings, lipped on vertical edges. See section 5 for further constructional detail.

Minimum Door Leaf Thickness:

- With permitted decorative facing/finishes – 44mm.

Minimum Door Blank Thickness:

- Without decorative facings/finishes – 43mm.

The door designs can include:

1. Glazing – Test RF02082
2. Grooving - Backfilled frame type only. (M1, M2, & M3).
3. Decorative facings
4. Decorative planted on timber mouldings

4.3.3.1 Additional facings Leaf 3 Halspan Prima 30 (Bond Up) – 44mm thick (38mm thick core with 3mm thick additional facings)

Leaf 3 must be fitted with 3mm thick facings on either side of the 38mm thick door core. The permitted facing materials are listed below and must be fitted in accordance with section 5.

- 3mm thick Plywood facings applied to both sides of the core.
- 3mm thick MDF facings applied to both sides of the core.

4.3.4 Decorative facings

Decorative facings are permitted with all leaf types in this field of application report.

The specification for this is given in section 5.7.1 of this assessment.

4.3.5 Decorative planted on timber mouldings

Decorative mouldings are permitted with all leaf types in this field of application report.

The specification for this is given in section 5.7.2 of this assessment.

4.3.6 Grooves in Door leaf Face

Grooves are permitted with all leaf types covered in this field of application report. Door leaves containing grooves are permitted to be hung in frames M1, M2 and M3 which are backfilled with mortar. Grooves may also be permitted in doors hung in frame M4 provided the primary frame section is backfilled with STS foam.

The door frames must not incorporate any grooved detailing.

The limitations associated with each groove option are detailed in section 5.8 with respect to:

- Permitted configurations
- the maximum leaf size
- minimum intumescent specification

4.3.7 Cableway and Cable Loop

Cableways are permitted with leaf types 1 and 2 covered in this field of application report. Door leaves containing cableways are permitted to be hung in frames M1, M2 and M3 backfilled with cement and M4 partially backfilled with foam only. For the full limitations and requirements for cableways and cable loops see section 10.7.2.

4.4 Door Frames

Doorsets constructed using the different frame types can include various design features as summarised below.

Specific sections within this assessment must be referred to for design limitations and construction requirements.

All frame materials must be as tested unless specified in this field of application report.

For additional requirements and limitations on door frames see section 7.

Each frame type will have specific leaf types, configurations and intumescent requirements which are illustrated in the tables below. The frame will also have a unique envelope size, which is specified in section 4.5.

The frame types to be covered are:

Frame (M1) – 1 part steel frame with cement back fill – Tests RF01073 & RF01074 (see section 7.1).

Frame (M2) – 1 part steel frame with cement back fill frame – Test RF02082 Doorset B (see section 7.1).

Frame (M3) – 1 part steel frame hollow or cement back fill – Test RF04021 Doorset B & WARRES 111207 (see section 7.1).

Frame (M4) – 2 part steel frame hollow or partial backfill with foam – Test CFR1905171, Test CFR1902021 & Test WF412658 (see section 7.1).

Frame (M5) – 3 part aluminium frame with Sapele timber insert – Test WARRES No. 118289 (see section 7.1).

The following table details which frame can be used with which leaf in the tested wall construction.

Frame			**Supporting Construction**	**Leaf (see section 4.3)**		
Reference	Material	Material or Extrusion Wall Thickness	Type	1: 44mm thick	2: 54mm thick	3: 44mm thick (Bond Up)
M1	Steel	1.5mm	Blockwork	✓	✓	×
M2	Steel	1.5mm	Blockwork	✓	✓	✓
M3	Steel	2mm	Blockwork	✓	✓	×
M4	Steel	1.5mm	Steel + Timber Stud	✓	✓	×
M5	Aluminium	2mm	Steel Stud (Bespoke)	✓	✓	×

4.5 Doorset Configurations & Maximum Leaf Sizes

4.5.1 General

The evaluation of the leaf size for each leaf type and frame type and doorset configuration is based on the tests listed in Section 3 and takes into account:

1. The margin of over performance above 30 minutes integrity for the design
2. The characteristics exhibited during test and
3. The doorset configuration tested.

The evaluation of the permitted configuration included in this field of application is based on the configuration tested.

The leaf size for each leaf type and configuration is linked to the intumescent specification and frame type. The following section details the maximum leaf size for each leaf type and configuration based on the intumescent and frame details tested.

Doorsets with reduced dimensions from those tested are deemed to be less onerous. Therefore, doors with dimensions that are less than given in the leaf size envelopes (for the relevant intumescent specification) in the following sections are covered and may be manufactured.

For Double Doors:

1. Unequal leaf double doorsets are covered by this Field of Application. The smaller door leaf must be no less than 300mm.
2. For double doorsets both leaves must comply with the door leaf envelope size limitations.

For Intumescent Seals:

1. Intumescent seals are considered to be fitted centrally unless stated otherwise.
2. Intumescent seals are fully interrupted at hardware locations unless stated otherwise.
3. Intumescent seals must run the full length of the leaf edge, with tightly formed abutting corner joints where the leaf edges meet, unless stated otherwise

4.5.1.1 Specific Leaf Size Limitations

A number of specific design features introduce a size limitation associated with the different leaf types. These aspects are considered here and take precedence to the leaf sizes listed in Sections 4.5.4 to 4.5.8.

For Edge Protectors:

The maximum leaf dimensions associated with each configuration are specified in the table below. See Section 5.6 for further details relating to the different types of edge protectors.

Double Leaf Doorsets

Edge Protectors Specification
Maximum Leaf Size (mm)
Edge Protector: Type 1
2135 (h) x 915 (w)

For Grooved Doorsets – Backfilled Frames M1, M2, M3 (Cement) & M4 (Partial Foam Filled):

The maximum leaf dimensions associated with each configuration are specified in the table below. See Section 5.8 for further details relating to the different groove options.

Maximum Leaf Size with Feature Groove A			
Configuration	Leaf 1	Leaf 2	Leaf 3
U/LSASD	2400 (h) x 975mm (w)	2400 (h) x 975mm (w)	2400 (h) x 975mm (w)
U/LSADD			

Maximum Leaf Size with Feature Groove B			
Configuration	Leaf 1	Leaf 2	Leaf 3
U/LSASD	2135 (h) x 926mm (w)	2135 (h) x 926mm (w)	2135 (h) x 926mm (w)

Maximum Leaf Size with Feature Groove C			
Configuration	Leaf 1	Leaf 2	Leaf 3
U/LSASD	2250 (h) x 1050mm (w)	2250 (h) x 1050mm (w)	N/A
U/LSADD			

Maximum Leaf Size with Feature Groove D			
Configuration	Leaf 1	Leaf 2	Leaf 3
U/LSASD	2250 (h) x 950mm (w)	2250 (h) x 950mm (w)	N/A

Maximum Leaf Size with Feature Groove E			
Configuration	Leaf 1	Leaf 2	Leaf 3
U/LSASD	2250 (h) x 975mm (w)	2250(h) x 975mm (w)	N/A

For Cableway Doorsets for Backfilled Frames M1, M2, M3, M4 (Cement backfill):

The maximum leaf dimensions associated with each configuration are specified in the table below. See section 10.7.2 for further details relating to the cableway and cable loop.

Maximum Leaf Size with Cableway – Method 1		
Configuration	Leaf 1	Leaf 2
U/LSASD	2100mm (h) x 926mm (w)	2100 (h) x 926mm (w)
U/LSADD		

Maximum Leaf Size with Cableway– Method 2 and 3		
Configuration	Leaf 1	Leaf 2
U/LSASD	2440 (h) x 926mm (w)	2440 (h) x 926mm (w)
U/LSADD		

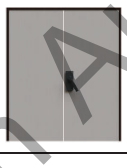
For 'T' Lippings:

The maximum leaf dimensions associated with each configuration are specified in the table below. See Section 5.5.3 for further details relating to T lippings.

Maximum Leaf Size with T lippings	
Configuration	Leaf 1, 2 & 3
LSASD	2040 (h) x 926mm (w)

4.5.2 Configuration

The following section detail the permitted leaf sizes for the following configurations based on the intumescent and door frame.

Doorset Configurations			
Reference	Depiction	Abbreviation	Description
A		LSASD	Latched Single Acting Single Doorset
B		ULSASD	Unlatched Single Acting Single Doorset
D		LSASD+OP	Latched Single Acting Single Doorset + Flush Overpanel
G		LSADD	Latched Single Acting Double Doorset
H		ULSADD	Unlatched Single Acting Double Doorset

Note:

1. A table of essential hardware is given in Section 10.2 as a baseline for the doorset described. The essential hardware contributes significantly to the performance of the doorset and changes in hardware will require the intumescent specification and frame details to be evaluated. The suitability of the item of hardware is given in the appropriate subsection in Section 10.
2. The suitability of each permitted configuration in relation to each leaf and frame is given in the tables below.
3. The following tables show what frame is permitted with what leaf and to what configuration is acceptable in this field of application report.

4.5.2.1 Summary of Permitted Configuration for each Leaf & Frame

Permitted Configuration & Frame (M1-M5) – Leaf 1					
		Configuration			
		LSASD	ULSASD	LSADD	ULSADD
Frame	M1	Y	Y	Y	Y
	M2	Y	Y	N	N
	M3	Y	Y	Y	Y
	M4	Y	N	Y	N
	M5	Y	Y	Y	Y

Permitted Configuration & Frame (M1-M5) – Leaf 2						
		Configuration				
		LSASD	ULSASD	LSASD+OP	LSADD	ULSADD
Frame	M1	Y	Y	N	Y	Y
	M2	Y	Y	N	N	N
	M3	Y	Y	N	Y	Y
	M4	Y	Y	Y	Y	Y
	M5	Y	Y	N	Y	Y

Permitted Configuration & Frame (M1-M5) – Leaf 3					
		Configuration			
		LSASD	ULSASD	LSADD	ULSADD
Frame	M1	N	N	N	N
	M2	Y	Y	N	N
	M3	N	N	N	N
	M4	N	N	N	N
	M5	N	N	N	N

4.5.3 Orientation

The majority of primary fire resistance tests for these designs 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 the doorsets to this design may be hung either away from or towards the fire risk side of the doorset. The rationale behind the direction of fire testing timber based doorsets opening towards the fire test conditions is further explained in Annex C of BS EN 1634-1:2014 +A1:2018.

Test report WF403596A referenced in Appendix Z was tested on a ULSASD doorset opening out and achieved 42 minutes with no failure occurring and CFR1808311 referenced in Appendix Z on a ULSADD opening out achieved 41 minutes give confidence that the opening in direction is the most onerous as the opening away results were well in excess of 30 minutes.

4.5.3.1 Explanation for following sections

The performance of a doorset in terms of configuration and size is dependent on the leaf type, intumescent and frame type and are not automatically interchangeable. The following sections present the envelopes for the 3 leaf types and 5 frame types. Each envelope is linked to a frame and specific intumescent which is given a unique reference and is based directly on test evidence.

The envelopes are presented as follows:-

- for LSASD increasing in configuration complexity up to ULSADD
- for each configuration, each leaf type is considered separately
- for each configuration and leaf type, each frame type is considered separately
- for each configuration, leaf type, frame type and intumescent specification is considered separately
- and a unique envelope of permitted leaf sizes is presented based on the configuration, leaf type, frame type and intumescent and the envelope is directly linked to a unique test.

More envelopes are presented for single doorsets for two reasons

- more single doorsets have been tested
- the performance from a more complicated configuration can be cascaded down to less onerous configurations.

The intumescent must be fitted in the frame or leaf edge depending on how it was tested. This is due to the bespoke nature of the steel and aluminium frame types assessed in this field of application report. On double doors the intumescent must be installed in the leaf housing the latch at the meeting edge, irrespective of the specific frame type primary evidence.

The intumescent specification reference as specified in the tables and graphs in the following sections is broken down into configurations, frame type and intumescent. The configuration hierarchy is categorised alphabetically and assigned a letter (A, B, D, G & H), which are fully described in the configuration section 4.5.2 of this assessment. The next component will be marked M for metal frame and assigned a number correlating to the frame type specified in frame section 7 of this assessment. The perimeter intumescent type and arrangement will be distinguished numerically. This will start from 1 and increase until all perimeter intumescent types and variations have been allocated a number. The full description of the perimeter intumescent type and variation is given in the tables below each graph. This combined unique reference will be used to indicate on each graph the maximum leaf size increase that is

permitted with each configuration, frame type and perimeter intumescent type and variation. An example of this reference would be as follows:

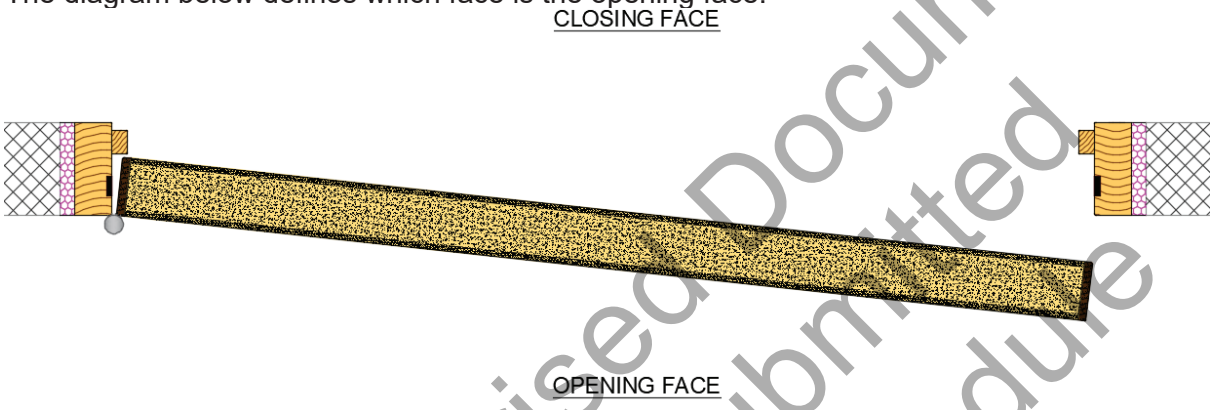
AM1/1 – Which would refer to:

(A): Latched, Single Acting, Single Door configuration as stated in section 4.5.2,

(M1): Metal frame 1 as stated Section 7,

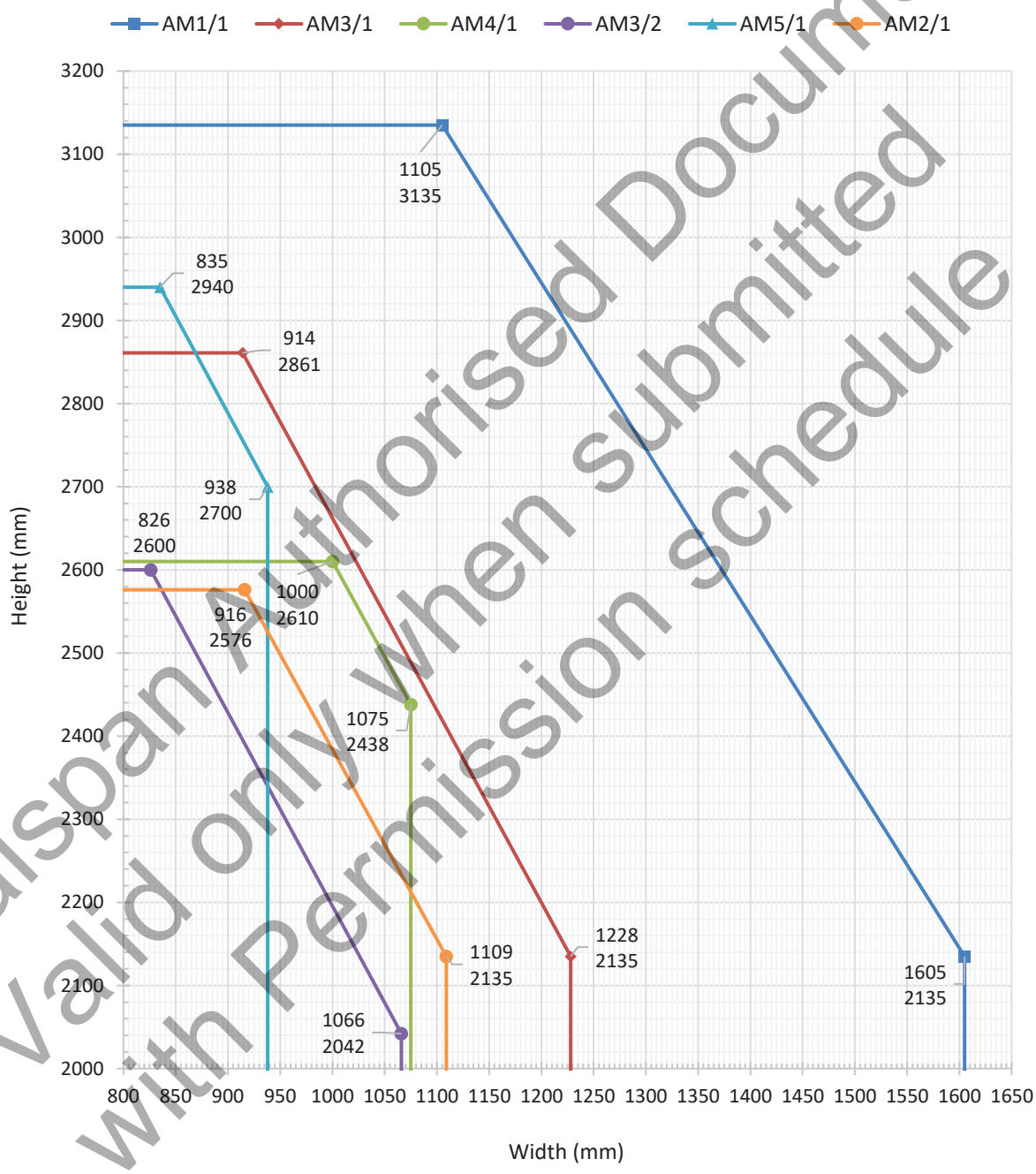
(/1): Intumescent option 1 as show in the table below the graph.

The diagram below defines which face is the opening face.



4.5.4 LSASD Configuration: Leaf Sizes & Intumescent Specification

4.5.4.1 Leaf 1 + Frame M1, M2, M3, M4, & M5

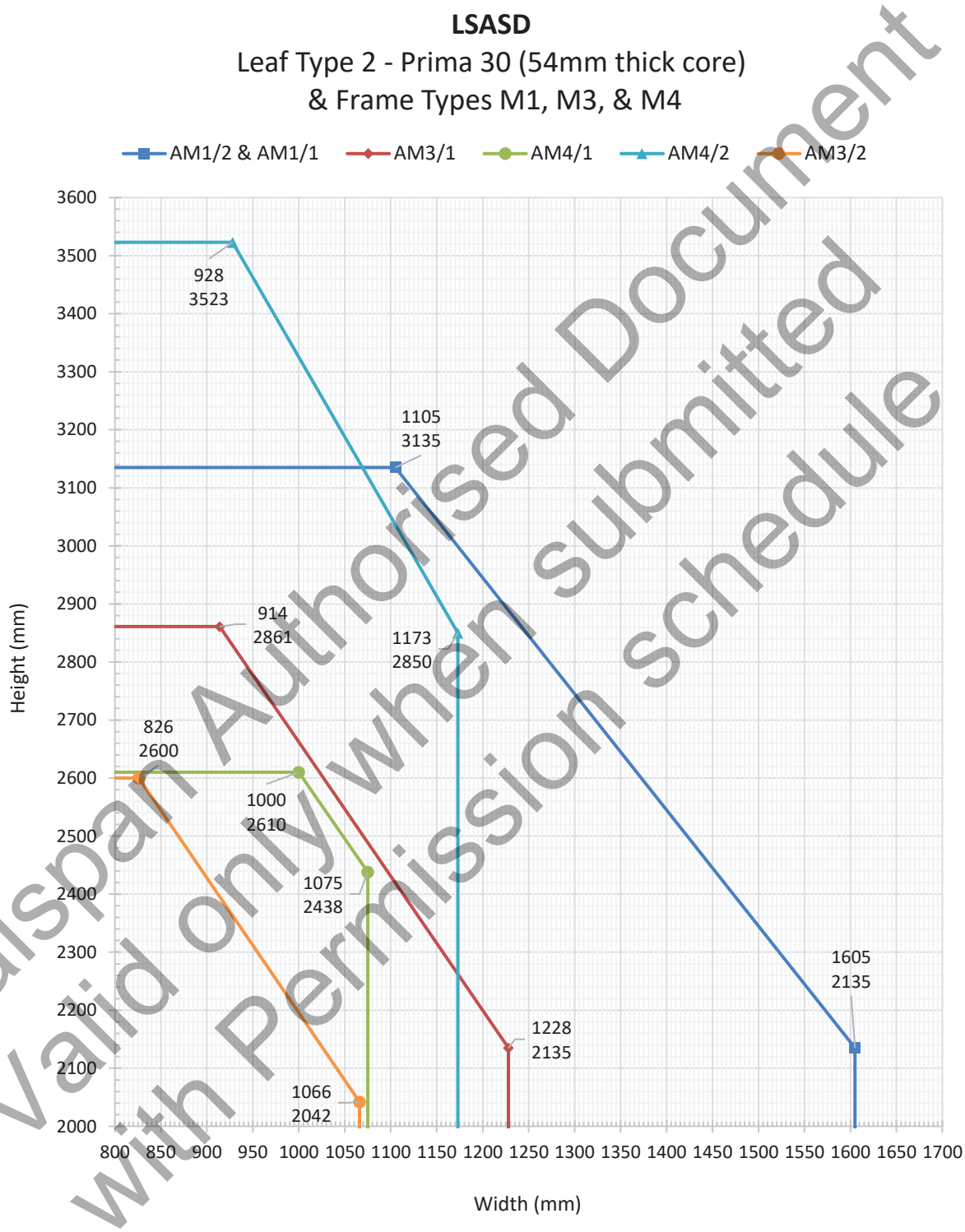


Intumescent seals are to be fitted centrally unless stated otherwise.

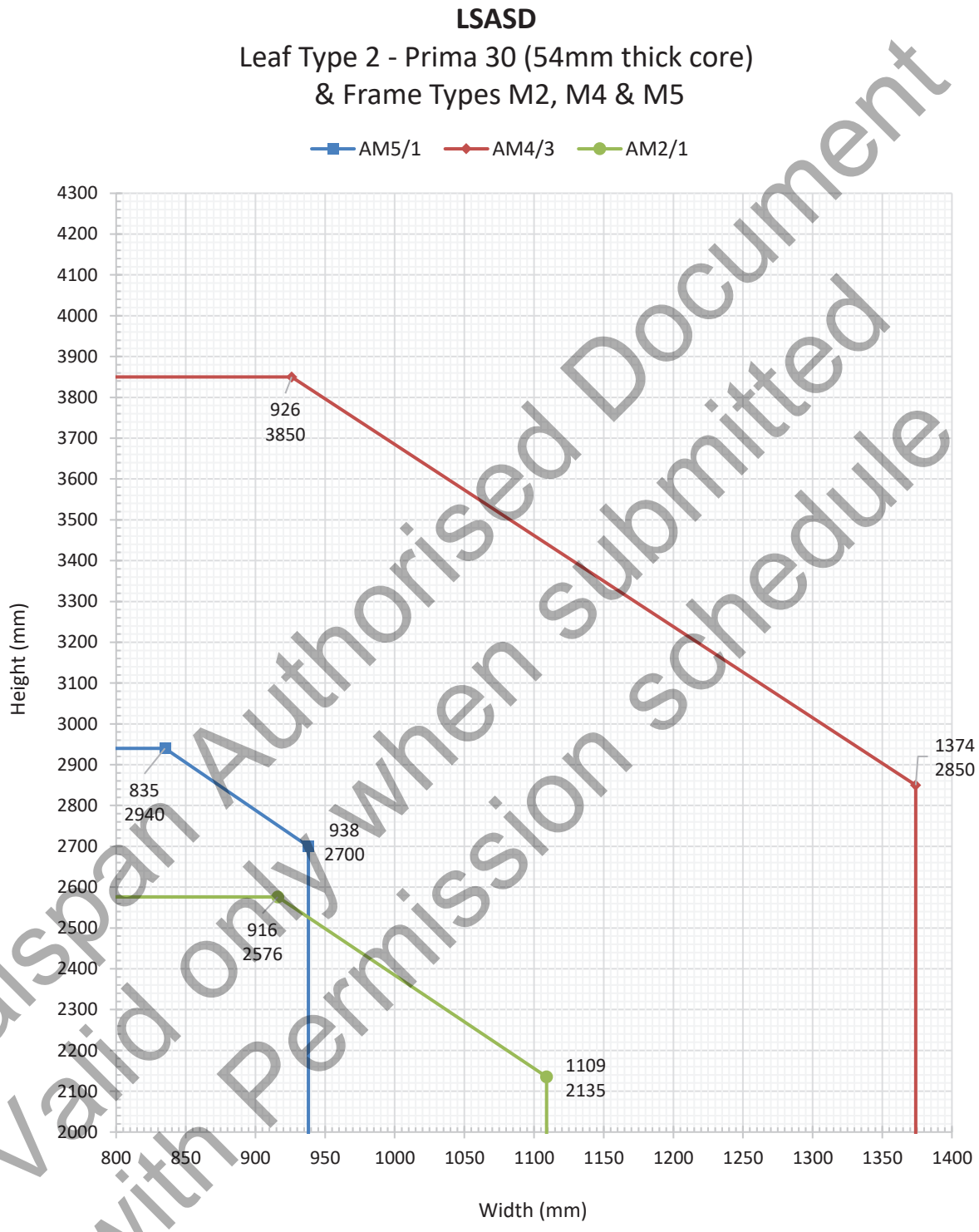
Intumescent Specification for LSASD Prima 30 (44mm thick core) Leaf 1 with (Frame M1, M2, M3, M4, & M5)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AM1/1 Blue Line (RF01074 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges
AM3/1 Red Line (RF04021 Doorset B)	Therm-A-Seal, Therm-A-Stop & Therm-A-Flex	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No. 20x4 Therm-A-Stop & 10x4 Therm-A-Seal. Fitted 3mm apart and the Therm-A-Seal located 5mm from flush face leaf edge. **Bottom Edge:** 1No. 38x2 Therm-A-Flex. Fitted in leaf edge.
AM4/1 Green Line (CFR1905171)	H30	Halspan Ltd	**Head & Vertical Edges:** 1No. 30x6. Fitted in leaf edge.
AM3/2 Purple Line (WARRES No. 111201)	Therm-A-Flex & LP2004	Intumescent Seals Ltd & Lorient Polyproducts Ltd	**Head & Vertical Edges:** 1No. 20x2 Therm-A-Flex and 20x4 LP2004. Fitted on top of each other in leaf edge.
AM5/1 Blue Line (WARRES No. 118289)	Therm-A-Seal	Intumescent Seals Ltd	**Head:** 1No. 30x4 Therm-A-Seal. Fitted in leaf edge. **Vertical Edges:** 1No. 20x4 Therm-A-Seal. Fitted in leaf edge.
AM2/1 Orange Line (RF02082 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges

4.5.4.2 Leaf 2 + Frame M1, M2, M3, M4, & M5

Leaf Size Envelope: 1 of 2



Leaf Size Envelope: 2 of 2



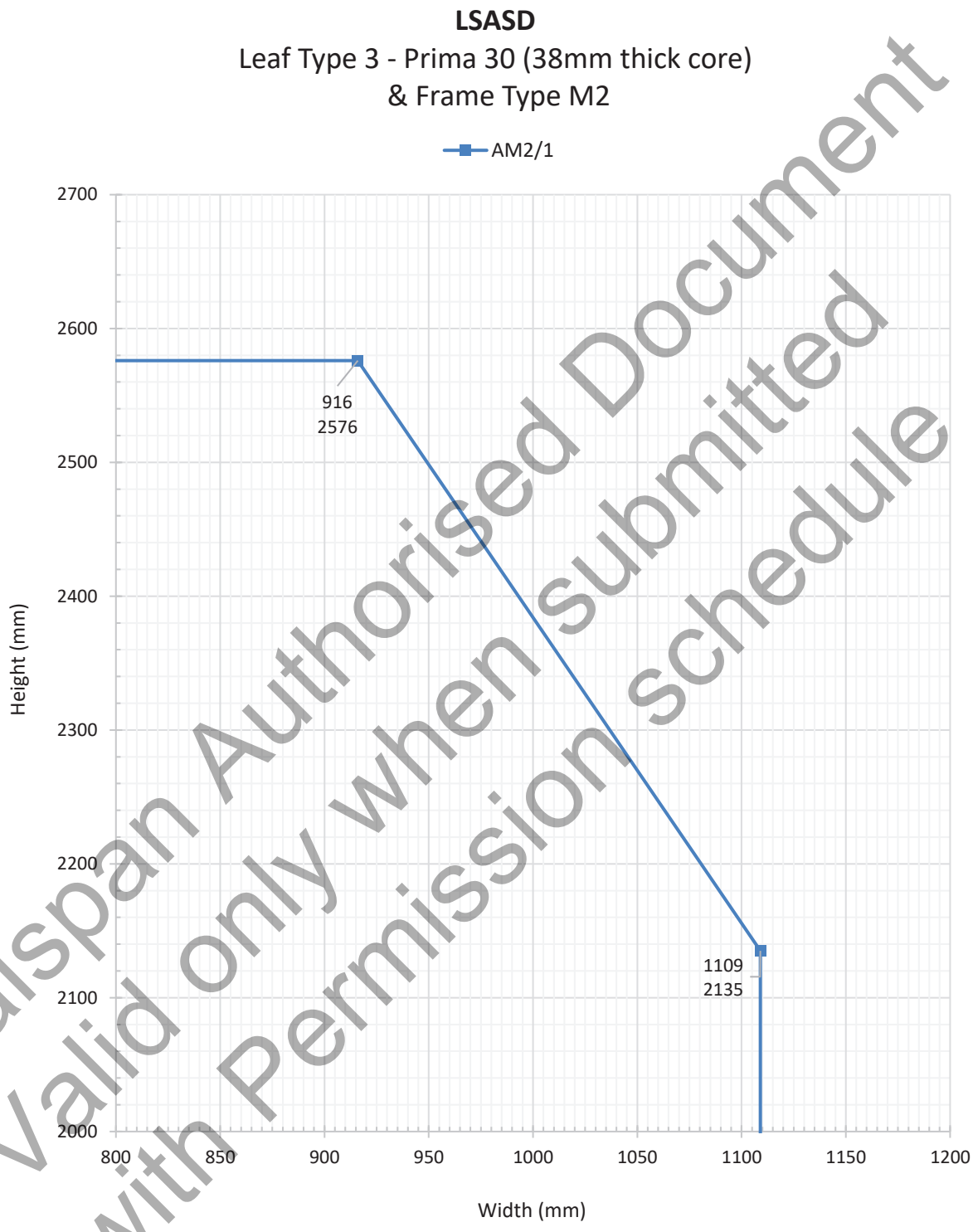
Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for LSASD Prima 30 (54mm thick core) Leaf 2 with (Frame M1, M2, M3, M4, & M5)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AM1/2 Blue Line (Table 1) (RF01073 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 38x4. Fitted in leaf edges
AM3/1 Red Line (Table 1) (RF04021 Doorset B)	Therm-A-Seal, Therm-A-Stop & Therm-A-Flex	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No. 20x4 Therm-A-Stop & 10x4 Therm-A-Seal. Fitted 3mm apart and the Therm-A-Seal located 5mm from flush face leaf edge. **Bottom Edge:** 1No. 38x2 Therm-A-Flex. Fitted in leaf edge.
AM4/1 Green Line (Table 1) (CFR1905171)	H30	Halspan Ltd	**Head & Vertical Edges:** 1No. 30x6. Fitted in leaf edge.
AM1/1 Blue Line (Table 1) (RF01074 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges
AM4/2 Blue Line (Table 1) (CFR1912021)[1]	H60	Halspan Ltd	**Head & Vertical Edges:** 1No. 36x6. Fitted on top of each other in leaf edge.
AM3/2 Orange Line (Table 1) (WARRES No. 111201)	Therm-A-Flex & LP2004	Intumescent Seals Ltd & Lorient Polyproducts Ltd	**Head & Vertical Edges:** 1No. 20x2 Therm-A-Flex and 20x4 LP2004. Fitted on top of each other in leaf edge.

Intumescent Specification for LSASD Prima 30 (54mm thick core) Leaf 2 with (Frame M1, M2, M3, M4, & M5)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AM5/1 Blue Line (Table 2) (WARRES No. 118289)	Therm-A-Seal	Intumescent Seals Ltd	**Head:** 1No. 30x4 Therm-A-Seal. Fitted in leaf edge. **Vertical Edges:** 1No. 20x4 Therm-A-Seal. Fitted in leaf edge.
AM4/3 Red Line (Table 2) (WF412658 Doorset A)[1]	H60	Halspan Ltd	**Head & Vertical Edges:** 1No. 38x6. Fitted in leaf edge.
AM2/1 Green Line (RF02082 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges

[1]Door leaf sizes associated with this intumescent specification, leaf design and configuration must incorporate foam infill as described in section 7.4.2.2.

4.5.4.3 Leaf 3 + Frame M2

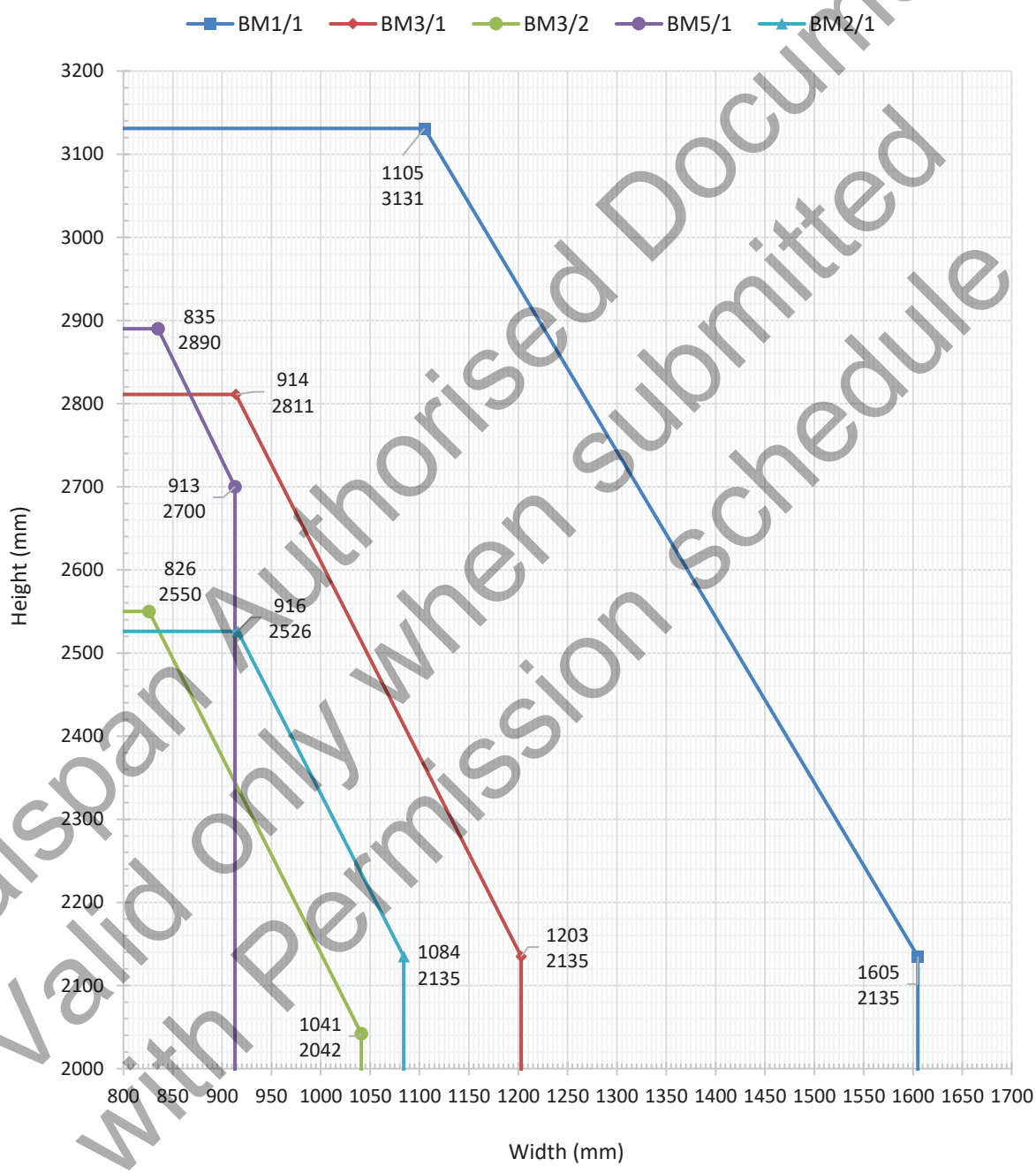


Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for LSASD Prima 30 (38mm thick core) Door 3 with (Frame M2)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AM2/1 Blue Line (RF02082 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges

4.5.5 ULSASD Configuration: Leaf Sizes & Intumescent Specification.

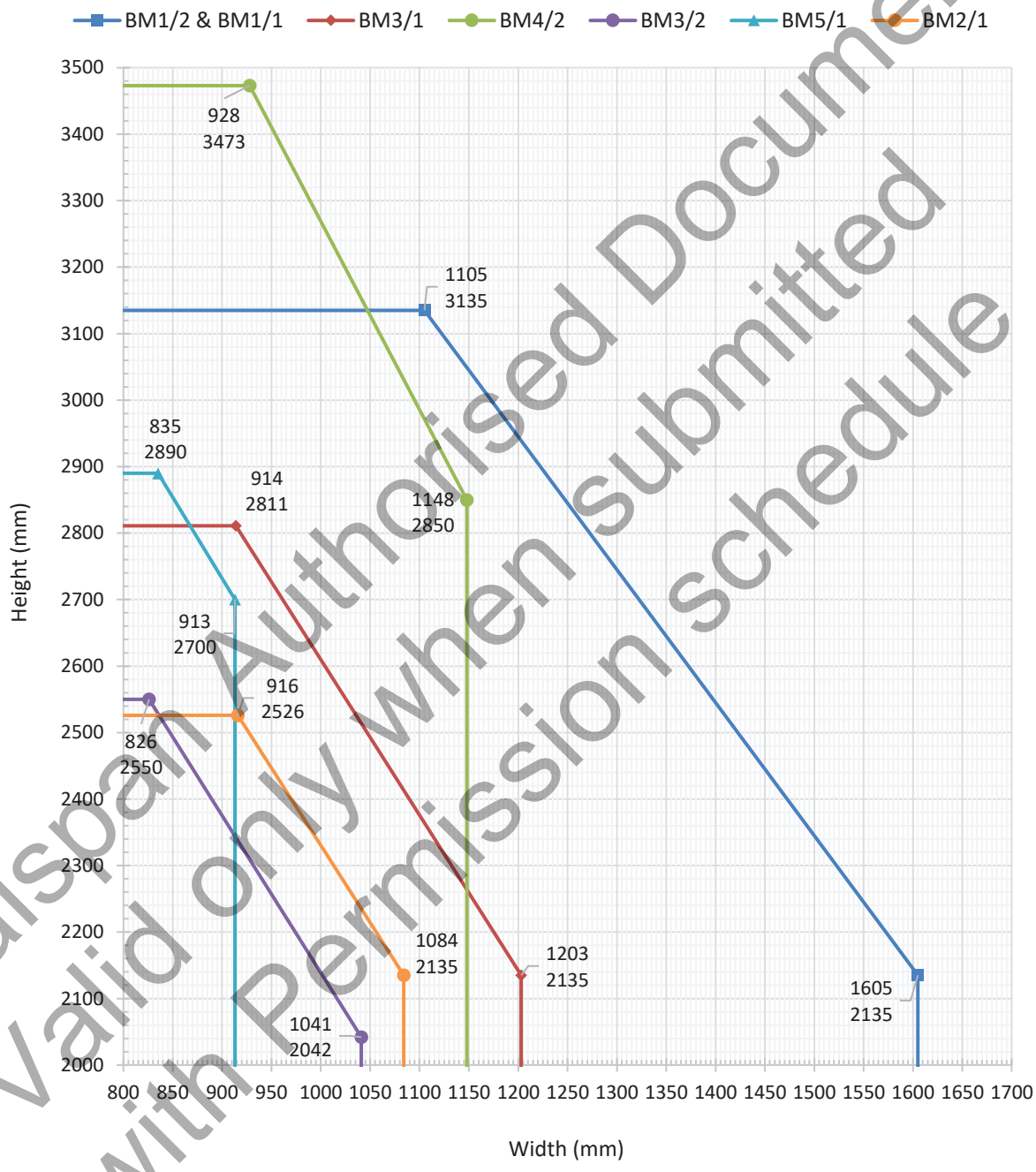
4.5.5.1 Leaf 1 + Frame M1, M2, M3, & M5



Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for ULSASD Prima 30 (44mm thick core) Leaf 1 with (Frame M1, M2, M3, & M5)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BM1/1 Blue Line (RF01074 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges
BM3/1 Red Line (RF04021 Doorset B)	Therm-A-Seal, Therm-A-Stop & Therm-A-Flex	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No. 20x4 Therm-A-Stop & 10x4 Therm-A-Seal. Fitted 3mm apart and the Therm-A-Seal located 5mm from flush face leaf edge. **Bottom Edge:** 1No. 38x2 Therm-A-Flex. Fitted in leaf edge.
BM3/2 Green Line (WARRES No. 111201)	Therm-A-Flex & LP2004	Intumescent Seals Ltd & Lorient Polyproducts Ltd	**Head & Vertical Edges:** 1No. 20x2 Therm-A-Flex and 20x4 LP2004. Fitted on top of each other in leaf edge.
BM5/1 Purple Line (WARRES No. 118289)	Therm-A-Seal	Intumescent Seals Ltd	**Head:** 1No. 30x4 Therm-A-Seal. Fitted in leaf edge. **Vertical Edges:** 1No. 20x4 Therm-A-Seal. Fitted on top of each other in leaf edge.
BM2/1 Blue Line (RF02082 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges

4.5.5.2 Leaf 2 + Frame M1, M2, M3, M4, & M5



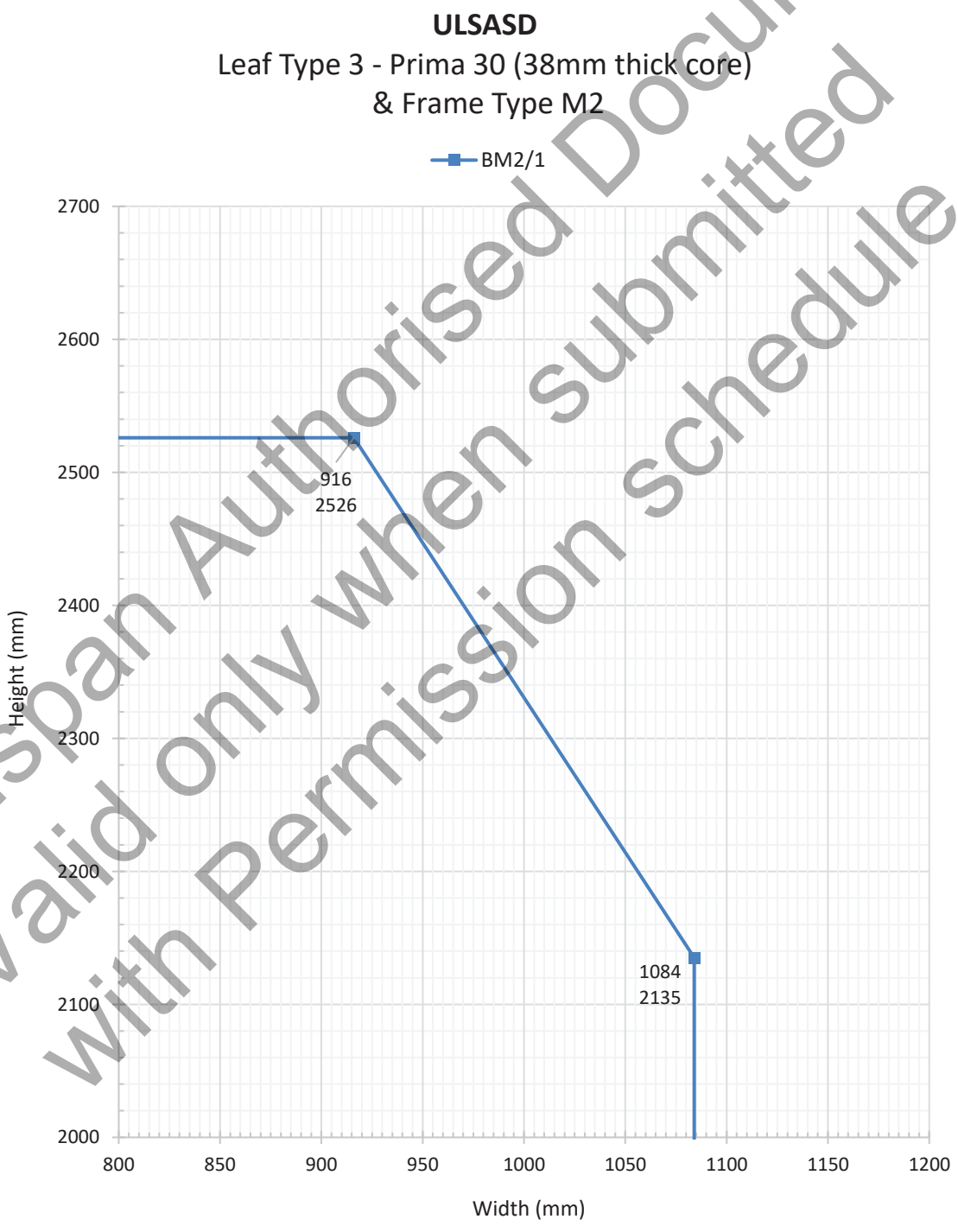
Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for ULSASD Prima 30 (54mm thick core) Leaf 2 with (Frame M1, M2, M3, M4, & M5)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BM1/2 Blue Line (RF01073 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 38x4. Fitted in leaf edges
BM3/1 Red Line (RF04021 Doorset B)	Therm-A-Seal, Therm-A-Stop & Therm-A-Flex	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No. 20x4 Therm-A-Stop & 10x4 Therm-A-Seal. Fitted 3mm apart and the Therm-A-Seal located 5mm from flush face leaf edge. **Bottom Edge:** 1No. 38x2 Therm-A-Flex. Fitted in leaf edge.
BM4/2 Green Line (CFR1912021)[1]	H60	Halspan Ltd	**Head & Vertical Edges:** 1No. 36x6. Fitted in leaf edge.
BM3/2 Purple Line (WARRES No. 111201)	Therm-A-Flex & LP2004	Intumescent Seals Ltd & Lorient Polyproducts Ltd	**Head & Vertical Edges:** 1No. 20x2 Therm-A-Flex and 20x4 LP2004. Fitted on top of each other in leaf edge.
BM5/1 Blue Line (WARRES No. 118289)	Therm-A-Seal	Intumescent Seals Ltd	**Head:** 1No. 30x4 Therm-A-Seal. Fitted in leaf edge. **Vertical Edges:** 1No. 20x4 Therm-A-Seal. Fitted in leaf edge.
BM1/1 Blue Line (RF01074 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges

BM2/1 Orange Line (RF02082 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges

[1]Door leaf sizes associated with this intumescent specification, leaf design and configuration must incorporate foam infill as described in section 7.4.2.2.

4.5.5.3 Leaf 3 + Frame M2

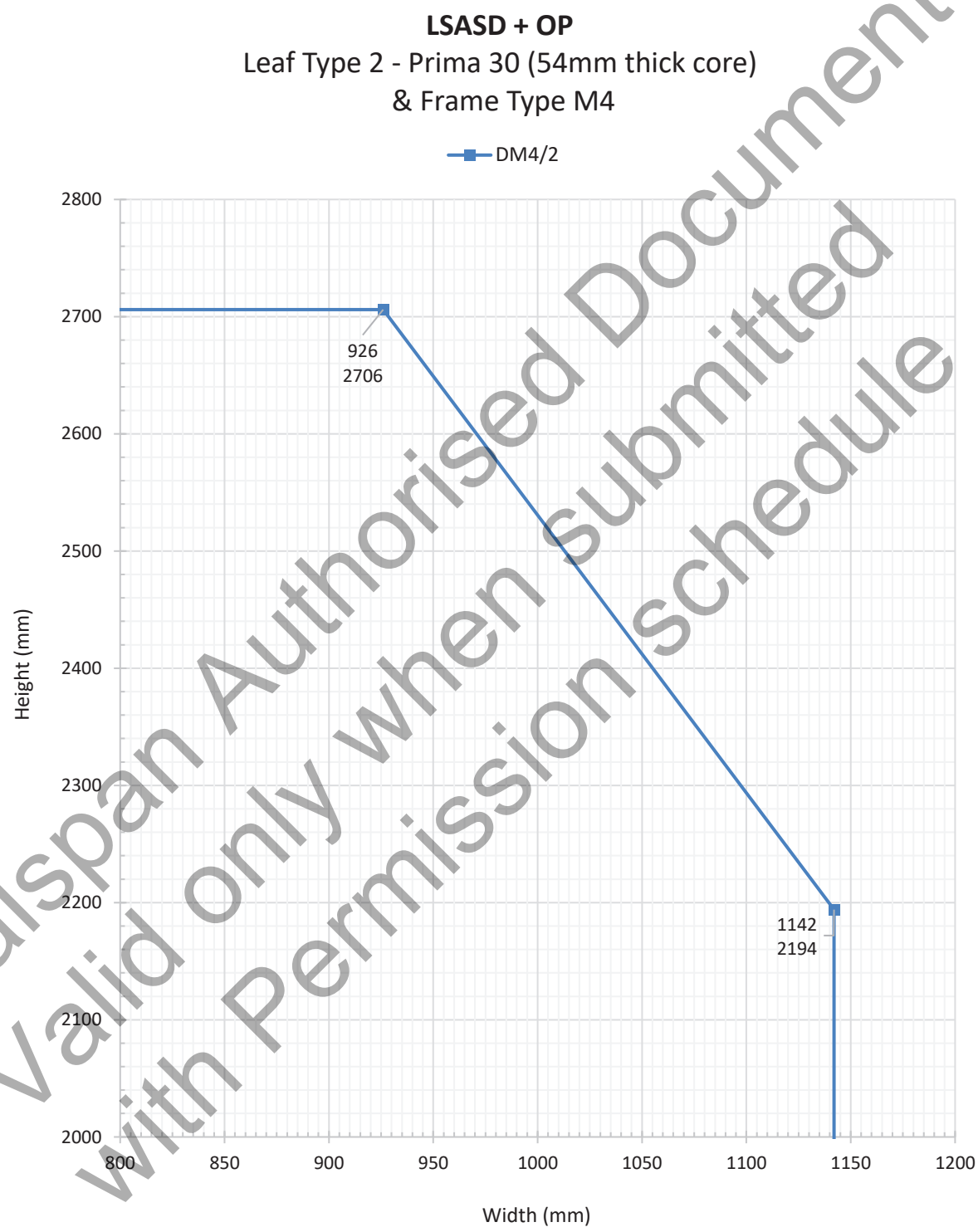


Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for ULSASD Prima 30 (38mm thick core) Leaf 3 with (Frame M2)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BM2/1 Blue Line (RF02082 Doorset B)	Therm-A-Seal	Intumescent Seals Ltd	**Head & Vertical Edges:** 1No 20x4. Fitted in leaf edges

4.5.6 LSASD+OP (Flush Overpanel) Configuration: Leaf Sizes & Intumescent Specification

4.5.6.1 Leaf 2 + Frame M4



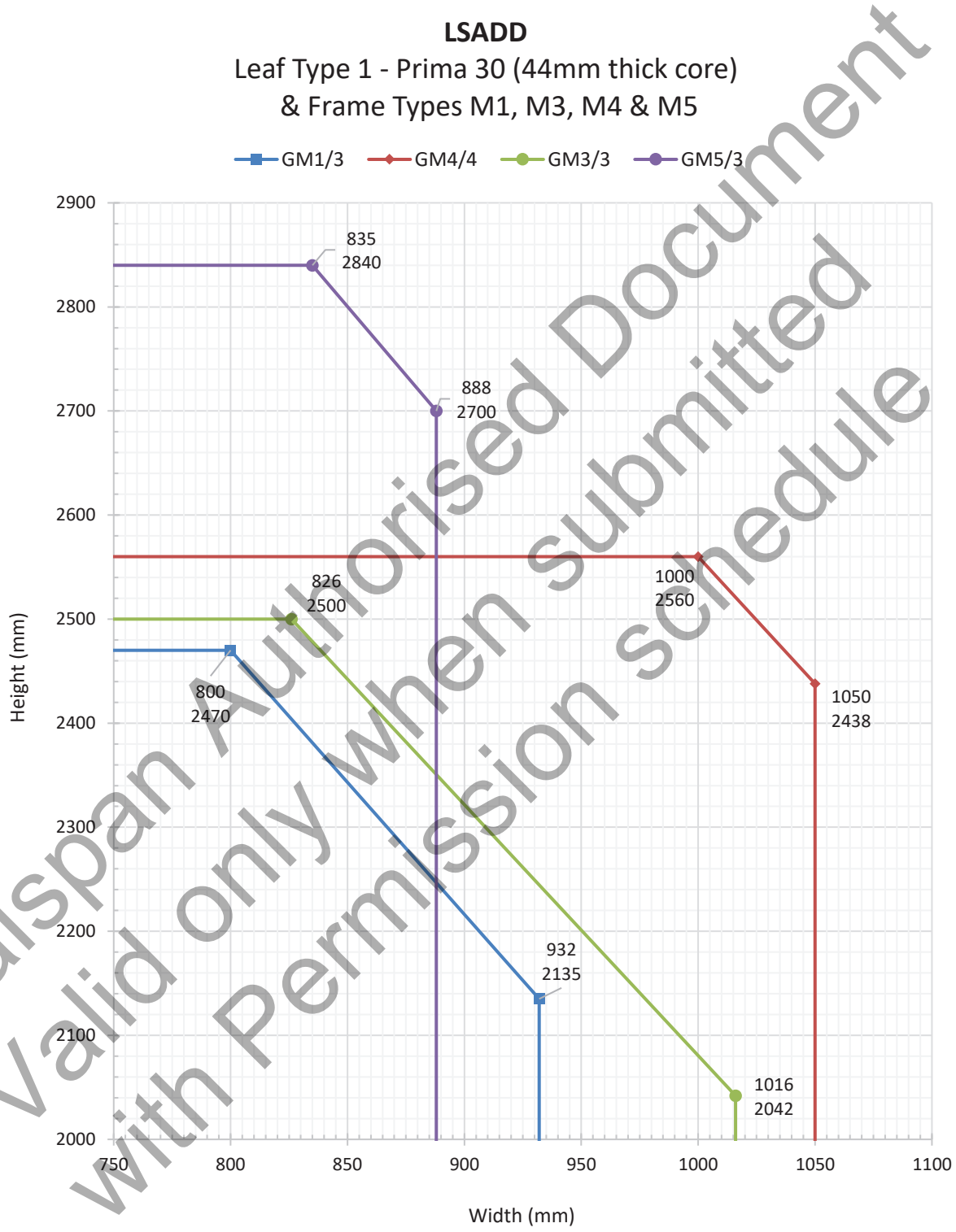
Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for LSASD+OP Prima 30 (54mm) Leaf 2 with Frame M4			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
DM4/2 Blue Line (WF412658 Doorset B)[1]	H60	Halspan Ltd	**Head & Vertical Edges:** 1No 38x6. Fitted in leaf and overpanel edges.

[1]Door leaf sizes associated with this intumescent specification, leaf design and configuration must incorporate foam infill as described in section 7.4.2.2.

4.5.7 LSADD Configuration: Leaf Sizes & Intumescent Specification

4.5.7.1 Leaf 1 + Frame M1, M3, M4 & M5



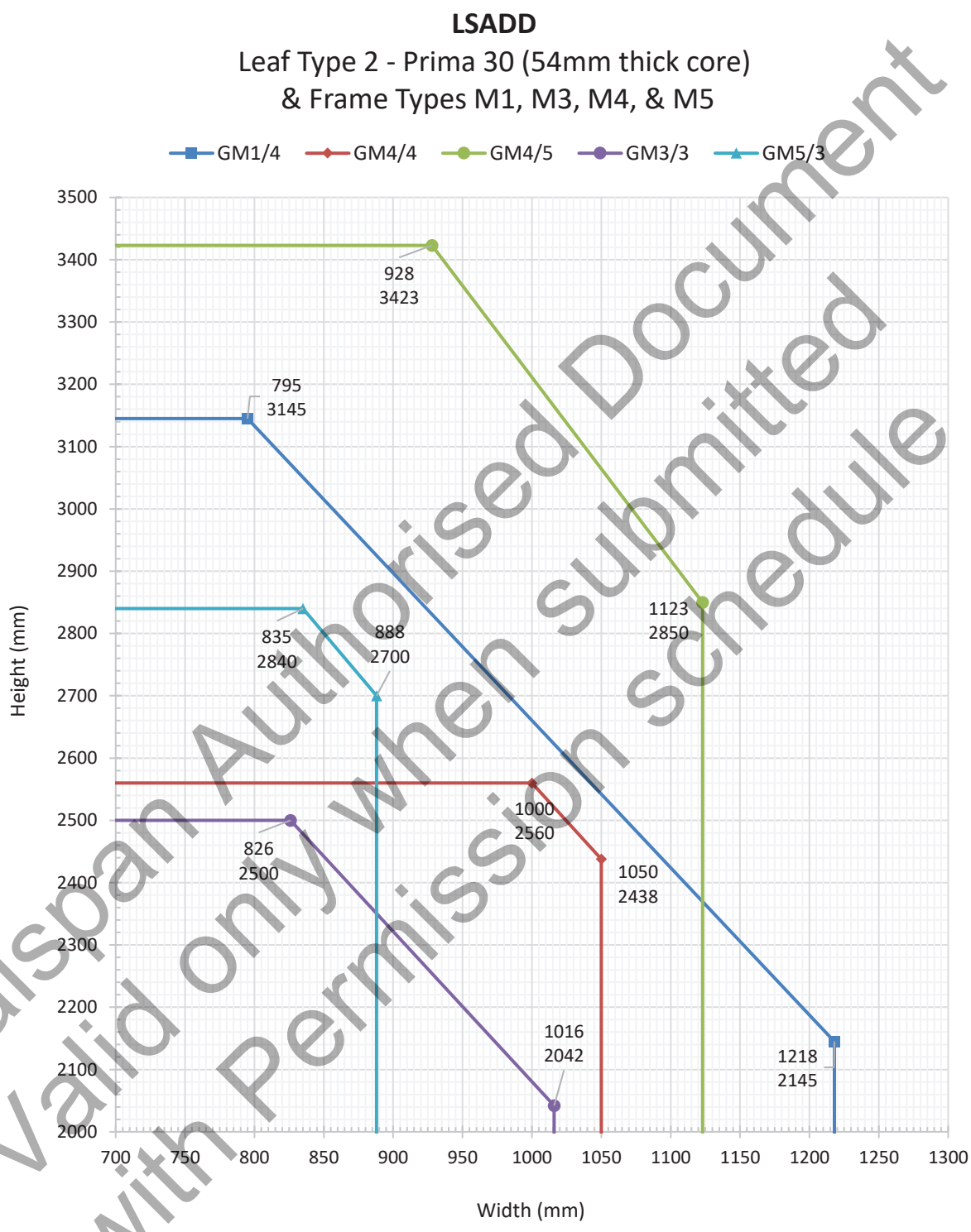
Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for LSADD Prima 30 (44mm) Leaf 1 with Frame M1, M3, M4 & M5			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
GM1/3 Blue Line (RF01073 Doorset A)	Therm-A-Seal & Therm-A-Stop	Intumescent Seals Ltd	**Head & Hanging Edge:** 1No. 20x4 Therm-A-Seal. Fitted in leaf edges **Meeting Edge:** 2No. 10x4 Therm-A-Seal & Therm-A-Stop. Fitted 10mm apart in one leaf.
GM4/4 Red Line (CFR1905171)	H30 & SLS-PLA-100 & SLS-TWF-100	Halspan Ltd	**Head & Hanging Edge:** 1No. 30x6 H30. Fitted in leaf edge. **Meeting Edge:** 2No. 10x4 SLS-PLA-100 & SLS-TWA-100. Fitted 9mm apart in one leaf. 1No. 10x4 SLS-PLA-100. Fitted in opposite leaf.
GM3/3 Green Line (WARRES No. 111201)	Therm-A-Flex & LP2004 & Therm-A-Stop & Therm-A-Seal	Intumescent Seals Ltd & Lorient Polyproducts Ltd	**Head & Hanging Edge:** 1No. 20x2 Therm-A-Flex and 20x4 LP2004. Fitted in leaf edge. **Meeting Edge:** 1No. 20x4 Therm-A-Stop & 1No. 10x4 Therm-A-Seal. Fitted with the Therm-A-Seal 5mm from the flush side of the leaf and 8mm apart in leaf housing lock.[1]

GM5/3 Purple Line (WARRES No. 118289)	Therm-A-Seal	Intumescent Seals Ltd	**Head:** 1No. 20x4 Therm-A-Seal. Fitted in leaf edge. **Hanging Edge:** 1No. 30x4 Therm-A-Seal. Fitted in leaf edge. **Meeting Edge:** 2No. 10x4 Therm-A-Seal. Fitted 10mm apart in leaf edge.

[1]1No. 20x4mm Therm-A-Seal was tested at the meeting edge in report WARRES 111201 with no lock or flush bolts fitted in the door leaf. This arrangement cannot be used within this field of application report as a functional latched doorset would be fitted with a lock and flush bolts at the meeting edge, with the intumescent strip being interrupted at these positions. For this reason, 1No. 20x4 and 1No. 10x4 seal arrangement has been permitted, which has been successfully tested in report Chilt/RF04021A referenced in Appendix Z. This doorset was tested at 2135mm high x 825mm wide but achieved 22 minutes overrun which would account for the larger sizes given in the graph for frame M3 above.

4.5.7.2 Leaf 2 + Frame M1, M3, M4, & M5



Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for LSADD Prima 30 (54mm thick core) Door 2 with (Frame M1, M3, M4, & M5)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
GM1/4 Blue Line (RF01074 Doorset A)	Therm-A-Seal & Therm-A-Stop	Intumescent Seals Ltd	**Head & Hanging Edges:** 1No 38x4. Fitted in leaf edges **Meeting Edge:** 2No. 10x4 Therm-A-Seal. Fitted 10mm apart in the leaf housing the latch and 1No. 10x4 Therm-A-Stop fitted in opposite leaf.
GM4/4 Red Line (CFR1905171)	H30 & SLS-PLA-100 & SLS-TWF-100	Halspan Ltd	**Head & Hanging Edge:** 1No. 30x6 H30. Fitted in leaf edge. **Meeting Edge:** 2No. 10x4 SLS-PLA-100 & SLS-TWA-100. Fitted 9mm apart in one leaf. 1No. 10x4 SLS-PLA-100. Fitted in opposite leaf.
GM4/5 Green Line (CFR1912021)[1]	H60 & SLS-PLA-100 & SLS-TWF-100	Halspan Ltd	**Head & Vertical Edges:** 1No. 36x6. Fitted in leaf edge. **Meeting Edge:** 2No. 10x4 SLS-PLA-100 & SLS-TWA-100. Fitted 8mm apart in the leaf housing the lock. 1No. 10x4 SLS-PLA-100. Fitted in opposite leaf.
GM3/3 Purple Line (WARRES No. 111201)	Therm-A-Flex & LP2004 & Therm-A-Stop & Therm-A-Seal	Intumescent Seals Ltd & Lorient Polyproducts Ltd	**Head & Hanging Edge:** 1No. 20x2 Therm-A-Flex and 20x4 LP2004. Fitted in leaf edge. **Meeting Edge:** 1No. 20x4 Therm-A-Stop & 1No. 10x4 Therm-A-Seal. Fitted with the Therm-A-Seal 5mm from the flush side of the leaf and 8mm apart in leaf housing lock.[2]

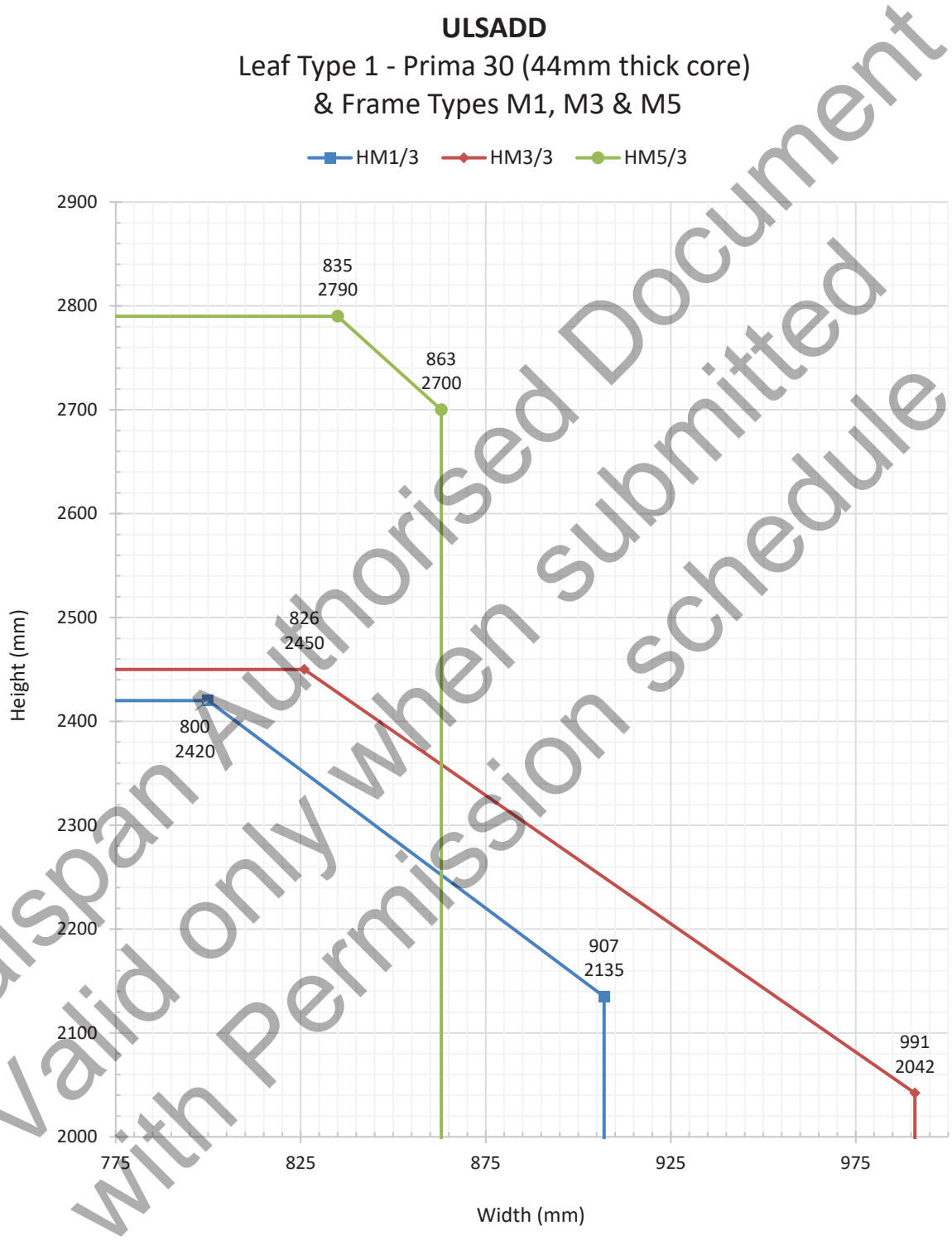
GM5/3 Blue Line (WARRES No. 118289)	Therm-A-Seal	Intumescent Seals Ltd	**Head:** 1No. 20x4 Therm-A-Seal. Fitted in leaf edge. **Hanging Edge:** 1No. 30x4 Therm-A-Seal. Fitted in leaf edge. **Meeting Edge:** 2No. 10x4 Therm-A-Seal. Fitted 10mm apart in leaf edge housing latch.

[1]Door leaf sizes associated with this intumescent specification, leaf design and configuration must incorporate foam infill as described in section 7.4.2.2.

[2]1No. 20x4mm Therm-A-Seal was tested at the meeting edge in report WARRES 111201 with no lock or flush bolts fitted in the door leaf. This arrangement cannot be used within this field of application report as a functional latched doorset would be fitted with a lock and flush bolts at the meeting edge, with the intumescent strip being interrupted at these positions. For this reason, 2No. 20x4 and 1No. 10x4 seal arrangement has been permitted, which has been successfully tested in report Chilt/RF04021A referenced in Appendix Z. This doorset was tested at 2135mm high x 825mm wide but achieved 22 minutes overrun which would account for the larger sizes given in the graph for frame M3 above.

4.5.8 ULSADD Configuration: Leaf Sizes & Intumescent Specification

4.5.8.1 Leaf 1 + Frame M1, M3, & M5



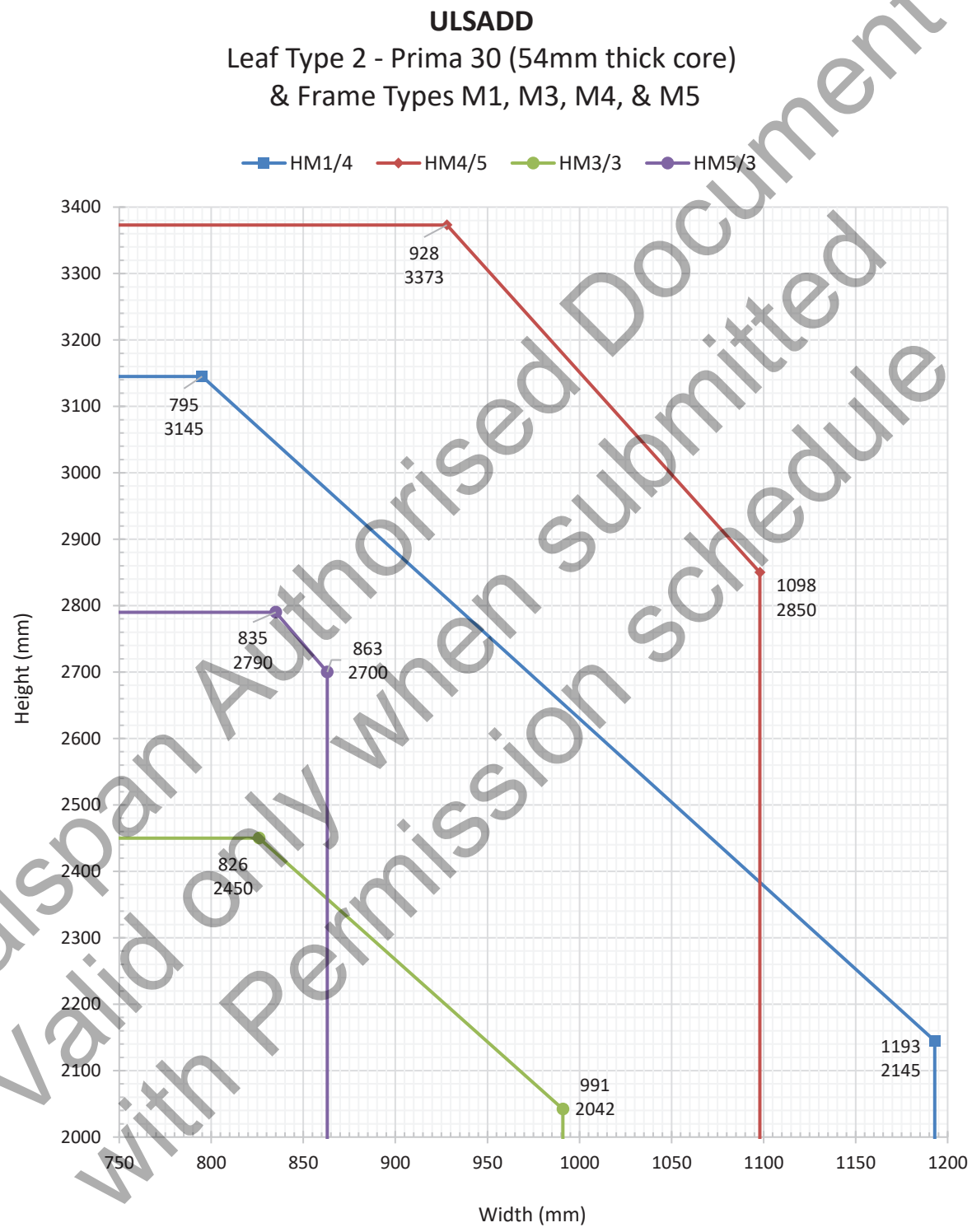
Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for ULSADD Prima 30 (44mm) Leaf 1 with Frame M1, M3, & M5			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
HM1/3 Blue Line (RF01073 Doorset A)	Therm-A-Seal & Therm-A-Stop	Intumescent Seals Ltd	**Head & Hanging Edge:** 1No. 20x4 Therm-A-Seal. Fitted in leaf edges **Meeting Edge:** 2No. 10x4 Therm-A-Seal & Therm-A-Stop. Fitted 10mm apart in one leaf. If flush bolts are fitted then seals must be fitted in the opposite leaf.
HM3/3 Red Line (WARRES No. 111201)	Therm-A-Flex & LP2004 & Therm-A-Stop & Therm-A-Seal	Intumescent Seals Ltd & Lorient Polyproducts Ltd	**Head & Hanging Edge:** 1No. 20x2 Therm-A-Flex and 20x4 LP2004. Fitted in leaf edge. **Meeting Edge:** 1No. Therm-A-Seal 20x4. Fitted in one leaf if no flush bolts are fitted. 1No. 20x4 Therm-A-Stop & 1No. 10x4 Therm-A-Seal. Fitted with the Therm-A-Seal 5mm from the flush side of the leaf and 8mm apart in leaf without flush bolts.[1]
HM5/3 Green Line (WARRES No. 118289)	Therm-A-Seal	Intumescent Seals Ltd	**Head:** 1No. 20x4 Therm-A-Seal. Fitted in leaf edge. **Hanging Edge:** 1No. 30x4 Therm-A-Seal. Fitted in leaf edge. **Meeting Edge:** 2No. 10x4 Therm-A-Seal. Fitted 10mm apart in one leaf edge. If flush bolts are fitted then seals must be fitted in the opposite leaf.

[1]1No. 20x4mm Therm-A-Seal was tested at the meeting edge in report WARRES 111201 with no lock or flush bolts fitted in the door leaf. This arrangement can't be used within this field of application report if the door is fitted with flush bolts at the meeting edge. 2No. 20x4 and 1No. 10x4 seal arrangement has been permitted, which has been successfully tested in report Chilt/RF04021A referenced in Appendix Z. This doorset was tested at 2135mm high x 825mm

wide but achieved 22 minutes overrun which would account for the larger sizes given in the graph for frame M3 above.

4.5.8.2 Leaf 2 + Frame M1, M3, M4, & M5



Intumescent seals are to be fitted centrally unless stated otherwise.

Intumescent Specification for USADD Prima 30 (54mm) Leaf 2 with Frame M1, M3, M4, & M5			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
HM1/4 Blue Line (RF01074 Doorset A)	Therm-A-Seal & Therm-A-Stop	Intumescent Seals Ltd	**Head & Hanging Edges:** 1No 38x4. Fitted in leaf edges **Meeting Edge:** 2No. 10x4 Therm-A-Seal & Therm-A-Stop. Fitted 10mm apart in one leaf. If flush bolts are fitted then seals must be fitted in the opposite leaf.
HM4/5 Red Line (CFR1912021)[1]	H60 & SLS-PLA-100 & SLS-TWF-100	Halspan Ltd	**Head & Vertical Edges:** 1No. 36x6. Fitted in leaf edge. **Meeting Edge:** 2No. 10x4 SLS-PLA-100 & SLS-TWA-100. Fitted 8mm apart in one leaf. 1No. 10x4 SLS-PLA-100. Fitted in opposite leaf.
HM3/3 Green Line (WARRES No. 111201)	Therm-A-Flex & LP2004 & Therm-A-Stop & Therm-A-Seal	Intumescent Seals Ltd & Lorient Polyproducts Ltd	**Head & Hanging Edge:** 1No. 20x2 Therm-A-Flex and 20x4 LP2004. Fitted in leaf edge. **Meeting Edge:** 1No. Therm-A-Seal 20x4. Fitted in one leaf if no flush bolts are fitted. 1No. 20x4 Therm-A-Stop & 1No. 10x4 Therm-A-Seal. Fitted with the Therm-A-Seal 5mm from the flush side of the leaf and 8mm apart in leaf without flush bolts.[2]

HM5/3 Purple Line (WARRES No. 118289)	Therm-A-Seal	Intumescent Seals Ltd	**Head:** 1No. 20x4 Therm-A-Seal. Fitted in leaf edge. **Hanging Edge:** 1No. 30x4 Therm-A-Seal. Fitted in leaf edge. **Meeting Edge:** 2No. 10x4 Therm-A-Seal. Fitted 10mm apart in one leaf edge. If flush bolts are fitted then seals must be fitted in the opposite leaf.

[1]Door leaf sizes associated with this intumescent specification, leaf design and configuration must incorporate foam infill as described in section 7.4.2.2.

[2]1No. 20x4mm Therm-A-Seal was tested at the meeting edge in report WARRES 111201 with no lock or flush bolts fitted in the door leaf. This arrangement can't be used within this field of application report if the door is fitted with flush bolts at the meeting edge. 2No. 20x4 and 1No. 10x4 seal arrangement has been permitted, which has been successfully tested in report Chilt/RF04021A referenced in Appendix Z. This doorset was tested at 2135mm high x 825mm wide but achieved 22 minutes overrun which would account for the larger sizes given in the graph for frame M3 above.

5 General Description of Construction

The 3 leaf types detailed below are approved by this assessment.

5.1 Leaf 1 – Prima 30 – 44mm thick

The basic construction for door leaves of this design comprises the following.

Leaf 1 (Prima 30) Construction Details			
Element	Material	Dimensions (mm)	Minimum Density (kg/m3)
Core	3 layer solid core particleboard	44 (t)	630±10%

The minimum leaf thickness after calibration is 43mm i.e. a max of 0.5 from one side

The minimum leaf thickness after finishes applied is 44mm

5.2 Leaf 2 – Prima 30 – 54mm thick

The basic construction for door leaves of this design comprises the following.

Leaf 2 (Prima 30) Construction Details			
Element	Material	Dimensions (mm)	Minimum Density (kg/m3)
Core	3 layer solid core particleboard	54 (t)	630±10%

The minimum leaf thickness after calibration is 53mm i.e. a max of 0.5 from one side

The minimum leaf thickness after finishes applied is 54mm

5.3 Leaf 3 – Prima 30 – 44mm thick (Bond Up)

The basic construction for door leaves of this design comprises of the following:

Leaf 3 (Prima 30) Construction Details			
Element	Material	Dimensions (mm)	Minimum Density (kg/m3)
Core	3 layer solid core particleboard	38 (t)	630±10%
Facing	Plywood	3 (t)	450
	MDF		720

The Halspan XT30 product reference assessment Chilt/A13242 which has a much lighter core material has been successfully tested with 450kg/m^3 plywood facing which in the opinion of Warringtonfire allows the tested plywood density to be reduced. In addition the facing is only 3mm thick and would not be considered to have a structural function.

Facings are bonded to the core using PU, PVA, PF or UF adhesive as tested and assessed in the above referenced assessment.

The minimum leaf thickness after calibration is 43mm i.e. a max of 0.5 from one side.

The minimum leaf thickness after finishes applied is 44mm.

5.4 Comparison of Door Core Designs

Leaf 1 and leaf 2 are basically the same construction except leaf 1 is 44mm thick and leaf 2 is 54mm thick. The evaluation of leaf size for the 54mm thick leaf for some configurations is based on test evidence, producing an envelope bigger than that achieved with a 44mm thick leaf. Where no test evidence exists for the 54mm leaf the leaf sizes generated for the 44mm leaf have been used, as in the opinion of Warringtonfire they will be conservative. This is because thicker timber leaves are generally accepted to be less onerous due to increased resistance to thermally induced distortion and bow as a greater percentage of the leaf thickness remains uncharred throughout the test. Thicker leaves therefore deflect less during a fire test, providing a more stable junction between the leaf edge and frame reveal.

5.5 Lippings

5.5.1 Timber Lipping

Halspan **Prima 30** must be lipped in accordance with the following specification, for all leaf types and overpanels where appropriate.

Timber Lipping Specification for Leaf 1, 2 & 3		
Material	Size (mm)	Minimum Density (kg/m^3)
Hardwood: which must be straight grained joinery quality, free from knots, splits and checks	Flat = 6–18 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 5.5.2 drawing D below)	640

Door leaves must be lipped on the vertical edges as a minimum. Lippings of the same specification may also be applied to the top and bottom of the doors if desired.

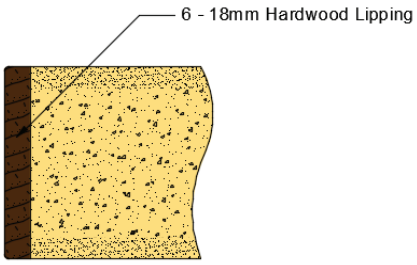
Doorsets containing flush overpanels must also be lipped on the top edge of the door leaves.

Overpanels flush with the leaf heads must be lipped on all edges and may include a 3 x 3mm deep quirk on the top and vertical edges if required. If a quirk is used then the lipping must be a minimum density of 650kg/m^3 and be a minimum thickness of 8mm thick.

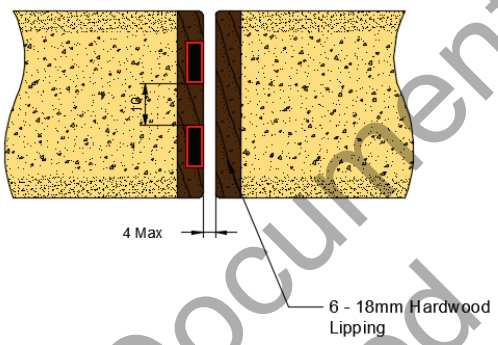
A maximum 2.5^0 chamfer is permitted to the lipping at the leading edge of leaves providing the door gaps meet the requirements of Section 7.7 (i.e. the gap does not exceed 4mm) and the minimum requirements in the table above are maintained.

Lippings can be bonded with UF, PF, PVA, PVAC, PU Hotmelt or Cascamite. See adhesive Section 9 for further details.

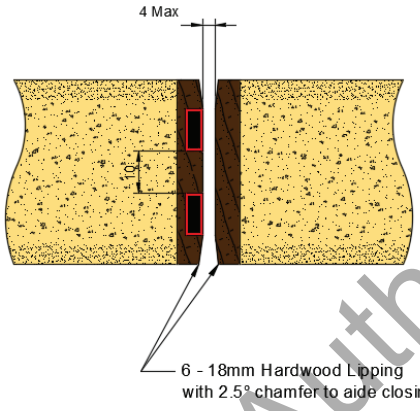
5.5.2 Drawing of Permitted Lipping Types



(A): Standard lipping



(B): Flush meeting edge lipping



(C): Flush meeting edge lipping with leading edge

D): Profile lipping detail

5.5.3 'T' Section Lipping – Leaf 1, 2 & 3

Based on test report RF06048A and Chilt/RF03076 referenced in Appendix Z a 'T' lipping is permitted as follows.

- Maximum Leaf size: 2040mm high by 926mm wide.
- Configuration: *Single acting doorsets* – LSASD – fitted both vertical edges of the leaf only

Any grooving cannot be within 90mm of a 'T' lipping.

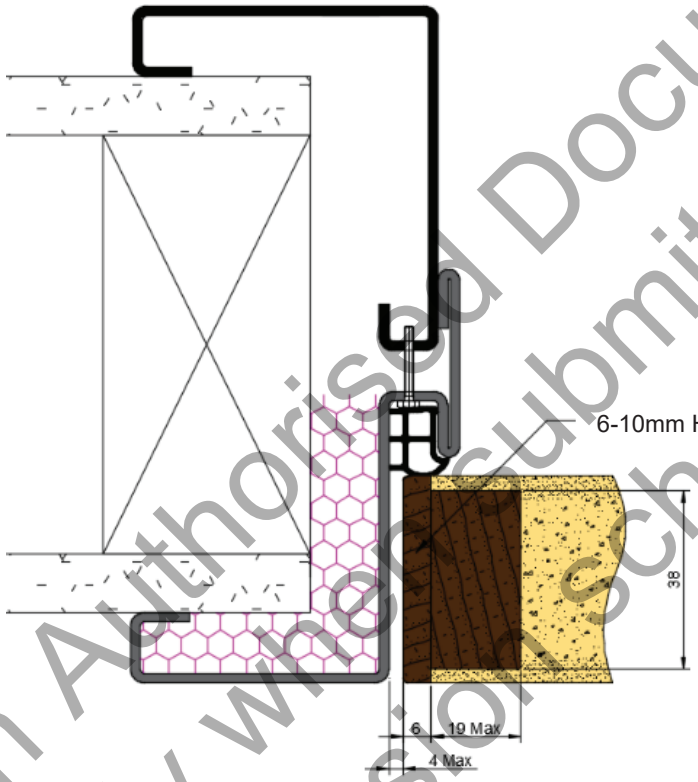
In certain circumstances, a 'T' section lipping may be required which will be bonded into a groove machined in the edge of the leaf.

This option is acceptable providing the tongue is a maximum of 38mm wide and 19mm deep otherwise meets the specification given in section 5.5.1 above.

The 'T' section lipping may be in two sections with the exposed lipping being within the range of 6 – 10mm thick. See drawing below.

Lippings can be bonded with UF, PF, PVA, PVAC, PU adhesives. See adhesive section 9 for further details.

Figure 5.1 – Example Detail of 'T' section lipping



5.6 Edge Protectors: Leaf 1 & 2 – Double doorset meeting edges

Test evidence RF02048 and RF02083A referenced in Appendix Z justifies the use of PVC 2mm thick edge protectors (reference: Type 1)

As edge protectors have not been tested with a steel frame type they may only be fitted to the meeting edge of a latched or unlatched double doorsets only.

Edge protectors are not permitted with leaf 3.

The intumescent specification permitted is 2 strips 10mm wide by 4mm thick in 1 of the meeting edges. Only intumescent specifications detailed in section 4.5.7 – 4.5.8 of which include 2No. 10 x 4 intumescent strips to the meeting edge are permitted for use.

The performances obtained and the leaf sizes tested when using the PVC edge protectors, will enable the use of these edge protectors on limited door leaf dimensions.

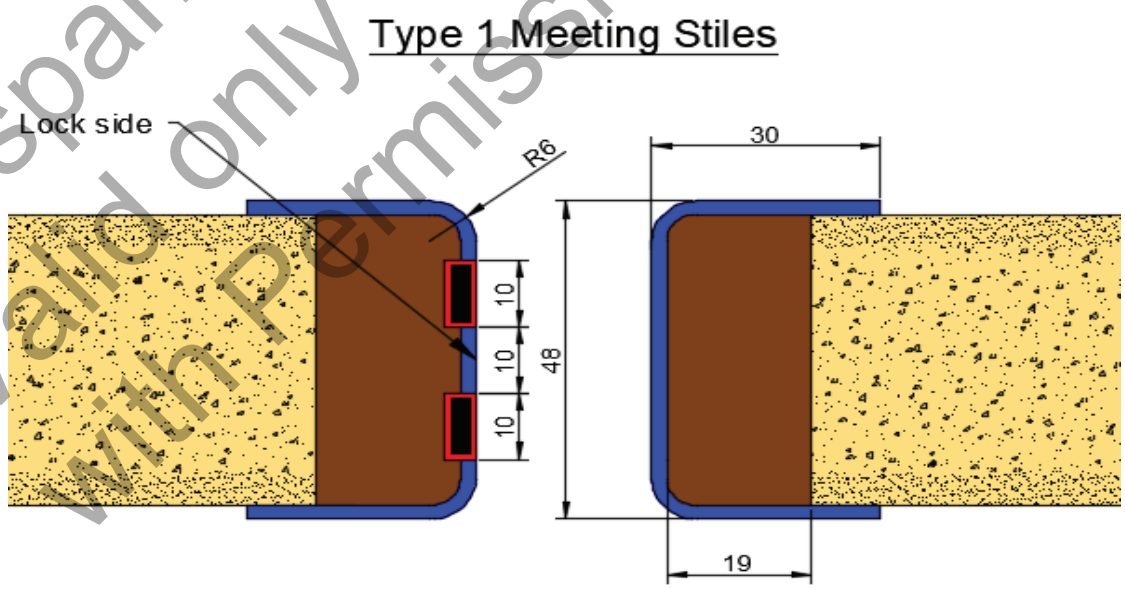
The maximum leaf dimensions are therefore as follows:

Edge Protectors Specification	
	Maximum Leaf Size (mm)
Configuration	Edge Protector: Type 1
Double Door	2135 (h) x 915 (w)

The type 1 edge protector and required lipping dimension is shown below.

Edge protectors must be glued into position using a specified glue for lipping applications. See section 9

5.6.1 Drawing of Permitted PVC Edge Protectors



(A): Type 1 PVC edge protectors detail for the meeting edge of double doors

5.7 Leaf Facing Materials

5.7.1 Decorative & Protective Facings

Relatively thin leaf facing materials are deemed to be decorative and their application is not considered to be of detriment to the overall stability or performance of the doorset design. In fact, when applied as an additional component on top of the minimum facing material required by the door blank, they are likely to provide a small enhancement in performance as an additional barrier to fire spread, although, this is likely to be negligible.

The following additional facing materials are permitted for this door design since they would degrade rapidly under test conditions without significant effect.

Decorative & Protective Facing Specification	
Facing Material	Maximum Permitted Thickness (mm)
Paint, lacquers & varnishes	0.2
Timber veneers	2
Plastic laminates	2
PVC	2
Cellulosic (including paper) and non-metallic foils	0.4

Notes:

1. Metallic facings are not permitted except for push plates and kick plates.
2. The door leaf thickness may be reduced by a total maximum of 0.5mm from both sides for calibration purposes in order to accommodate the chosen finish.
3. Materials must not conceal intumescent strips.
4. The facings are bonded using PU, UF, PF and PVA, PVAc or contact adhesive.
5. Any applied decorative or protective facing as detailed above must not return around the edge of the leaf.
6. Decorative finishes listed may be painted within the limits for paint finish, above.

5.7.2 Decorative Planted on Timber Mouldings

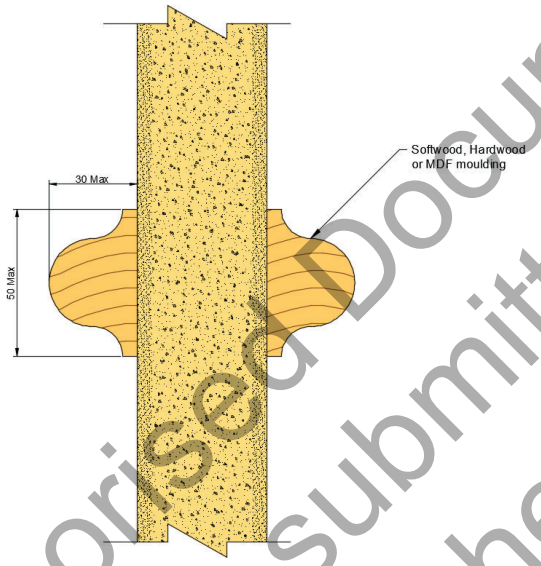
Decorative mouldings can be applied to leaf 1, 2 and 3 providing the following criteria is adhered to:-

The mouldings

1. Are surface applied to the door
2. Are no higher than 30mm i.e. proud of the door
3. Are no wider than 50mm
4. Cover no more than 20% of the door leaf area
5. Are no closer than 80mm to the door leaf edge

6. Are bonded into position and small pins may be used up to 12mm penetration into door core.

7. The mouldings are bonded using any glue which is suitable for bonding the lipping



Example of timber moulding detail

5.8 Feature Grooves – Leaf 1 & 2 and 3

Grooved leaves can be hung in all tested backfilled frame M1, M2 & M3 (Cement) and M4 (Partial Foam Fill).

Analysis of the data in Section 3 indicates frames backfilled with cement have a greater reduction in temperatures recorded on the unexposed side of the frame than hollow frames or those backed with other materials. The cement assists with insulating the frame and lessens the transfer of heat to the unexposed side. This reduction of heat would reduce the likelihood of heat bridging to the door edges and further erosion and charring the door leaf edge. It is the opinion of Warringtonfire that cement backfilled frames are permitted with the use of grooves options and would give reassurance to where the groove meets the edge of the door leaf.

Both sides of Halspan **Prima 30** door leaves may be grooved to the following specification.

There are a number of options for feature grooves and the following sections detail the limitations associated with each option.

- Feature grooves cannot be located within 100mm of cableways.
- Feature grooves cannot be located within 20mm of the mortice for hardware.
- Grooves may coincide with glazed apertures but the glazing beads must be modified as given in Section 6.4.3, which provides details of both modified bolection and square beads.

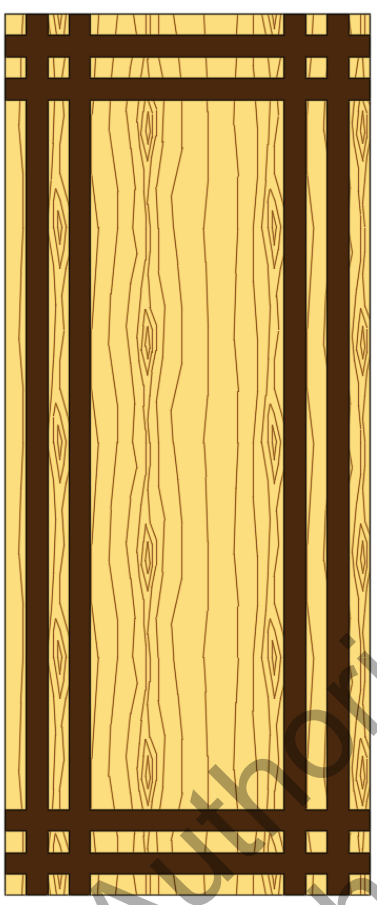
The following sections shows the tested grooving arrangement and the limitations associated with each groove option.

5.8.1 Option A

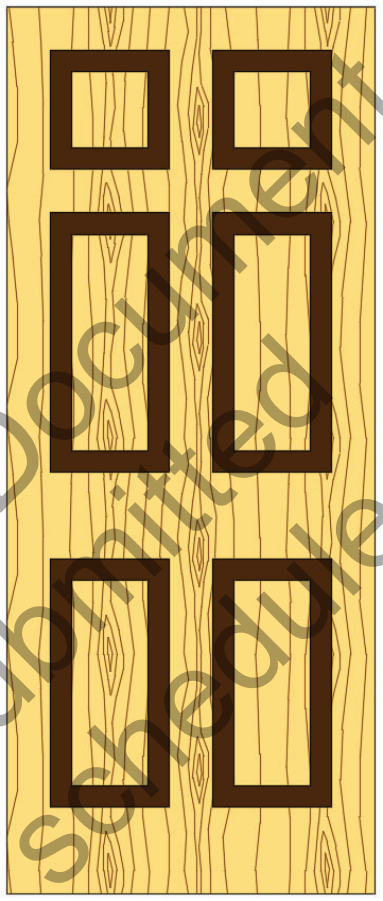
This grooving has not been explicitly tested but is based on test RF02082A as summarised in Appendix Z where a 38mm thick core was successfully tested. The groove arrangement detailed below is based on the grooves being no deeper than 3mm so at least 38mm of the core of the designs assessed herein (minimum 44mm thickness) remains unaffected by the grooving, which has been demonstrated to perform under fire test conditions. The configuration, size and intumescent limitations are based on this test.

Groove Option A		
Element	Details	
Max. groove size (mm)	50mm wide x 3mm deep	
Inserts	Not essential. Inserts are permitted to provide a decorative detail if required. Inserts must be Hardwood (minimum density 640kg/m³) or MDF. The insert can be grooved without restriction.	
Adhesive	The insert must be tightly fitted and glued on into the door core on all edges using a PVA, PU or UF adhesive.	
Maximum number of full height or full width Grooves – Type 1	Horizontal Grooves	6 Nos
	Vertical Grooves	6 Nos
Maximum number of grooves which combine to create a panel feature. – Type 2	Horizontal Grooves	12 Nos
	Vertical Grooves	12 Nos
Groove spacing (mm) – Type 1	No closer than 50mm to each other or the door edge. Vertical and horizontal grooves may intersect each other.	
Groove spacing (mm) –Type 2	No closer than 70mm of adjacent groove or door edge but vertical and horizontal grooves can combine at ends to create a 4-sided feature.	
Orientation	Horizontal or Vertical	
Configuration	Latched & unlatched, single & double acting, single & double leaf doorsets	
Leaf	Leaf 1, 2 & 3	
Leaf size max (mm)	2400 x 975	
Intumescent seal dimensions (mm)	Head and Jamb – 20 (w) x 4 (t) Meeting edge – 2 number 10 (w) by 4 (t) in lock side centrally placed 5mm either side of centre line	
Frame	Backfilled frames M1, M2 & M3 (Cement) & M4 (Partial Foam Fill)	

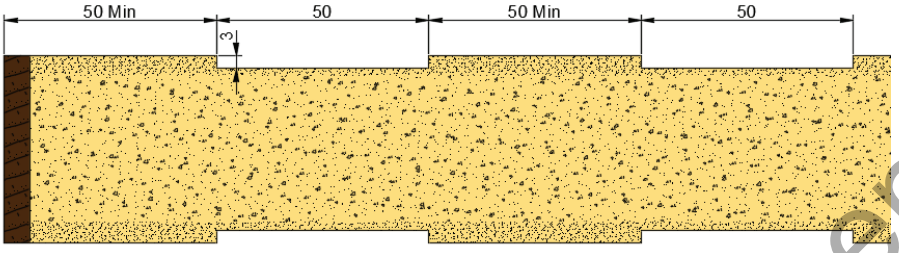
5.8.1.1 Drawing of Permitted Groove Option A



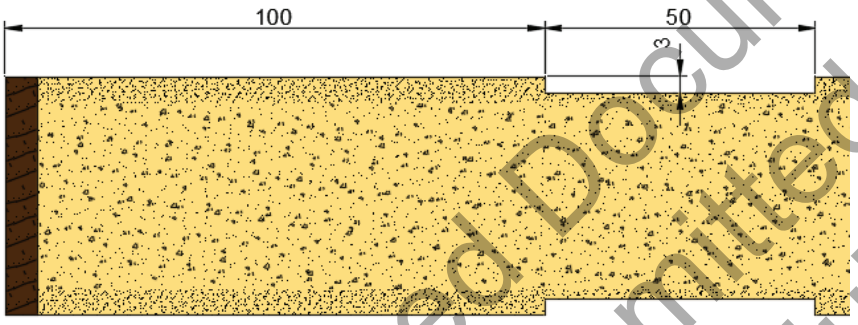
(A): Example application groove type 1



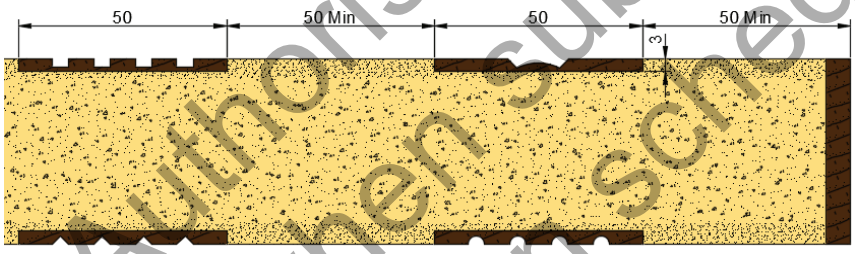
(B): Example application groove type 2



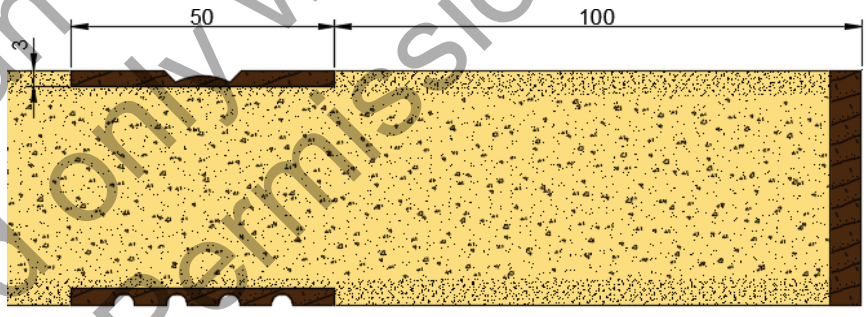
C): Groove detail 1



(D): Groove detail 2



(E): Example insert detail 1



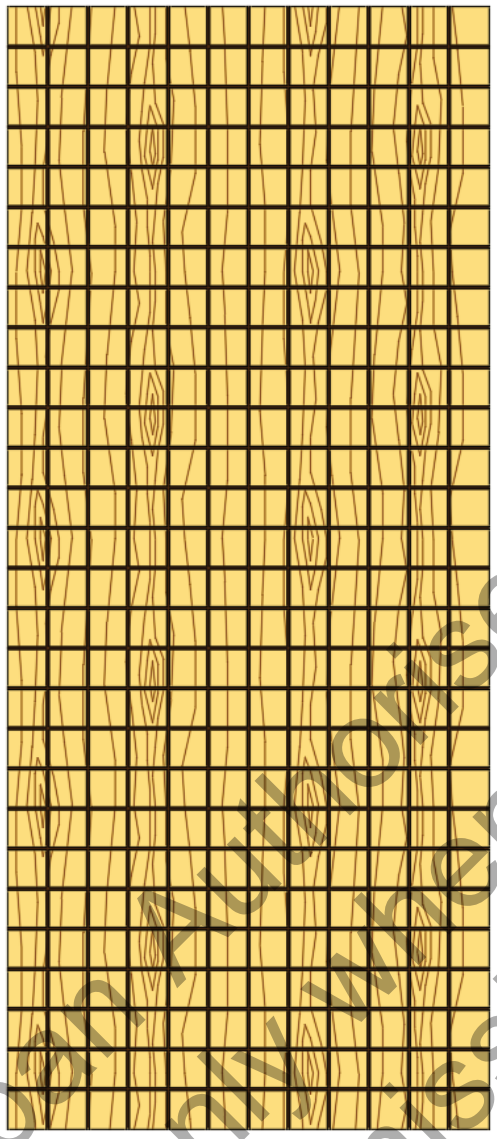
(F): Example insert detail 2

5.8.2 Option B

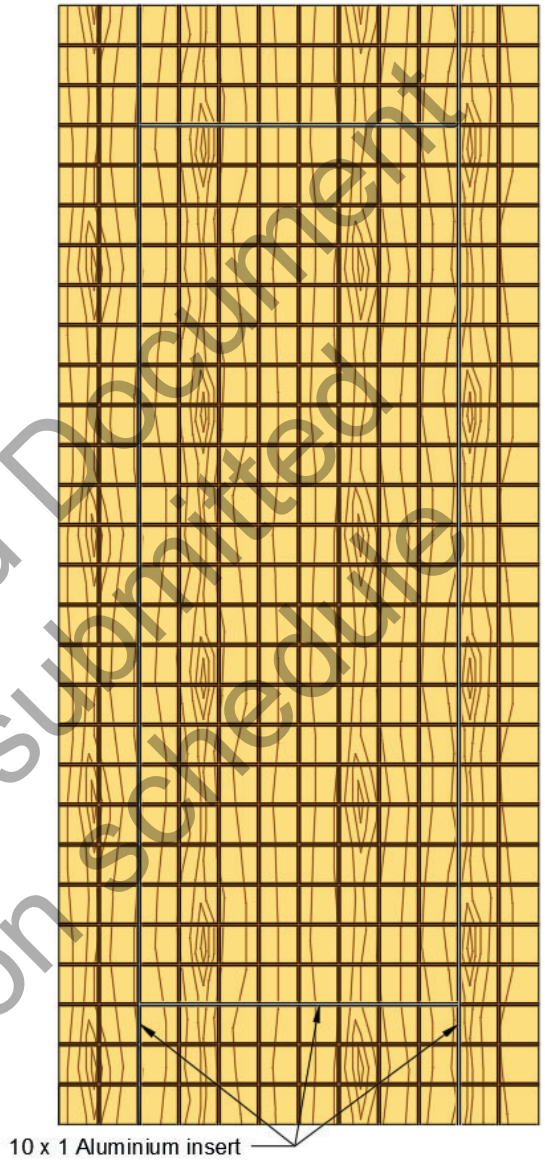
Tested grooving arrangement from WF412654B as summarised in Appendix Z.

Groove Option B		
Element	Details	
Max. groove size (mm)	10mm wide x 5mm deep, including 5mm deep 'V' grooves.	
Inserts	Optional aluminium inserts 10mm wide x 1mm deep permitted.	
Adhesive	The insert must be tightly fitted and glued on into the door core on all edges using a thermally softening adhesive such as PVA or contact adhesive.	
Proximity to door edges (mm)	Horizontal Grooves	May extend full width
	Vertical Grooves	May extend full height
Groove spacing (mm)	No closer than 75mm apart. Vertical and horizontal grooves may intersect each other.	
Orientation	Horizontal or Vertical	
Configuration	Latched, single acting, single leaf doorsets	
Leaf	Leaf 1, 2 & 3	
Leaf size range (mm)	2135 x 926	
Intumescent seal dimensions (mm)	Use intumescent arrangement specific to frame option	
Frame	Backfilled frames M1, M2 & M3 (Cement) & M4 (Partial Foam Fill)	

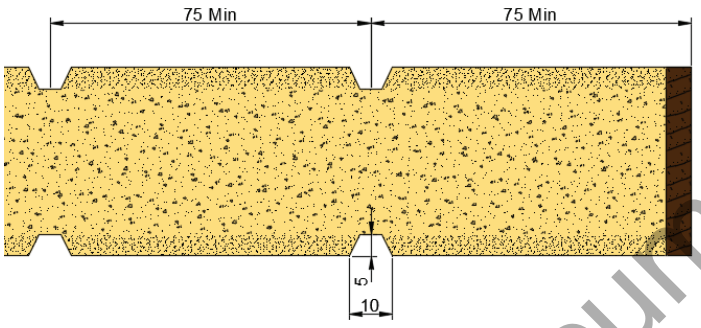
5.8.2.1 Drawing of Permitted Groove Option B



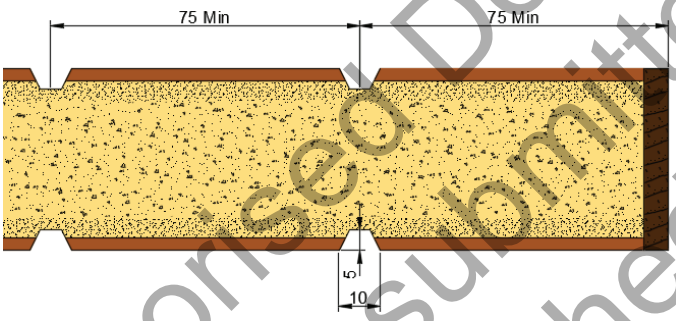
(A): Tested groove arrangement 1



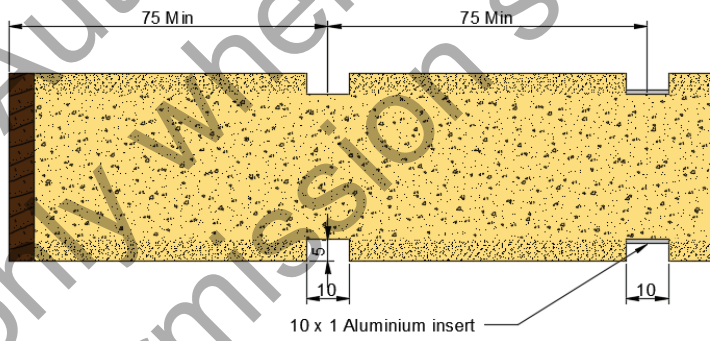
(B): Tested groove arrangement 2



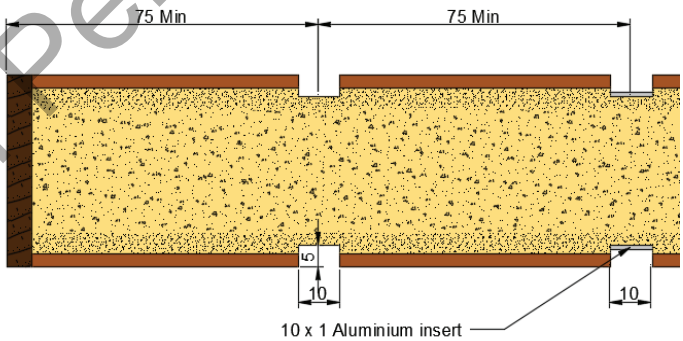
(C): Groove detail 1



(D): Groove detail 2



(E): Groove and insert detail 1



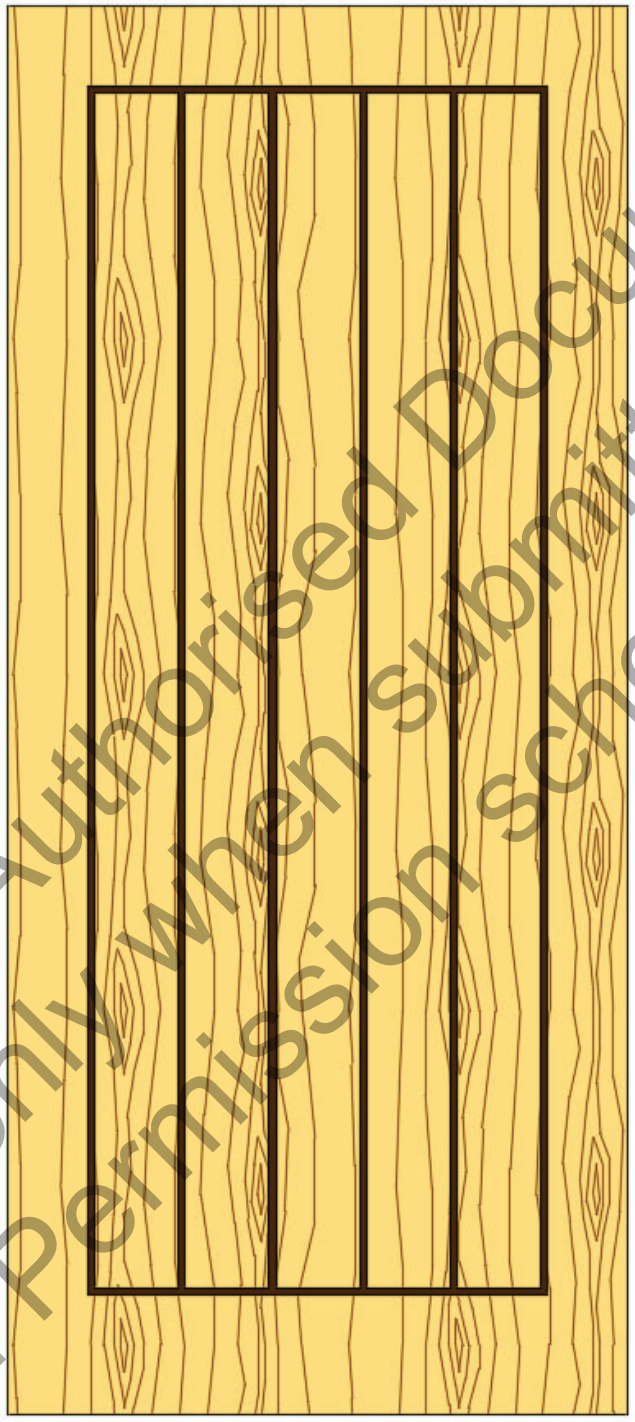
(F): Groove and insert detail 2

5.8.3 Option C

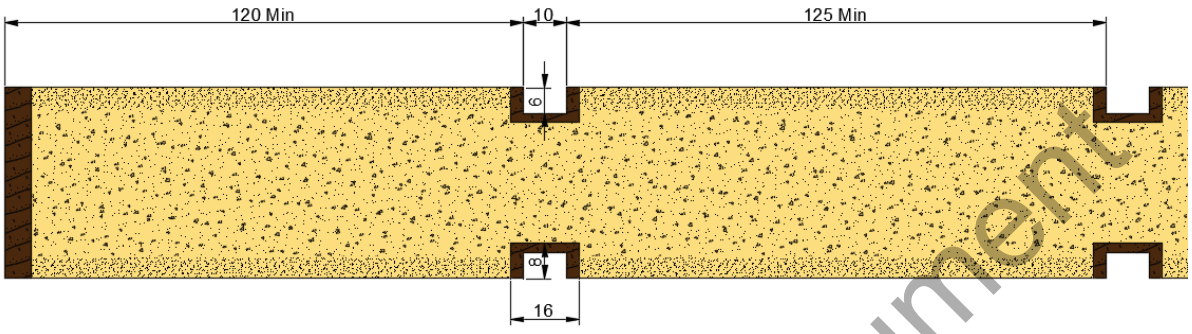
Tested grooving arrangement from CFR1803021A as summarised in Appendix Z.

Groove Option C		
Element	Details	
Max. groove size (mm)	10mm wide x 6mm deep, including 6mm deep 'V' grooves.	
Inserts	Inserts must be Hardwood or MDF (minimum density 640kg/m³). Maximum size 16mm wide x 8mm deep.	
Adhesive	The insert must be tightly fitted and glued on into the door core on all edges using a PU or UF adhesive.	
Proximity to door edges (mm)	Horizontal Grooves	≥ 120mm from top and bottom
	Vertical Grooves	≥ 120mm from sides
Groove spacing (mm)	Maximum 8no. Grooves divided between horizontal and vertical orientations as required and spaced minimum 125mm apart.	
Orientation	Horizontal or Vertical	
Configuration	Latched & unlatched, single & double acting, single & double leaf doorsets	
Leaf	Leaf 1 & 2 only	
Leaf size range (mm)	2250 x 1050	
Intumescent seal dimensions (mm)	Use intumescent arrangement specific to frame option	
Frame	Backfilled frames M1, M2 & M3 (Cement) & M4 (Partial Foam Fill)	

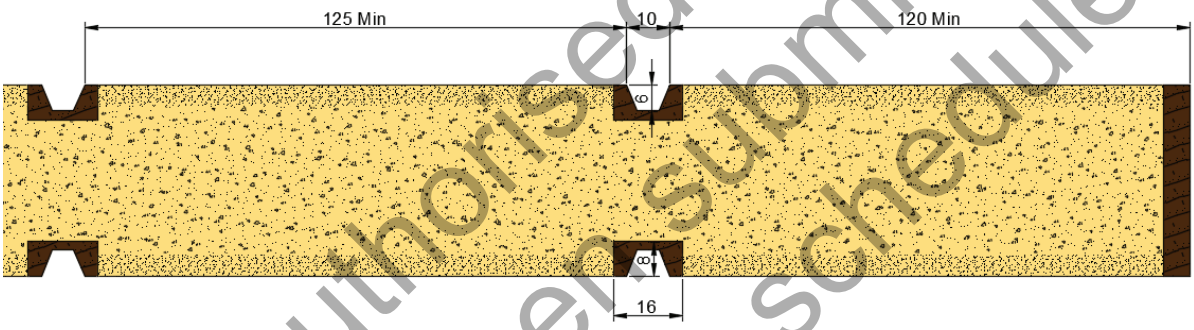
5.8.3.1 Drawings of Permitted Groove Option C



(A): Tested groove arrangement



(B): Groove and insert detail 1



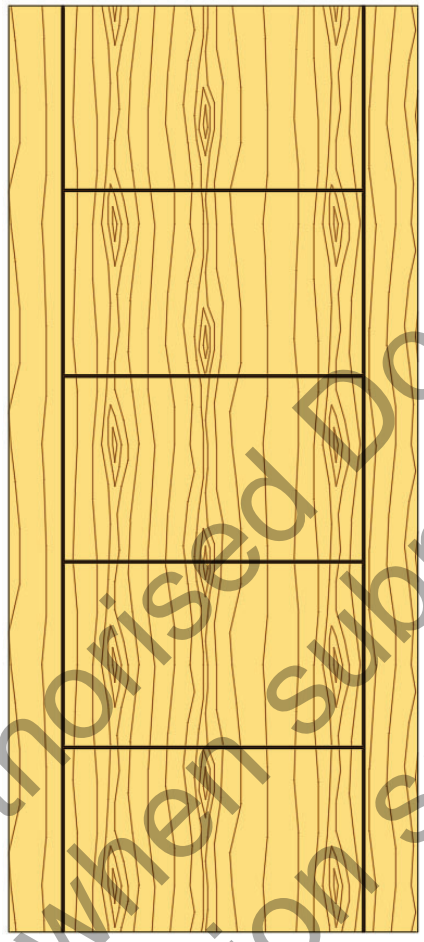
(C): Groove and insert detail 2

5.8.4 Option D

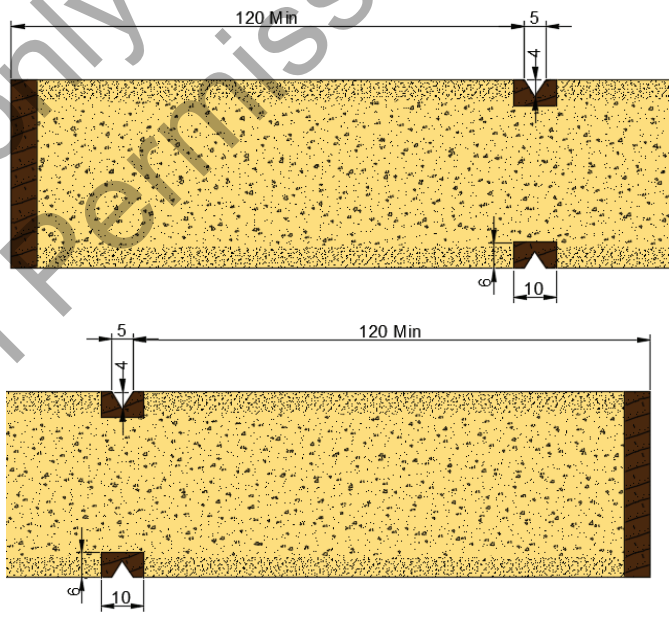
Tested grooving arrangement from CFR1803021B as summarised in Appendix Z.

Groove Option D		
Element	Details	
Max. groove size (mm)	5mm wide x 4mm deep 'V' grooves.	
Inserts	Inserts must be Hardwood or MDF (minimum density 640kg/m³). Maximum size 10mm wide x 6mm deep.	
Adhesive	The insert must be tightly fitted and glued on into the door core on all edges using a PU or UF adhesive.	
Proximity to door edges (mm)	Horizontal Grooves	≥ 120mm from top and bottom
	Vertical Grooves	≥ 120mm from sides, may extend full height
Groove spacing (mm)	Maximum 2no. Vertical grooves which may extend to leaf edges. Maximum 4no. Horizontal grooves between the vertical grooves.	
Orientation	Horizontal and Vertical	
Configuration	Latched, single acting, single leaf doorsets	
Leaf	Leaf 1 & 2 only	
Leaf size range (mm)	2250 x 950	
Intumescent seal dimensions (mm)	Use intumescent arrangement specific to frame option	
Frame	Backfilled frames M1, M2 & M3 (Cement) & M4 (Partial Foam Fill)	

5.8.4.1 Drawing of Permitted Groove Option D



(A): Tested groove arrangement



(B): Groove and insert detail

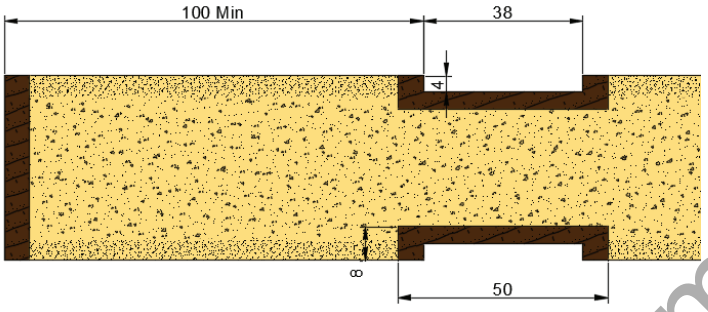
5.8.5 Option E

Tested grooving arrangement from WF426991 as summarised in Appendix Z.

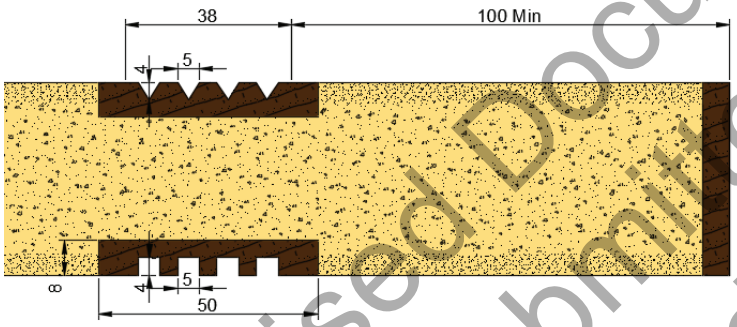
Groove Option E		
Element	Details	
Max. groove size (mm)	50mm wide x 8mm deep in-filled with hardwood timber (min. 510kg/m^3). The hardwood insert can be machined with a decorative groove with maximum dimensions of 38mm wide x 4mm deep. Multiple grooves with maximum dimensions of 5mm wide x 4mm deep or 4mm deep "V" grooves can also be machined into each hardwood insert.	
Inserts	Inserts must be Hardwood or MDF (minimum density 510kg/m³). Maximum size 50mm wide x 8mm deep.	
Adhesive	The insert must be tightly fitted and glued on into the door core on all edges using a PU or UF adhesive.	
Proximity to door edges (mm)	Horizontal Grooves	≥ 100mm from top and ≥ 200mm from bottom
	Vertical Grooves	≥ 100mm from sides, may extend full height
Groove spacing (mm)	Maximum 2no. Vertical grooves which may extend to leaf edges. Maximum 2no. Horizontal grooves between the vertical grooves.	
Orientation	Horizontal and Vertical	
Configuration	Latched, single acting, single leaf doorsets	
Leaf	Leaf 1 & 2 only	
Leaf size range (mm)	2250 x 975	
Intumescent seal dimensions (mm)	Use intumescent arrangement specific to frame option	
Frame	Backfilled frames M1, M2 & M3 (Cement) & M4 (Partial Foam Fill)	

5.8.5.1 Drawing of Permitted Groove Option E

(A): Tested groove arrangement



(B): Groove and insert detail 1



(C): Groove and insert detail 2

5.9 Leaf Size Adjustment Prior To Machining

Door leaves may be altered as follows prior to the machining for hardware.

Pre-Machining Leaf Size Adjustment Specification	
Element	Reduction
Leaf	The size of the leaf may be reduced in height or width without restriction for manufacturing purposes, providing the finished leaf is lipped in accordance with section 5.5
Timber Lipping	The timber lipping thickness can be reduced after it has been glued in place, providing it is not reduced below the minimum stated in section 5.5

6 Glazing within the Leaf

6.1 General

The testing conducted on Halspan **Prima 30** has demonstrated that the design is capable of tolerating glazed apertures, whilst providing a margin of over performance. Glazing is therefore acceptable within the following parameters.

The maximum assessed glazed area for all configurations for leaf 1 and 2 and frame M1, M2, M3 and M4 is 1.75m² as tested in report RF06068B as summarised in Appendix Z.

The maximum assessed glazed area for all configurations for leaf 3 and frame M1, M2, M3 and M4 is 1.05m² as tested in report WF412654 as summarised in Appendix Z.

Frame M5 was not tested with a glazed aperture. Considering the Halspan Prima 44 and 54 door blanks have shown no sign of burn through in the test evidence listed in section 3, Warringtonfire have permitted a maximum glazed aperture of 0.2m² when using frame M5.

For all 3 leaf types:

- Glazed openings must not be less than 90mm from top and side edges and 200mm from the bottom edge.
- Multiple apertures are acceptable within the permitted glazed area, with a minimum dimension of 80mm of Halspan **Prima 30** core between apertures.
- Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape, but no aperture angle must be less than 60 degrees.

Timber for glazing beads must be straight grained joinery quality, free from knots, splits and checks.

The following sections consider the following: -

- Which glass and glazing system can be used together and the associated pane size limitation.
- The bead details for chamfered and square beads and a security bead.
- Which glasses can be used with square beads.
- The use of an aperture liner.
- Bead fixings.
- Specific glazing systems for specialist glasses.

6.2 Glass & Glazing Systems – Leaf 1 & 2 Only & Frame M1, M2, M3 & M4

The table below specifies the maximum assessed area of glazing for each permitted glass type and glazing system.

Glass & Glazing System Specification for Leaf 1 & 2 & Frame M1, M2, M3 & M4 Max. Assessed Area (m^2)											
		Glazing System & Manufacturer									
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	Glass Type & Manufacturer	Fireglaze 30 Sealmaster UK Ltd	Therm A Strip Intumescent Seals Ltd	Firestrip 30 Hodgson Sealants Ltd	Flexible Figure 1 Lorient Polyproducts Ltd	System 36 Plus Lorient Polyproducts Ltd	Pyroglaze 30 Mann McGowan Ltd	R8193 Pyroplex Ltd	30049 Pyroplex Ltd	Halspan 30 Halspan Ltd	STS105GT Sealed Tight Solutions Ltd
1.	6mm Pyroshield 2 Clear Wired[3] Pilkington UK Ltd	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	0.4
2.	6mm Pyran S Schott Glass Ltd	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	0.4
3.	5mm Firelite Ceramics Glass Ltd	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4
4.	6mm Pyrostem Pyroguard UK Ltd	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	0.4
5.	7mm Pyroguard EW30 Pyroguard UK Ltd	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.24
6.	7mm Pyrobelite 7 AGC Flat Glass UK	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	1.24
7.	7mm Pyrodur 30-104 Pilkington UK Ltd	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	1.24
8	7mm Pyrodur 30-105 Pilkington UK Ltd	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	1.24
9.	10mm Pyrodur 60-10 Pilkington UK Ltd	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	1.24

Glass & Glazing System Specification for Leaf 1 & 2 & Frame M1, M2, M3 & M4 Max. Assessed Area (m^2)										
		Glazing System & Manufacturer								
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	Glass Type & Manufacturer	Fireglaze 30 Sealmaster UK Ltd	Therm A Strip Intumescent Seals Ltd	Firestrip 30 Hodgson Sealants Ltd	Flexible Figure 1 Lorient Polyproducts Ltd	System 36 Plus Lorient Polyproducts Ltd	Pyroglaze 30 Mann McGowan Ltd	R8193 Pyroplex Ltd	30049 Pyroplex Ltd	Halspan 30 Halspan Ltd	STS105GT Sealed Tight Solutions Ltd
10.	11mm Pyroguard EW Maxi Pyroguard UK Ltd	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.24
11.	11mm Pyranova 15-S2.0 Schott Glass Ltd	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	1.24
12.	12mm Pyrobelite 12 AGC Flat Glass UK	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	1.24
13.	15mm Pyroguard EI30 Pyroguard UK Ltd	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	1.24
14.	15mm Pyrostop 30-10 Pilkington UK Ltd	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	1.24
15.	16mm Pyrobel 16 AGC Flat Glass UK	1.75	1.75	1.75	1.75	1.25	1.25	1.25	1.25	1.25	1.24

Note:

1. All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion tolerances.
2. Glass types 11, and 13-15 are fully insulating for 30 minutes in terms of the criteria set out BS 476: Part 20: 1987.
3. Pilkington UK Ltd Pyroshield 2 Obscured (textured) is not permitted.

6.3 Glass & Glazing Systems: Leaf 3 Only & Frame M1, M2, M3 & M4

The table below specifies the maximum assessed area of glazing for each permitted glass type and glazing system.

Glass & Glazing System Specification for Leaf 3 & Frame M1, M2, M3 & M4 Max. Assessed Area (m^2)											
		Glazing System & Manufacturer									
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	Glass Type & Manufacturer	Fireglaze 30 Sealmaster UK Ltd	Therm A Strip Intumescent Seals Ltd	Firestrip 30 Hodgson Sealants Ltd	Flexible Figure 1 Lorient Polyproducts Ltd	System 36 Plus Lorient Polyproducts Ltd	Pyroglaze 30 Mann McGowan Ltd	R8193 Pyroplex Ltd	30049 Pyroplex Ltd	Halspan 30 Halspan Ltd	STS105GT Sealed Tight Solutions Ltd
1.	6mm Pyroshield 2 Clear Wired[3] Pilkington UK Ltd	1.05	1.05	1. 5	1.05	1.05	1.05	1.05	1.05	1.05	0.4
2.	6mm Pyran S Schott Glass Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	0.4
3.	5mm Firelite Ceramics Glass Ltd	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4
4.	6mm Pyrostem Pyroguard UK Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	0.4
5.	7mm Pyroguard EW30 Pyroguard UK Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
6.	7mm Pyrobelite 7 AGC Flat Glass UK	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
7.	7mm Pyrodur 30-104 Pilkington UK Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
8	7mm Pyrodur 30-105 Pilkington UK Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
9.	10mm Pyrodur 60-10 Pilkington UK Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05

Glass & Glazing System Specification for Leaf 3 & Frame M1, M2, M3 & M4 Max. Assessed Area (m^2)											
		Glazing System & Manufacturer									
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	Glass Type & Manufacturer	Fireglaze 30 Sealmaster UK Ltd	Therm A Strip Intumescent Seals Ltd	Firestrip 30 Hodgson Sealants Ltd	Flexible Figure 1 Lorient Polyproducts Ltd	System 36 Plus Lorient Polyproducts Ltd	Pyroglaze 30 Mann McGowan Ltd	R8193 Pyroplex Ltd	30049 Pyroplex Ltd	Halspan 30 Halspan Ltd	STS105GT Sealed Tight Solutions Ltd
10.	11mm Pyroguard EW Maxi Pyroguard UK Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
11.	11mm Pyranova 15-S2.0 Schott Glass Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
12.	12mm Pyrobelite 12 AGC Flat Glass UK	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
13.	15mm Pyroguard EI30 Pyroguard UK Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
14.	15mm Pyrostop 30-10 Pilkington UK Ltd	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
15.	16mm Pyrobel 16 AGC Flat Glass UK	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05

Note:

1. All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion tolerances.
2. Glass types 11, and 13-15 are fully insulating for 30 minutes in terms of the criteria set out BS 476: Part 20: 1987.
3. Pilkington Pyroshield 2 Obscured (textured) is not permitted.

6.3.1 Glass & Glazing Systems: Leaf 1 & 2 & Frame M5

Glass & Glazing System Specification for Leaf 1 & 2 & Frame M5 Max. Assessed Area (m^2)										
		Glazing System & Manufacturer								
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	Glass Type & Manufacturer	Fireglaze 30 Sealmaster UK Ltd	Therm A Strip Intumescent Seals Ltd	Firestrip 30 Hodgson Sealants Ltd	Flexible Figure 1 Lorient Polyproducts Ltd	System 36 Plus Lorient Polyproducts Ltd	Pyroglaze 30 Mann McGowan Ltd	R8193 Pyroplex Ltd	30049 Pyroplex Ltd	Halspan 30 Halspan Ltd	STS105GT Sealed Tight Solutions Ltd
1.	6mm Pyroshield 2 Clear Wired[3] Pilkington UK Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2.	6mm Pyran S Schott Glass Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
3.	5mm Firelite Ceramics Glass Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
4.	6mm Pyrostem Pyroguard UK Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
5.	7mm Pyroguard EW30 Pyroguard UK Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
6.	7mm Pyrobelite 7 AGC Flat Glass UK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7.	7mm Pyrodur 30-104 Pilkington UK Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8	7mm Pyrodur 30-105 Pilkington UK Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Glass & Glazing System Specification for Leaf 1 & 2 & Frame M5 Max. Assessed Area (m^2)											
		Glazing System & Manufacturer									
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	Glass Type & Manufacturer	Fireglaze 30 Sealmaster UK Ltd	Therm A Strip Intumescent Seals Ltd	Firestrip 30 Hodgson Sealants Ltd	Flexible Figure 1 Lorient Polyproducts Ltd	System 36 Plus Lorient Polyproducts Ltd	Pyroglaze 30 Mann McGowan Ltd	R8193 Pyroplex Ltd	30049 Pyroplex Ltd	Halspan 30 Halspan Ltd	STS105GT Sealed Tight Solutions Ltd
9.	10mm Pyrodur 60-10 Pilkington UK Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	11mm Pyroguard EW Maxi Pyroguard UK Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
11.	11mm Pyranova 15-S2.0 Schott Glass Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
12.	12mm Pyrobelite 12 AGC Flat Glass UK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13.	15mm Pyroguard EI30 Pyroguard UK Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
14.	15mm Pyrostop 30-10 Pilkington UK Ltd	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15.	16mm Pyrobel 16 AGC Flat Glass UK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Note:

1. All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion tolerances.
2. Glass types 11, and 13-15 are fully insulating for 30 minutes in terms of the criteria set out BS 476: Part 20: 1987.
3. Pilkington Pyroshield 2 Obscured (textured) is not permitted.

6.4 Glazing Beads & Installation – all Leaf Types

6.4.1 Chamfered Bead

These are permitted on all glass types and glazing systems listed in the tables in section 6.2 and 6.3.

The enhanced security bead has been assessed by Warringtonfire to be suitable as the glass and glazing system and beading is based on the standard chamfered bolection bead but with an integral liner which will further protect the glazing pocket. Section 6.4.7 gives information on bead fixings, however, note the length of the pins should be increased to 50mm for the enhanced security bead so as to penetrate the door core to a sufficient depth.

Bead material is as specified below:

Bead Material Specification	
Material	Min. Density (kg/m^3)
Hardwood: must be straight grained joinery quality, free from knots, splits and checks.	640
MDF: not for Security bead	700

The hardwood bead can be PVC clad as tested in RF02083A as summarised in Appendix Z, but can only be used with glazing system 1 in section 6.2 and glass types 1 to 15.

The key dimensions are shown on the drawing which are:

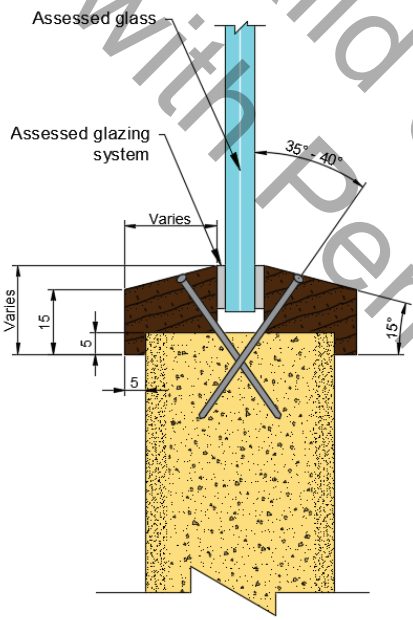
- the bolection size 5 x 5mm
- The face dimension 15mm including the bolection return, increased to 24mm for the security bead
- 15 degree chamfer
- The dimension between face and glass varies to accommodate different thickness of door leaf, glass and glazing medium.

Note:

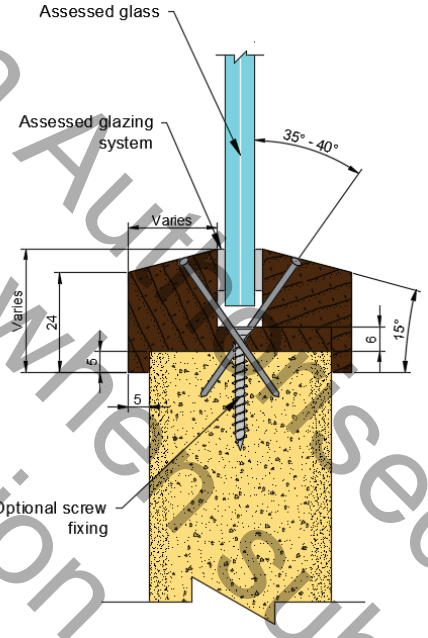
Setting blocks and glass expansion allowances are not defined, guidance of the glass manufacturer should be followed.

6.4.1.1 Drawing of Permitted chamfered beads

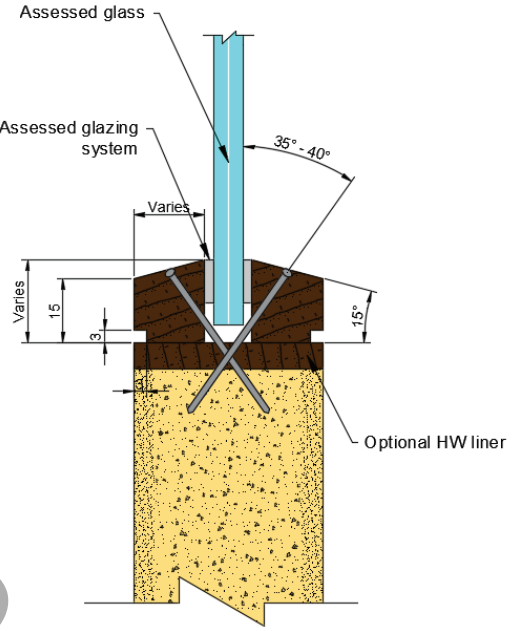
Details of the glazing system are shown below.



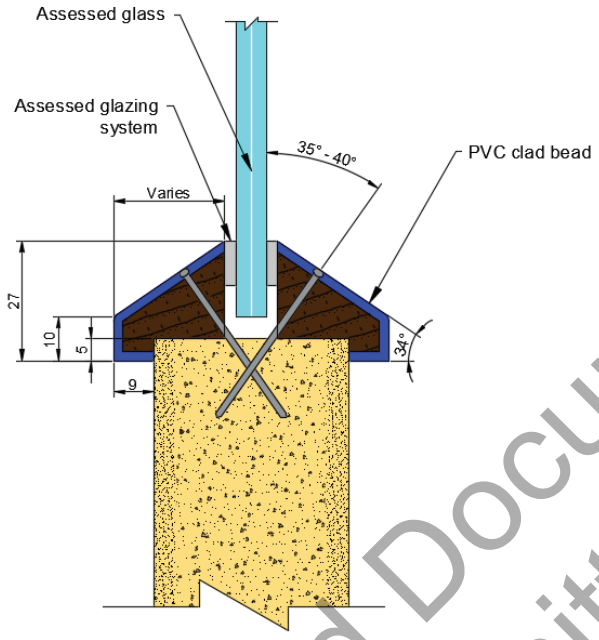
(A): Standard chamfered bolection bead



(B): Enhanced security bead



(C): Chamfered flush bead



(D): PVC clad chamfered bolection bead

6.4.2 Square Beads

These are permitted on glass types 6 – 15 and all glazing systems listed in the table in section 6.2 and 6.3.

Bead material is as specified below:

Bead Material Specification	
Material	Min. Density (kg/m^3)
Hardwood: must be straight grained joinery quality, free from knots, splits and checks.	640
MDF	700

The key dimensions are shown on the drawing which are:

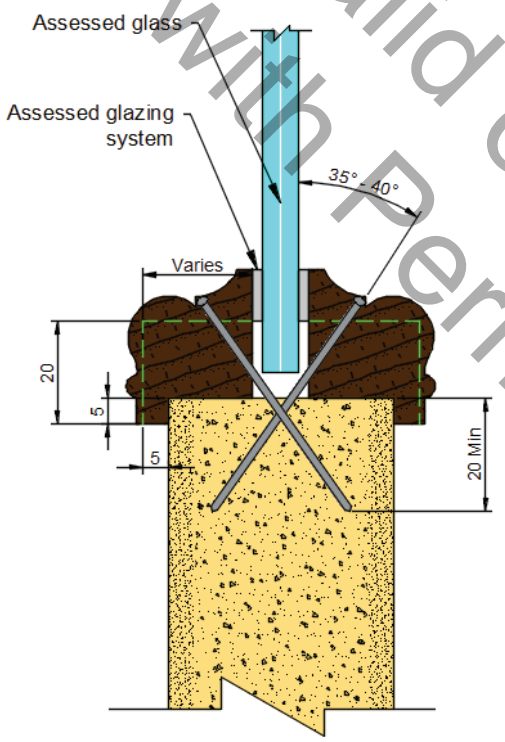
- The face dimension 15mm
- The permitted glass types used with square beads must incorporate a 15mm high beading. Beadings may incorporate an optional quirk and bolection return as shown below.
- The dimension between face and glass varies to accommodate different thickness of door leaf, glass and glazing medium.
- Glazing beads with an integral decorative moulding may be used provided the minimum dimensions for square beads are maintained. The bead fixings must also be of a sufficient length to penetrate the door core by at least 20mm

Note:

Setting blocks and glass expansion allowances are not defined, guidance of the glass manufacturer should be followed.

6.4.2.1 Example of moulded bolected bead permitted with partially or fully insulated glass (Glass Types 6 to 15)

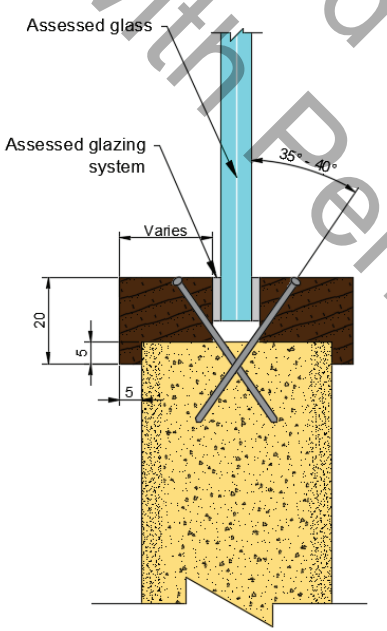
For use with intumescing glazing systems (i.e. Systems 1 – 4 & 6 – 9)



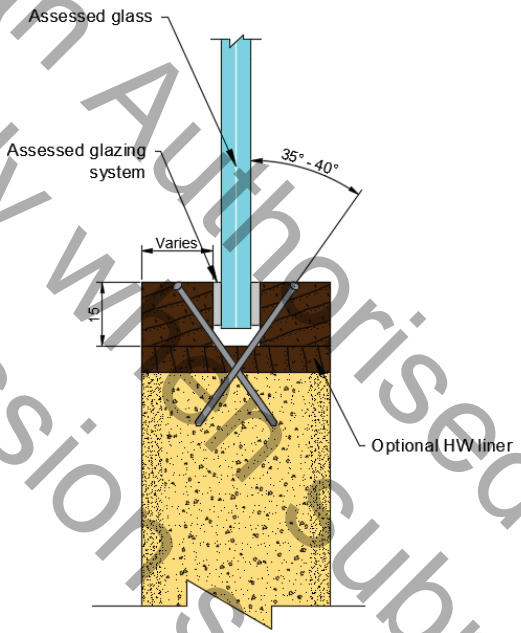
The dashed green line denotes the typical square bead profile which must not be cut into by the outer profiling of the glazing bead.

6.4.2.2 Drawing of Permitted Square Bead with partially or fully insulating glass

Details of the glazing systems are shown below

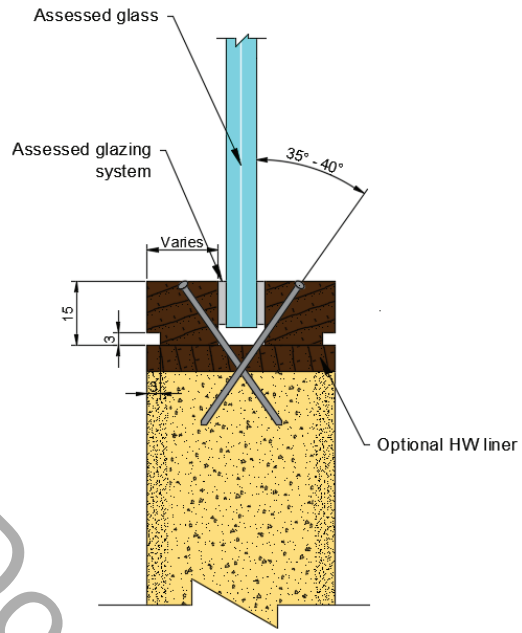


(A): Standard square bolection bead



(B): Standard square flush bead

See section 6.4.6 for optional HW liner requirements

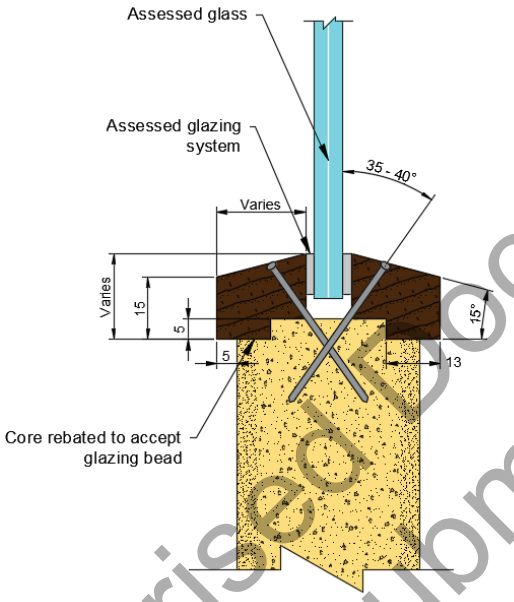


(C): Flush bead with 3x3mm quirk

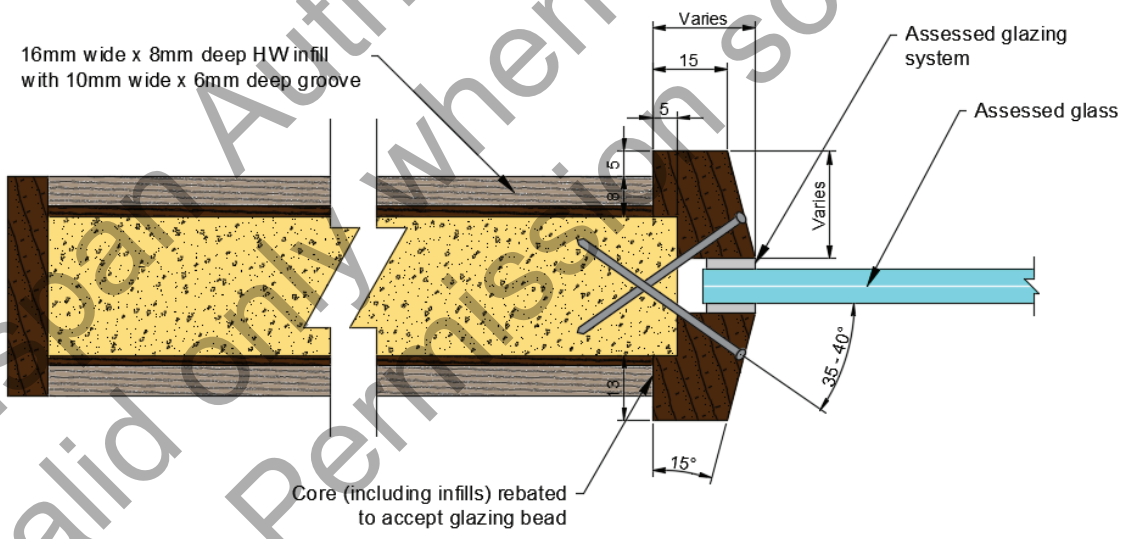
See section 6.4.6 for optional HW liner requirements

6.4.3 Glazing Beads to use with Grooves

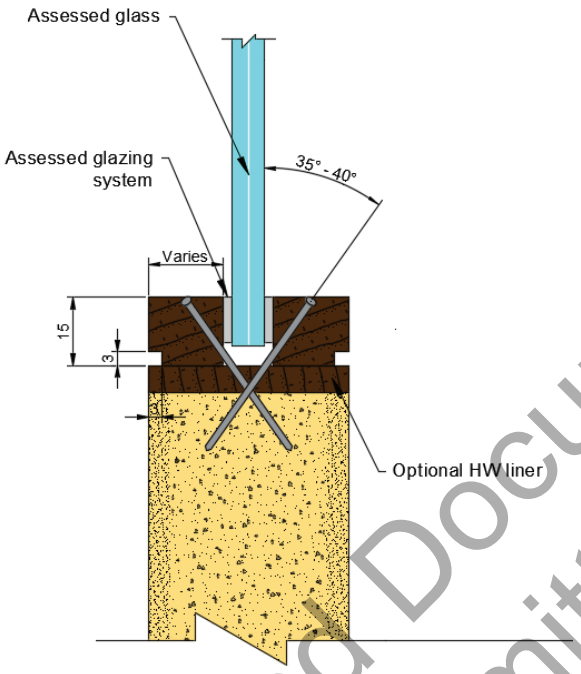
These beads are specially designed to compensate for the effect of the grooving and prevent the risk of a groove undermining the glazing pocket. The drawing below shows the modification to the glazing bead. In addition the requirements of section 6.4.1 must be complied with.



(A): Bead detail

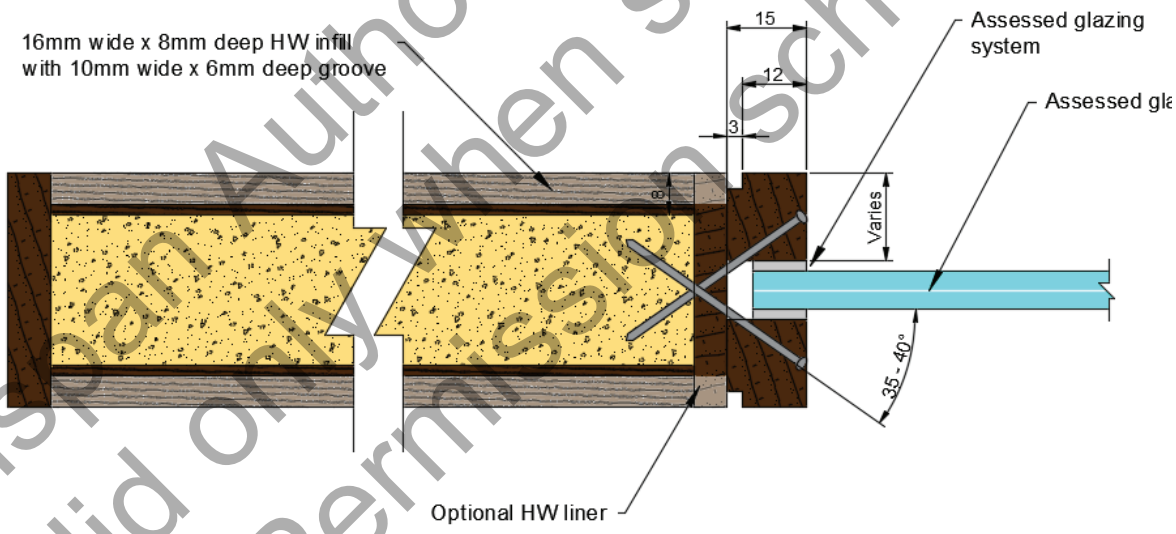


(B): Bead detail with groove infills



(C): Square bead detail

See section 6.4.6 for optional HW liner requirements



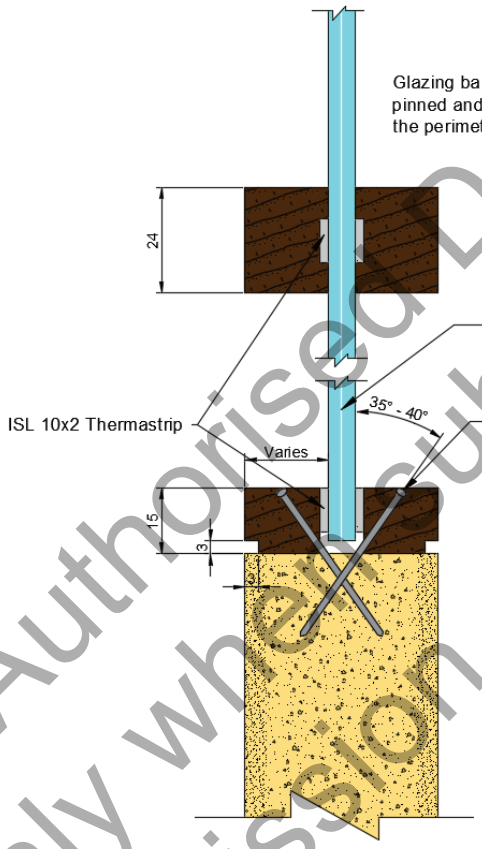
(D): Square bead detail with groove infills

See section 6.4.6 for optional HW liner requirements

6.4.4 Halspan 30 Cassette System: False Beads

False timber beads may be bonded to the glass face with a 10 x 2 Therm-A-Strip intumescent strip based on test Warres 112248A and WF412654B contained within Appendix Z. For this application partially insulating glasses are required and suitable glasses for this application are glass types 6 – 15.

Timber for glazing beads must be straight grained joinery quality, free from knots, splits and checks. The Halspan cassette system based on this principle is given below.



False bead detail – Halspan 30 cassette system

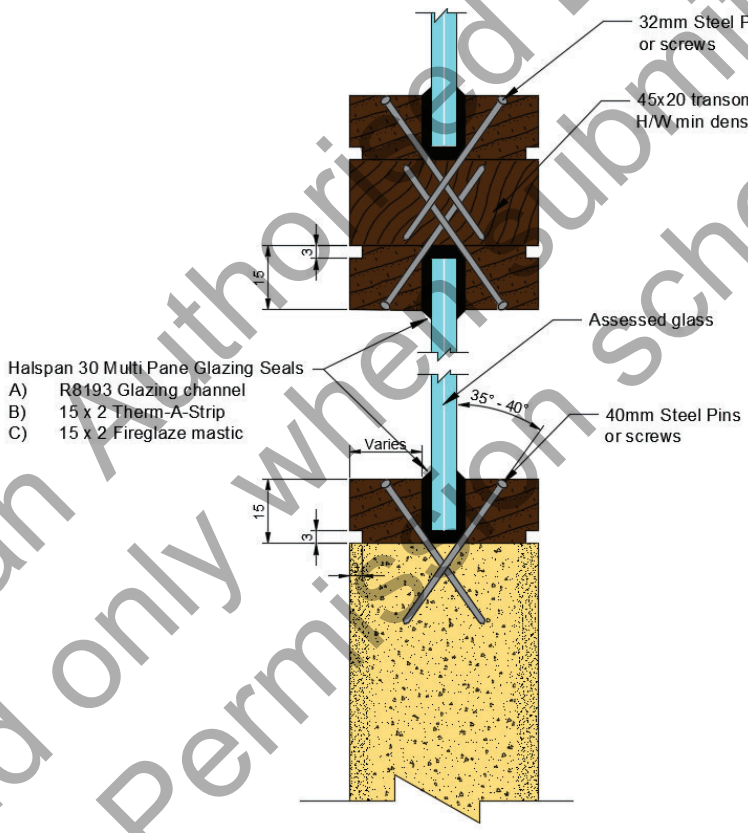
6.4.5 Halspan 30 Multi-Pane Glazing System

Halspan has tested the multi-pane system shown below reference RF99036 as summarised in Appendix Z. For this application partially insulating glasses are required and suitable glass for this application are glass types 6 – 15 used with one of the following glazing systems.

- R8193 glazing channel
- Therm-A-Strip
- Fireglaze mastic

Pin fixings used for multi pane ladder below must match that for the glazing beads (i.e. 35-40º angle).

Timber for glazing beads and transom or mullions must be straight grained joinery quality, free from knots, splits and checks. The Halspan multi-pane glazing system based on this principle is given below.



Multi-pane bead detail – Halspan 30 multi-pane glazing system

6.4.6 Optional Glazing Liner

A 6 – 10mm thick square aperture liner is permitted for use with square beads see section 6.4.2 and option C of chamfered beads see section 6.4.1.1 providing it is constructed from hardwood of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive.

6.4.7 Bead Fixings

Glazing beads must be retained in position with 40mm long steel pins or 40mm long No. 6 – 8 screws, inserted at 35-40º to the vertical. Fixings must be at 150mm maximum centres and no more than 50mm from each corner.

When using the security beading system shown in 6.4.1.1 (B), this requires a 50mm long fixing.

Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.4.7.1 below.

6.4.7.1 Gun (Pneumatically) Fired Pins

The following pin specification is permitted and has been considered suitable for gun (pneumatically) fired applications:

Option 1: Round, Oval & Rectangular Pins

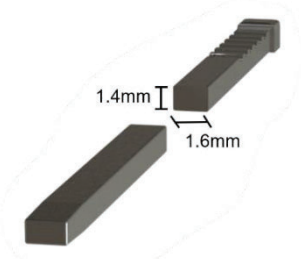
The following dimension of pin has been approved for round, oval and rectangular shaped pins:

- Minimum Standard Wire Gauge (SWG) 16.
- Minimum cross section area of 2.03mm^2.
- Minimum linear dimension of 1.6mm in any direction.

Option 2: Rectangular Pins

The following dimension of rectangular pin has been deemed suitable for gun (pneumatically) fired applications, providing the 1.6mm dimension is predominately oriented perpendicular to the glass, where possible:

- Minimum Standard Wire Gauge (SWG) 16.
- Minimum cross section area of 2.24mm^2.
- Minimum linear dimension of 1.4mm.



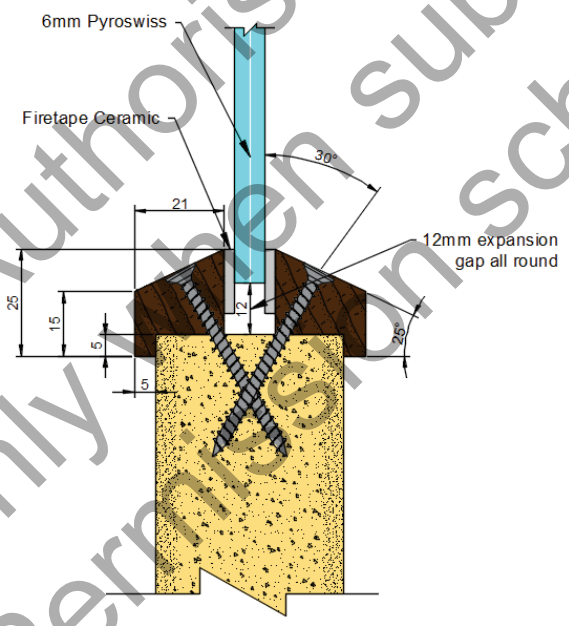
Note:

Pins with dimensions less than those stated above are not covered by this assessment.

6.5 Pyroswiss Glazed with Hodgson Sealants Firetape Ceramic for Frame M1, M2, M3 & M4

Pyroswiss (6mm) glass has been successfully tested in test reference Chilt/RF02110 as summarised in Appendix Z, with further support for Leaf 1 with reference to Certifire Certificate CF684, and is assessed as suitable for use within the following scope:

- Maximum glazed area: 0.8 m^2
- Leaf: 1, 2 and 3
- Glazing System: 15 x 3mm Hodgson Sealants Firetape Ceramic, between the glass and bead.
- Glazing Beads:
  (a) 25 x minimum 21 mm (h x w) (including a 5 x 5 mm (h x w) bolection and a 25^0 chamfer)
  (b) Hardwood (minimum 650kg/m3)
- Expansion Allowance: 12mm on all edges, with 2no non-combustible or hardwood setting blocks to the bottom edge.
- Edge Cover: 8mm on all edges
- Glazing Liner: Not required, but permitted as detailed in section 6.4.6
- Bead fixings: 50mm long steel screws at 30^0 to the glass, 50mm from corners and 130 to 150mm centres

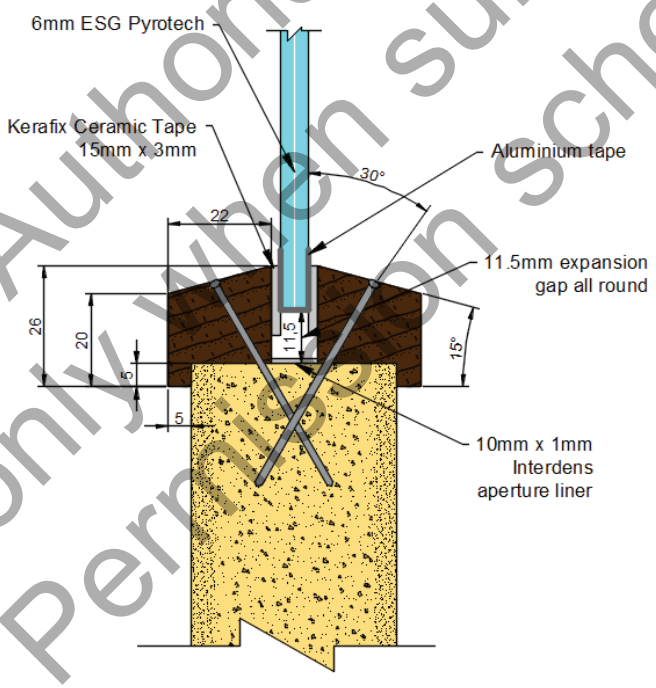


Pyroswiss glazing detail

6.6 ESG Pyrotech Glazed with Kerafix for Frame M1, M2, M3 & M4

ESG Pyrotech 630 (6mm) glass has been successfully tested in test reference Chilt/RF08169 as summarised in Appendix Z, and is assessed as suitable for use within the following scope:

- Maximum glazed area: 1.25 m^2
- Leaf: 1 and 2
- Glazing System:
  (a) 15 x 3mm Kerafix ceramic tape, between the glass and bead.
  (b) 10 x 1mm Dufaylite Interdens, fitted around the glazing perimeter.
- Glazing Beads:
  (a) 26 x minimum 22 mm (h x w) (including a 5 x 5 mm (h x w) bolection and a 15^0 chamfer)
  (b) Hardwood (minimum 640kg/m3)
- Expansion Allowance: 11.5mm on all edges, with 2no non-combustible or hardwood setting blocks to the bottom edge.
- Edge Cover: 9.5mm on all edges
- Glazing Liner: Not required, but permitted as detailed in section 6.4.6
- Bead fixings: 2mm diameter x 50mm long steel pins, at 30^0 to the glass, 50mm from corners and 150mm centres
- Glass must include aluminium foil edge protection with returns of 12mm high to each face.



6.7 Hygeno Invista & Flushview Units: Leaf 2 Only and for Frame M1, M2, M3 & M4

These glazing units have been successfully tested in CFR1909241 as summarised in Appendix Z at sizes 750mm high by 500mm wide, with the fitting of the glazing units witnessed by a representative of BM Trada on 17/09/2019 under contract reference PS190901, and are therefore permitted for use within the following specification as detailed within the sampling report:

- Maximum glazed area: 0.375 m^2
- Leaf: 2 only
- The maximum height of glazing unit : 750mm
- The maximum width of glazing unit: 500mm
- Glazing aperture must be rectilinear and positioned no closer than 150mm from vertical leaf edges, and no closer than 377mm from the head of the leaf. Aperture size is 8mm higher and 8mm wider than the glazing unit dimensions.
- The glazing aperture is routed 12mm deep x 40mm wide positioned centrally to on all edges of the glazing aperture. The vertical edges must be fitted with 12mm x 40mm MgO boards and each horizontal edge must be fitted with 2no 12mm x 14mm MgO boards with the 12mm x 12mm void completely filled with Everbuild Fire Mate intumescent sealant. The pre-drilled MgO boards must be held in place with either 50mm pins (complying with the requirements of section 6.4.7.1) or 50mm steel countersunk wood screws.
- The glazing unit is fitted with central glazing pane projecting into the Otto Chemie S94 silicone sealant on the horizontal edges.
- Glazing System:
  (a) 50 x 3mm (comprising 50 x 2mm + 50 x 1mm) Interdens® fitted centrally to the leaf thickness and interrupted by the central glazing pane at the horizontals.
  (b) Edge of liner capped with Otto Chemie S94 silicone sealant, finished flush on both leaf faces.

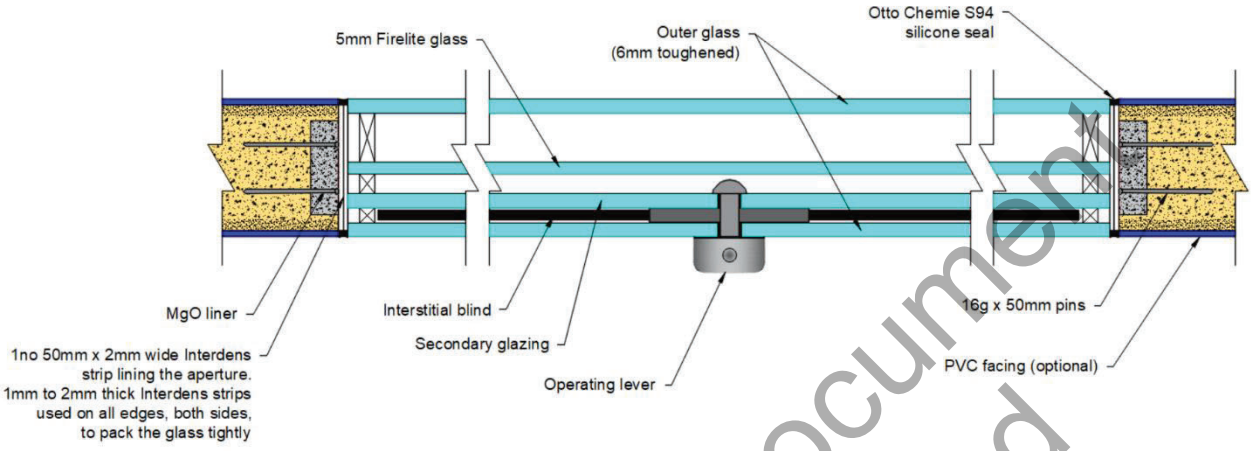
Description of the units follows in sections 6.7.1 and 6.7.2.

Additionally to the above requirements, due to the complex nature of these glazing units, further installation guidance for both the FlushView and Intavista glazing systems should be sought from Hygeno.

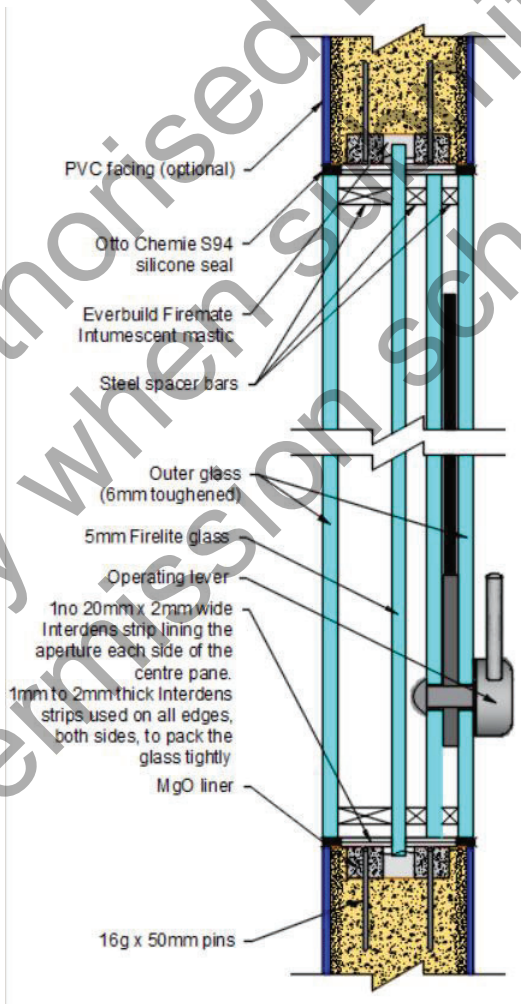
6.7.1 Hygeno Intavista Unit: Leaf 2 only

- Hygeno Flush Fit Invista is supplied as a unit and comprises a central 5mm Firelite pane, with one pane of 6mm toughened glass to one side and with 2 panes of 6mm toughened glass, with an extra layer of movable obscuring glass with a stainless steel handle to the other side.
- This unit has been tested with the operating lever to the furnace side. On the basis that the toughened glass layers are essentially sacrificial layers, which are not essential to maintain the integrity performance of the unit in fire test conditions and the integrity performance shall be maintained by the Firelite ceramic glass centrally within the build-up of the unit. It is therefore assessed that subject to the Firelite remaining uninterrupted. the unit can be considered fire resisting from both sides.

A): Horizontal section detail



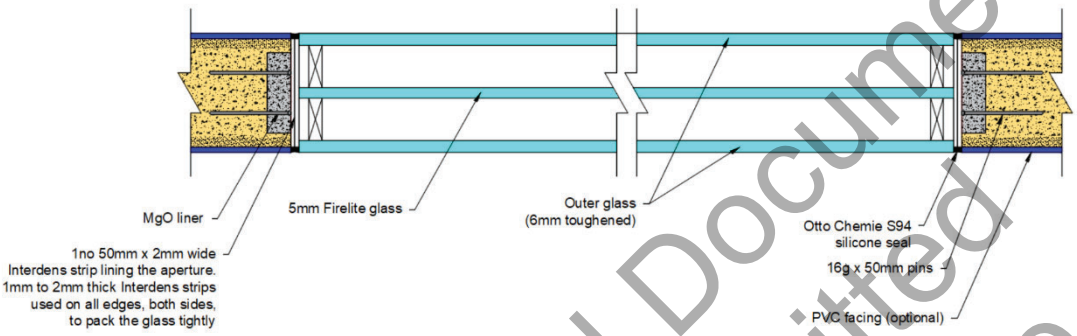
B) Vertical section detail



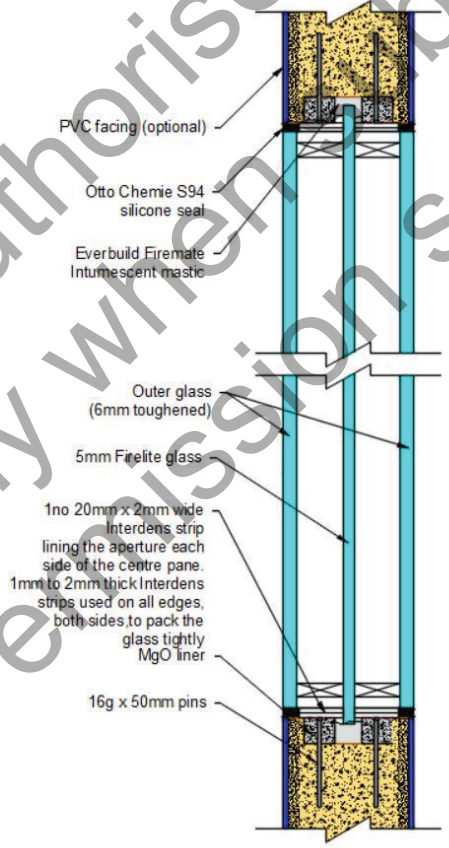
6.7.2 Hygeno Flushview Unit: Leaf 2 only

- Hygeno Flush fit Flushview is supplied as a unit and comprises a central 5mm Firelite pane with 6mm toughened glass to either face.
- This unit is symmetrical and therefore can be considered fire resisting from both sides.

A): Horizontal section detail



B) Vertical section detail



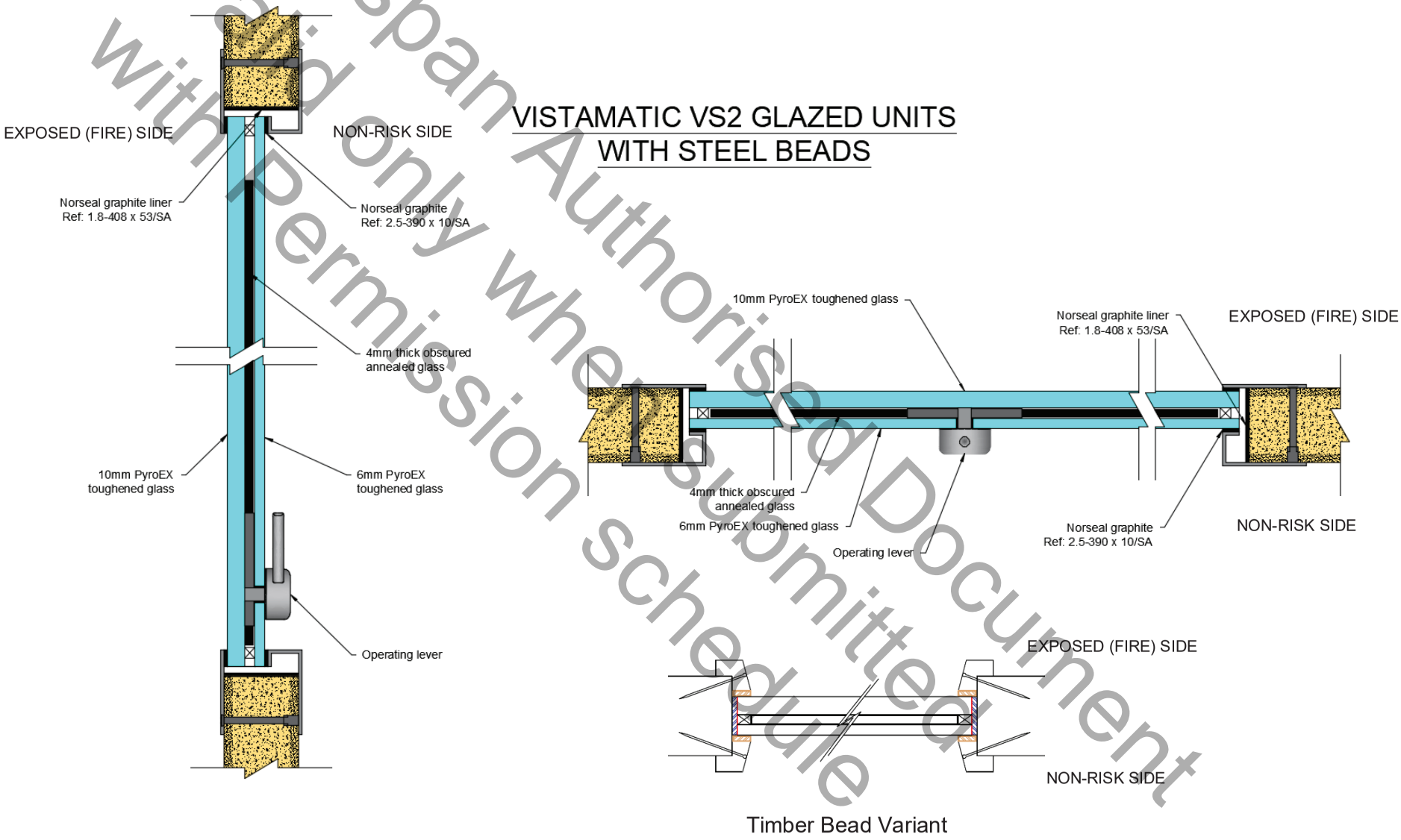
6.8 Vistamatic VS2 Secure Vision Panel

These glazing units have been successfully tested in test reference Chilt/RF12065 Revision B. They are therefore permitted for use within the following specification:

- Maximum total glazed area in door leaf: 1.1m^2 per leaf
- The maximum height of aperture: 1500mm
- The maximum width of aperture: 500mm
- Leaf: 1
- Aperture shape must be rectilinear. Glazed openings must not be less than 100mm from any edge, with a minimum of 80mm between apertures. Multiple apertures are permitted subject to the spacing requirements listed above, with individual panes not exceeding 0.6m^2 and total glazed area within a leaf not exceeding 1.1m^2.
- Vistamatic VS2 Secure Vision Panel is supplied as a unit and comprises a double glazed unit with an additional movable centre layer of obscure glass. The 10mm thick toughened glass must be fitted to the fire risk side of the doorset. This unit can only be considered fire resisting from one direction in terms of exposure to fire test conditions (i.e. when the 10mm toughened glass is oriented on the face exposed to fire test conditions).
- The unit must be fitted in accordance with Vistamatics tested details/installation requirements, particularly with respect to edge cover and expansion allowance.
- This unit can be installed with either timber or steel beads, and must be fitted with the appropriate glazing system for the chosen bead, as detailed below.
- Timber bead and Glazing system:
  (a) Hardwood (minimum 640 kg/m^3) timber bead – minimum 20mm high x 17mm wide including a 9x9mm bolection return and 15 deg. chamfer.
  (b) Bead fixings: 40mm long steel pins, (see section 6.3.7.1) at 35^0 to the glass located to “cradle” the glazing unit, 50mm from corners and 150mm centres.
  (c) McGowan Pyroglaze 30 – 10x3mm fitted between glass and bead on both faces.
  (d) Norseal acrylic intumescent mastic (Fire Wizard) – 3mm thick lining the glazing aperture between the Pyroglaze 30 intumescent.
  (e) Norseal graphite type intumescent sheet – 5mm thick fitted around the spindle lining the aperture in the outer glass layer.
- Steel bead and Glazing system:
  (a) Stainless steel bead – 50mm high x 2mm thick on the fire-risk side and 50mm high x 20mm wide x 2mm thick on the non-fire-risk side.
  (b) Bead fixings: M5x40 machine security screws fixed from the fire-risk side and fitted 20mm from corners and 170mm from centres. Screws into M5x12 studs welded to non-fire-risk side of bead.
  (c) Norseal raw graphite intumescent (ref. 2.5-390 x 10/SA) – 10x2.5mm fitted between glass and bead spacer bars on both faces.
  (d) Norseal graphite intumescent liner (ref. 1.8-408 x 53/SA) – 44x1.8mm thick lining the glazing aperture.
  (e) 2no. Norseal graphite intumescent (ref. 2.5-390 x 10/SA) – 5mm thick fitted around the spindle lining the aperture in the outer glass layer.

The following figures show the example installation drawings of the tested glazing system, when fitted with steel beads with an inset illustration of the timber bead arrangement. .

VISTAMATIC VS2 GLAZED UNITS WITH STEEL BEADS



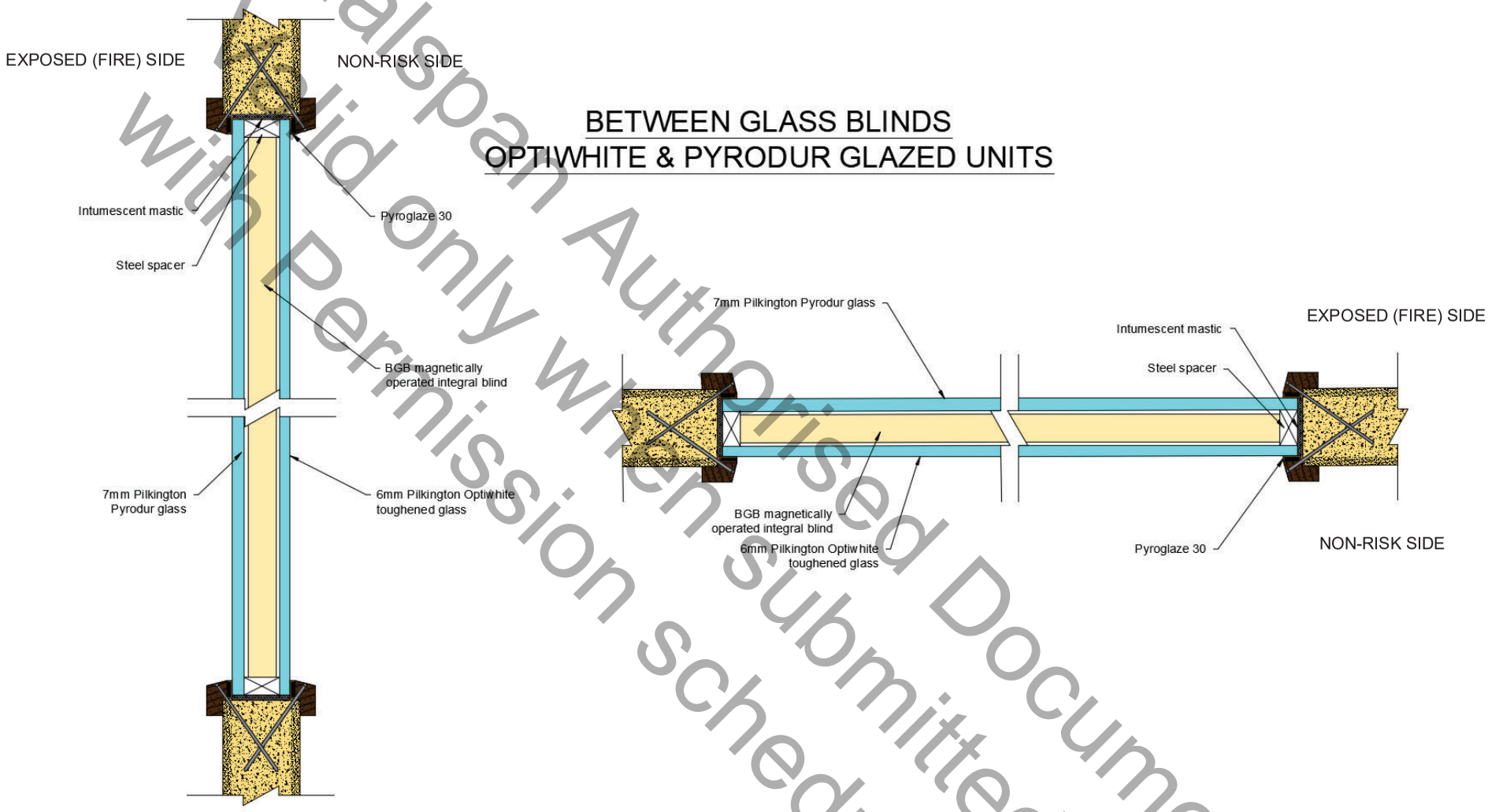
Timber Bead Variant

6.9 BetweenGlassBlinds Optiwhite & Pyrodur based Double Glazed Unit

This glazing unit from Between Glass Blinds Ltd has been successfully tested in WF403484 Doorset B. They are therefore permitted for use within the following specification:

- Maximum glazed area: 0.9m^2
- The maximum height: 1500mm
- The maximum width: 600mm
- Leaf: 1 and 2
- Aperture shape must be rectilinear. Glazed openings must not be less than 100mm from any edge. Multiple apertures are not permitted.
- The unit has been tested from one side only – see notes below.
- BetweenGlassBlinds™ Magnetic Adjustable Vision Panel is supplied as a sealed unit and comprises a double glazed unit with an additional movable magnetically operated internal blind (12.5mm thick) consisting of an aluminium frame and shutter assembly. The 7mm thick Pilkington Pyrodur must be fitted to the fire risk side of the doorset, and the 4mm thick Pilkington Optiwhite toughened glass to the non-fire risk side, with a 20mm steel spacer. This unit can only be considered fire resisting from one direction in terms of exposure to fire test conditions (i.e. when the 7mm Pyrodur glass is oriented on the face exposed to fire test conditions).
- The unit must be fitted in accordance with Between Glass Blinds Ltd tested details/installation requirements, particularly with respect to edge cover and expansion allowance.
- Expansion Allowance: 3mm on all edges
- Glazing System:
  (a) McGowan Pyroglaze 30 – 10x3mm fitted between glass and bead on both faces.
  (b) Norseal acrylic intumescent mastic (Fire Wizard) – 3mm thick lining the glazing aperture between the Pyroglaze 30 intumescent.
- Glazing Beads:
  (a) Minimum 20mm x minimum 17mm (h x w) (including a minimum of 9 x 9 mm (h x w) bolection and a 15^0 chamfer)
  (b) Hardwood (minimum 640kg/m3)
- Bead fixings: 60mm long steel pins (see section 6.3.7.1) at 35^0 to the glass, 50mm from corners and 150mm centres.

The following figure shows example installation drawings of the tested glazing system.



BGB Pilkington Optiwhite + Pyrodur double glazed unit detail

7 Door Frame Construction

The following section described all aspects relating to the frame types permitted in this assessment and the following bullet points outline what sections cover each item of discussion.

- Section 7.1: Frame types tested, basic construction, any permitted frame mode alterations, applicable leaf types, and permitted installation requirements for each frame.
- Section 7.2 & 7.3: Frame types and their applicable supporting constructions.
- Section 7.4: Assessed alternative frame dimensions and justification for amalgamating tested frame designs.
- Section 7.5: Overpanel frame design.

7.1 Details for Frame M1-M5 & Installation Requirements

Door frames may be of a wraparound type, enclosing the supporting construction edge and the rear of the frame must be a contact fit with the structural opening. Alternatively, frames may sit within the structural opening and in the case of frame M5, aluminium architraves must be fitted to both sides of the frame to partition junction. Aluminium frames must be manufactured from grade 6063-16 aluminium.

Frame Specification for Frame M1-M5	
Frame (Test report)	Description of Construction
M1 (RF01073 & RF01074)	**Overall Construction:** The frame is made from steel wrap around or flush frame with integral stop and single rebate and backfill with cement mortar. **Fixing Method**: The frame must be fixed into the supporting construction using a minimum 25mm wide x 2mm thick steel U bracket to suit the frame depth at each fixing position with 4.5mm wide x 50mm long screws and plastic wall plugs at maximum of 500 centres, showing in figure 3 below. **Wall Type:** Masonry wall. **Frame to Supporting Construction Fire Stopping Method:** Not Required. **Tested Frame Dimensions:** 1.5mm thick steel x 180mm wide x 45mm thick including a 15mm deep x 50mm wide rebate. **Assessed Sizes:** See section 7.4.1. **Frame Design:** The frame may be a wraparound frame design as tested or installed flush with the supporting construction, as shown in figure 2 below.

Figure 1:Tested Frame

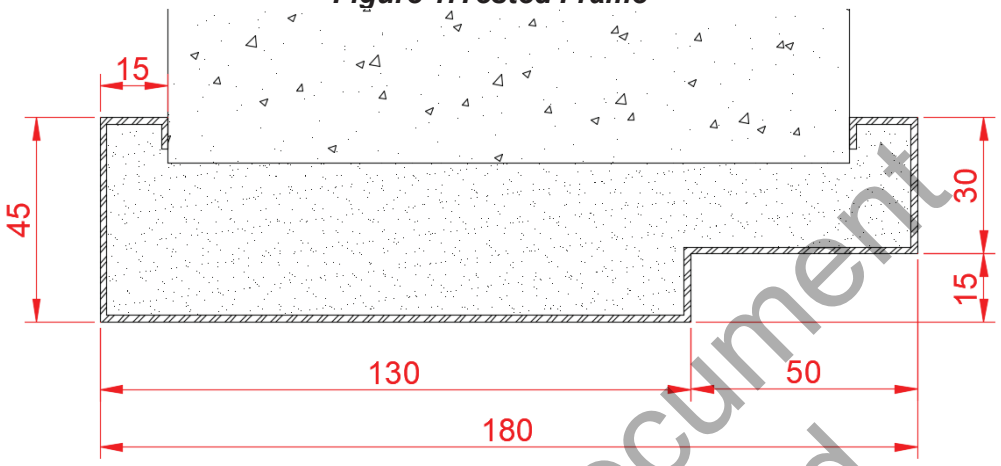


Figure 2: Alternative Frame Application

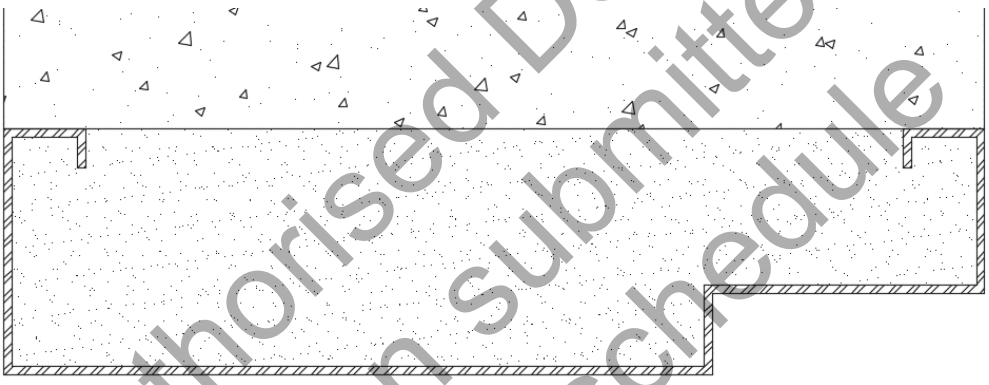
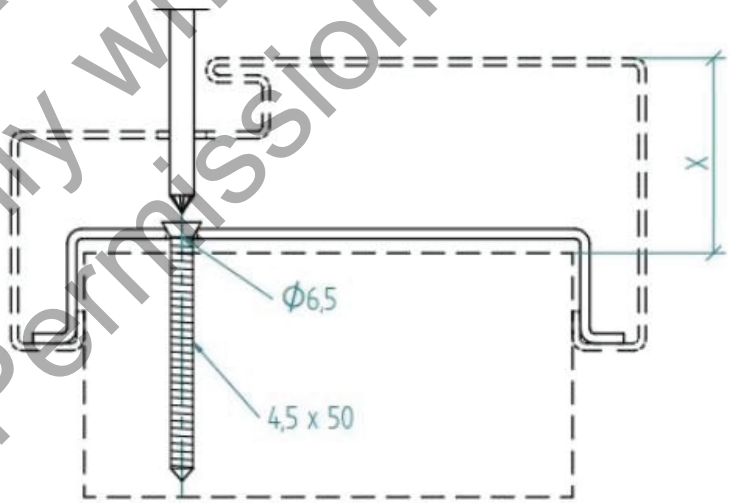


Figure 3: Fixing Application



M2 (RF02082 Doorset B)	**Overall Construction:** Steel flush or wrap around frame with integral stop and double rebate and backfilled with sand and cement mortar mix. **Fixing Method:** The frame must be fixed into the supporting construction using a 25mm wide x 2mm thick steel U bracket to suit the frame depth at each fixing position with 4.5mm wide x 50mm long screws and plastic wall plugs at maximum of 500 centres, showing in figure 6 below. **Wall Type:** Masonry wall. **Frame to Supporting Construction Fire Stopping Method:** Not Required. **Tested Frame Dimensions:** 1.5mm thick steel x 185mm wide x 60mm thick including a 15mm deep x 63mm wide rebate. **Assessed Sizes:** See section 7.4.1. **Frame Design:** The frame may be installed flush with the supporting construction as tested or wrap around frame design, as shown in figure 5 below.

Figure 4:Tested Frame

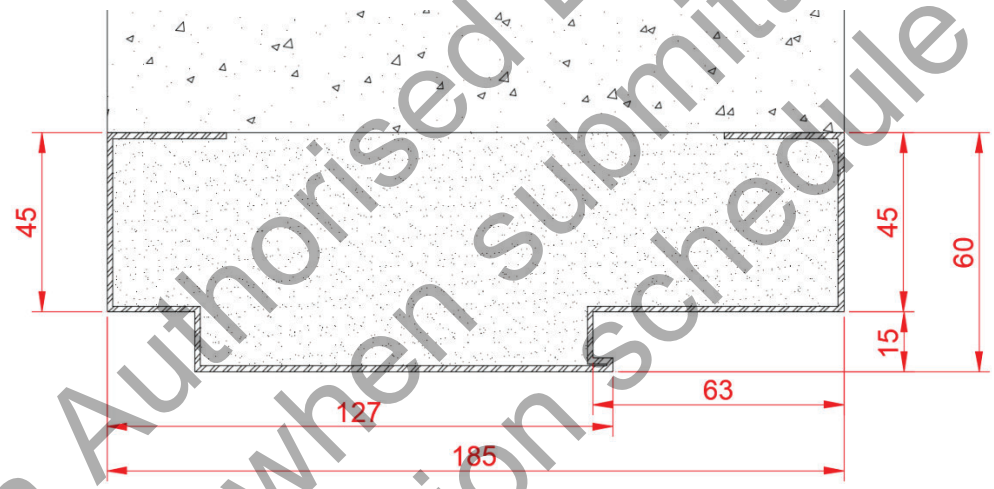


Figure 5: Alternative Frame Application

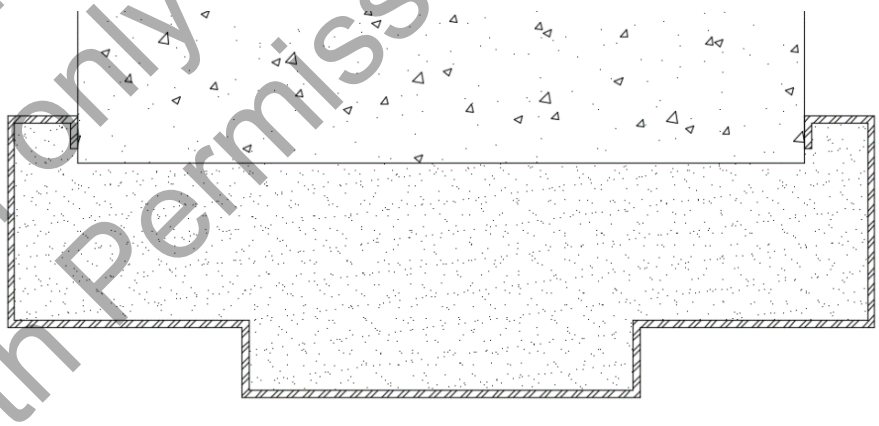


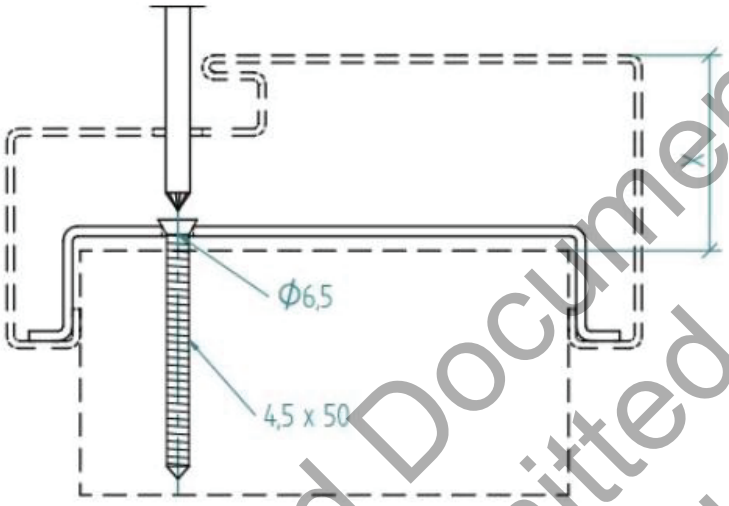
	Figure 6: Fixing Application 
M3 Steel hollow frame wrapped stop side only – (WARRES No. 111201) & RF04021	**Overall Construction:** Pre - rolled galvanised steel hollow frame including integral stop and wrapped around wall on one side only.[1] **Fixing Method:** Frame type must be fitted into the supporting construction using a minimum 25mm wide x 2mm thick steel U bracket to suit the frame depth at each fixing position with 80mm long masonry steel screws and wall plugs at a maximum of 500mm centres. **Wall Type:** Masonry wall. **Frame to Supporting Construction Fire Stopping Method:** Fire rated Intumescent mastic successfully tested to BS 476: Part 22: 1987 or BS EN 1634-1 and achieved 30 minutes fire resistance integrity or greater, suitable for application between a steel door frame and masonry blockwork supporting construction may be fitted at the frame to supporting construction interfaces. **Tested Frame Dimensions:** All frame sections were constructed from 2mm thick steel with the frame measuring 75mm wide x 151mm deep including a 48mm wide x 13mm deep rebate for an integral stop. **Assessed Sizes:** See section 7.4.1. **Frame Design:** The frame may be installed wrapped around on the stop side as tested in report WARRES No. 111201, as seen in figure 7, or wrapped around the rebated side as tested in report RF04021, as shown in figure 8 below. The frame design tested in test report WARRES No. 111201 (Pre - rolled galvanised steel hollow frame including integral stop and wrapped around wall on stop side only) has been amalgamated with the frame type in test report RF04021 Doorset B (Galvanised hollow steel frame with integral stop and integral architrave) as the test evidence and frame designs have been show comparable to one another. See justification in section 7.4.2.

Figure 7:Tested Frame WARRES No. 111201

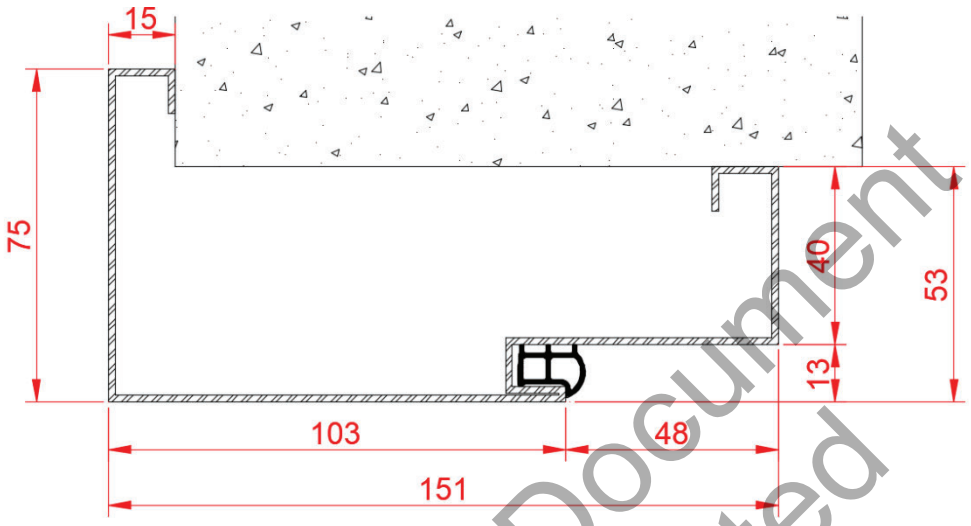
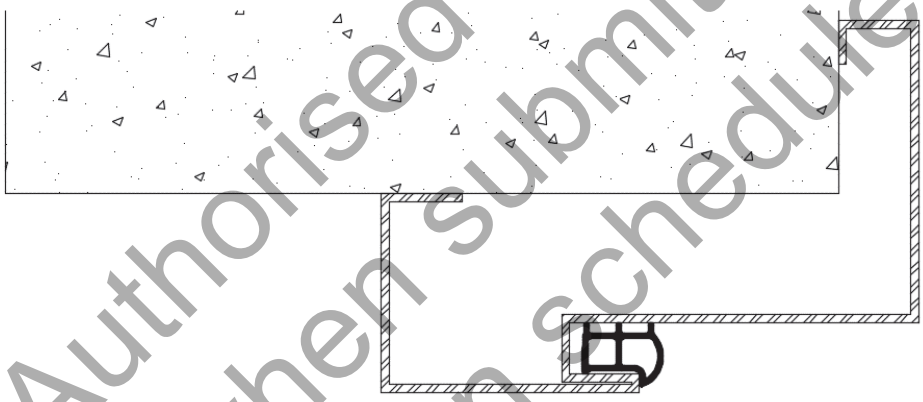


Figure 8: Tested Frame RF04021Doorset B



M4 - Steel hollow wrap around frame (CFR1905171, CFR1912021 & WF412658)	**Overall Construction:** Steel 2 part hollow frame or filled with Seal Tight Solutions ST99 FR foam in 1 part of the frame reveal section only, wrap around frame with both sections of frame fixed together using Ø3.8 x 38 steel countersunk screws at 150mm down from the head and 200mm up from threshold fixed through the integral stop. **Fixing Method:** The frame must be fixed into the supporting construction using 2No. Ø5 x 75mm long countersunk steel screws at a minimum of 500 centres and 50 from corners and 2No fitted 105mm from each corner and 2No. fitted equally spaced between them in the head. 12mm magnesium oxide packing boards must be fitted at each fixing position. If fitted into a solid wall construction appropriate masonry screws with wall plugs must be used. **Wall Type:** Masonry wall, steel or timber stud partitions. For steel stud partitions a timber infill with a minimum density 450kg/m³ must be fitted around the aperture within the stud with minimum dimensions of 38mm x the internal width of the studwork **Frame to Supporting Construction Fire Stopping Method:** For the hollow frame design the frame must be capped with Fire rated Intumescent mastic successfully tested to BS 476: Part 22: 1987 or BS EN 1634-1 and achieved 30 minutes fire resistance integrity or greater, suitable for application between a steel door frame and the selected supporting construction type on both sides at the interface between the frame and wall. **Tested Frame Dimensions:** Tested frame dimensions: Rebated section was constructed from 1.5mm thick steel and measured 93mm wide x 68mm deep and including a 13mm deep x 54mm wide rebate and the secondary section was constructed from 1.5mm thick steel and measured 70mm wide x 65mm. **Assessed Sizes:** See section 7.4.1. **Frame Design:** The frame must be installed as a hollow wrap around design, see section 9, or including Seal Tight Solutions ST99 FR foam in 1 part of the frame reveal section only, as shown in figure 9a below. The frame design tested in test report CFR1905171 (steel telescopic 2 part hollow wrap around frame with integral stop) has been amalgamated with test reports CFR1912021 and WF412658 (2 section Steel folded wrap around frame with ST99 Foam infill to the full depth of the architrave on the fire side only), as the test evidence and frame designs have been show comparable to one another following certain restrictions on door leaf size and intumescent used. See justification in section 7.4.2.

Figure 9a: Hollow Frame with Foam Infill

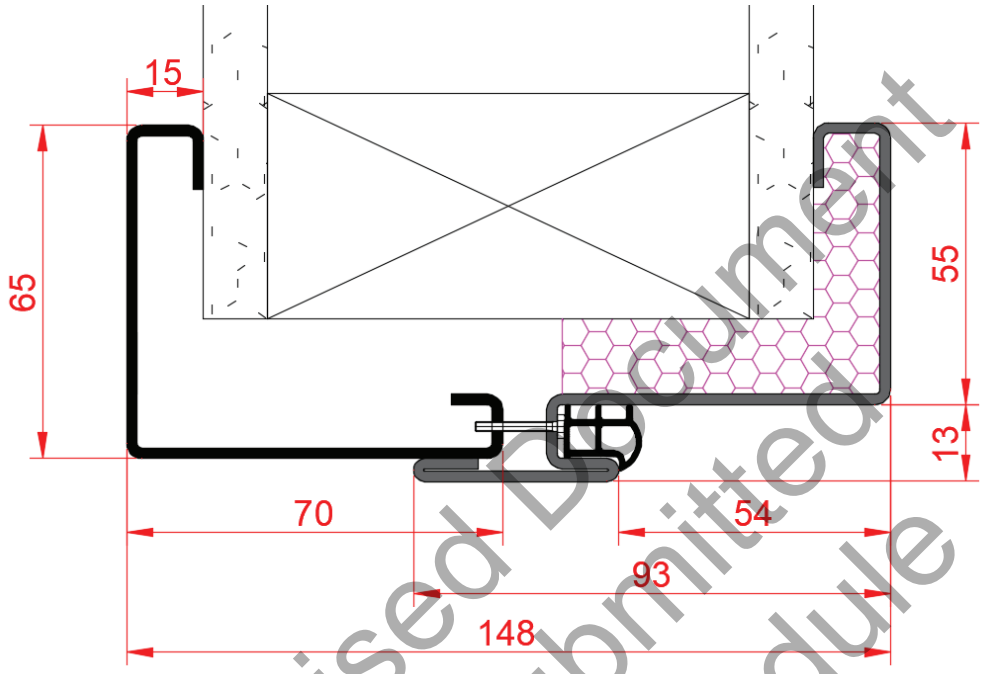
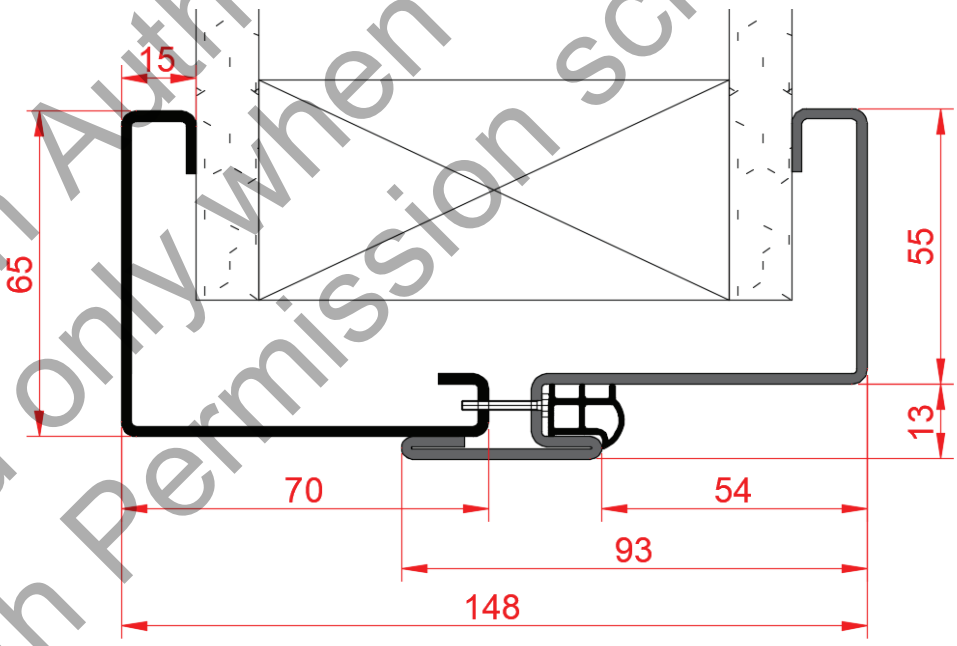


Figure 9b:Tested Hollow Frame Sizes



M5 - Aluminium timber infill	**Overall Construction:** Aluminium frame with sapele timber insert with a minimum density of 640kg/m³, including integral stop and steel FM trim architrave fitted on both sides.

with architrave – (WARRES No. 118289)	**Fixing Method:** Frame type must be fitted into the supporting construction using 2No. 25mm x 4mm screws fixed through the timber insert in the stud and into the sapele timber within the frame by a minimum 20mm penetration into the sapele insert at 300mm centres. The FM trim architrave must be fixed to the partition using 25mm x 4mm long self-tapping screws at 300mm centres by a minimum 20mm penetration **Wall Type:** Tested bespoke steel stud system only. **Frame to Supporting Construction Fire Stopping Method:** Not required. **Tested Frame Dimensions:** All frame sections were constructed from 2mm thick aluminium with the frame measuring 37mm x 94mm including a 51mm wide x 13mm deep rebate for an integral stop. Aluminium architrave FM trim measured 2mm thick x 35mm wide x 7.7mm deep and the plastic FM bead measured 1mm thick x 10mm wide x 6mm deep. Sapele insert measured 87mm deep x 20mm wide.[2] The frame design tested in test report WARRES No. 118289 (Aluminium timber infill with architrave) has been discontinued but a new comparable design has been permitted, as show in figure 11 below. See justification in section 7.4.2.

Figure 10: Tested Frame Application

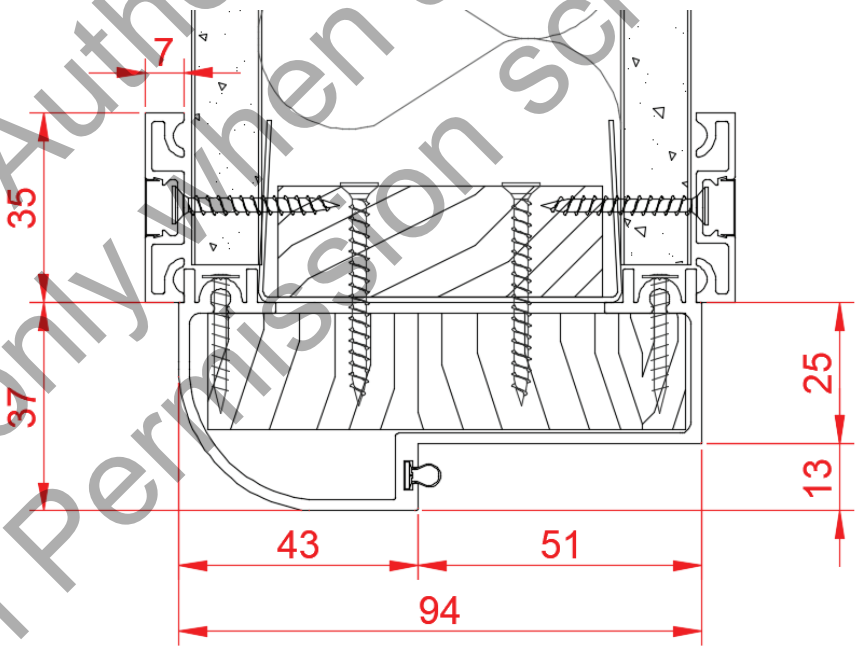
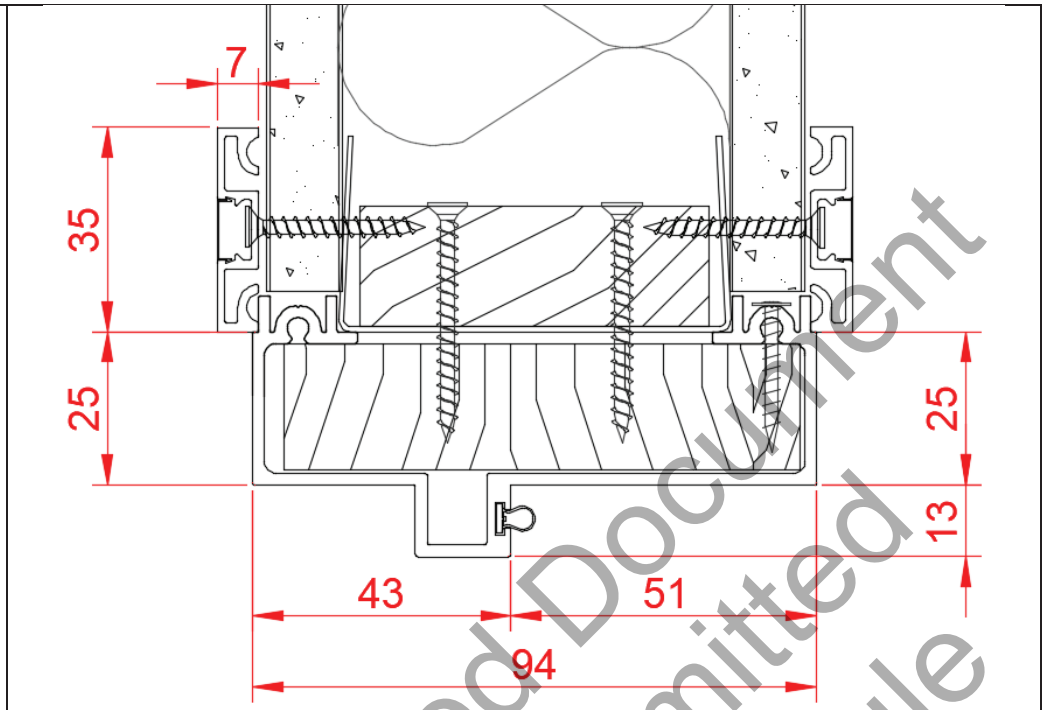


Figure 11: Alternative Frame Application



[1]Hollow frame M3 listed above have been assessed to permit the use of backfilling with mortar. Analysis on all the tests listed in the assessment have shown that backfilling the frame has a positive effect on the fire resistance performance of the doorset, reducing the heat transfer through the frame, and in turn, preventing erosion along the edges of the door leaf opposite any framed element.

[2] Frame M5 is bespoke and the sizes stated in the table above must be maintained, as per the test evidence.

All permitted frame type sizes are given in section 7.4.1.

The following table shows which frame types are permitted with each leaf type.

Frame		Leaf		
Reference	Material	1:	2:	3:
		44mm thick	54mm thick	44mm thick (Bond Up)
M1	Steel	✓	✓	×
M2	Steel	✓	✓	✓
M3	Steel	✓	✓	×
M4	Steel	✓[1]	✓	×
M5	Aluminium	✓	✓	×

[1] Only permitted with the smaller door leaf sizes given in section 4.5.

7.2 Supporting Construction

7.2.1 Wall Types

Prima 30 has been tested in the following wall types see table in section 7.3 for permitted options. However, consideration of the wall type must be given. The frame needs to be fixed back to a supporting construction which will remain in place for the duration of the fire resistance period. The following aspects of the different supporting constructions need to be considered.

- Masonry, concrete and solid blockwork – are considered as rigid constructions and are solid throughout the depth of the wall and have inherent fire resistance. These walls are denoted as rigid constructions in BS EN 1363 Part 1 as they deflect very little during a fire test. Due to the solid nature of the wall firestopping as detailed above will be adequate. Highly perforated blockwork is not covered by this category and specific test evidence must be referenced to ensure adequate support during the fire exposure period.
- Steel stud partitions – are considered as flexible constructions and incorporate large voids in their construction. These walls deflect during a fire test. Specific evidence is required to ensure the stud supporting the door frame is stabilised to reduce deflection during the fire test and the aperture is adequately lined to prevent gases getting into the void.
- Timber stud partitions – tend not to distort significantly during a fire test. A timber stud does not need to be stabilised during the fire test and the aperture will only need to be lined if the timber stud is not fully protecting the void in the partition. The overall thickness of the plasterboard clad timber stud partition shall not be smaller than that demonstrated under test conditions and therefore, the minimum partition thickness is 100mm.
- Bespoke walls and partitions will require specific test evidence.

Doorsets comprising of frame M5 must be installed into the flexible partition system successfully tested in report WARRES No. 118289. Detailed drawings of the wall design tested in report WARRES No. 118289 are given in figures 12, 13, 14 and 15 below;

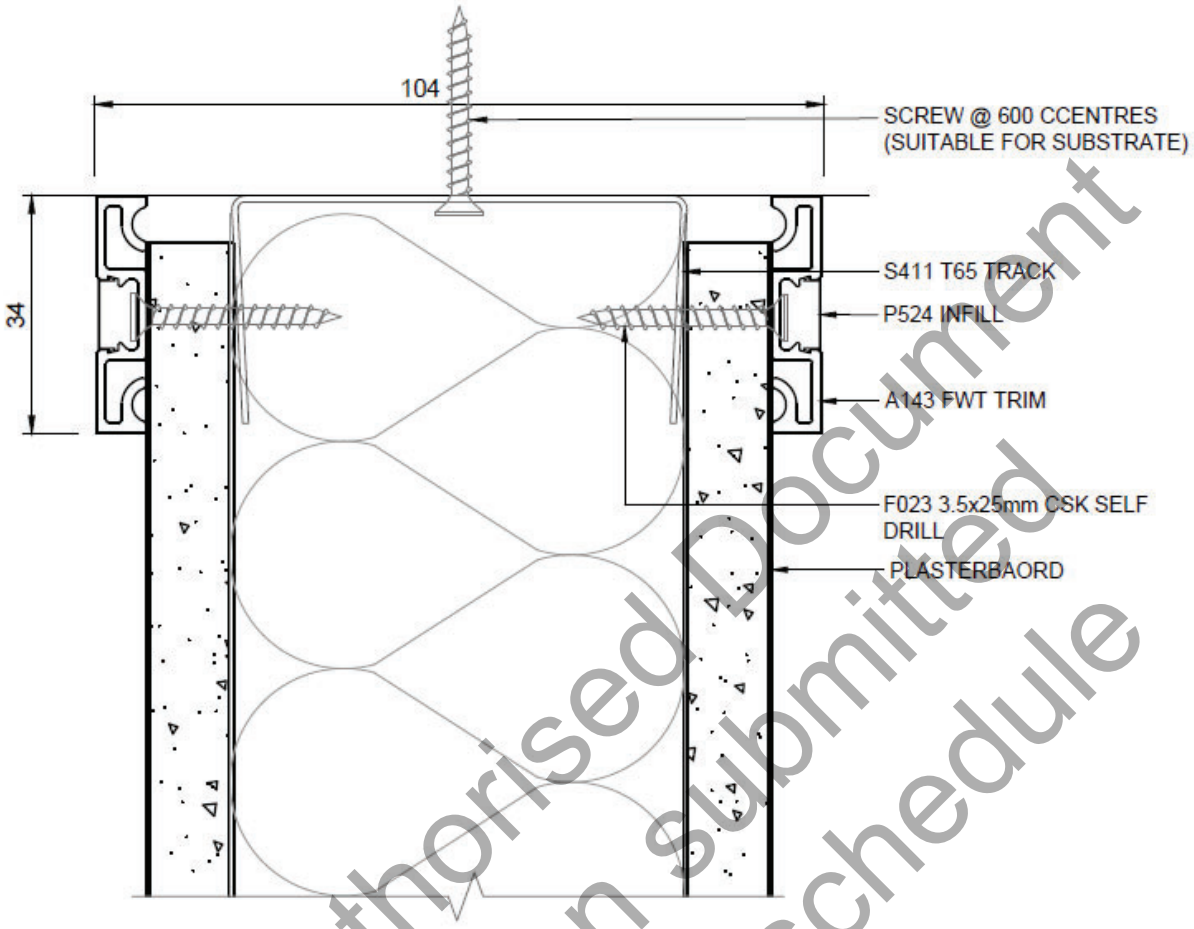


Figure 12 – Wall Head Detail

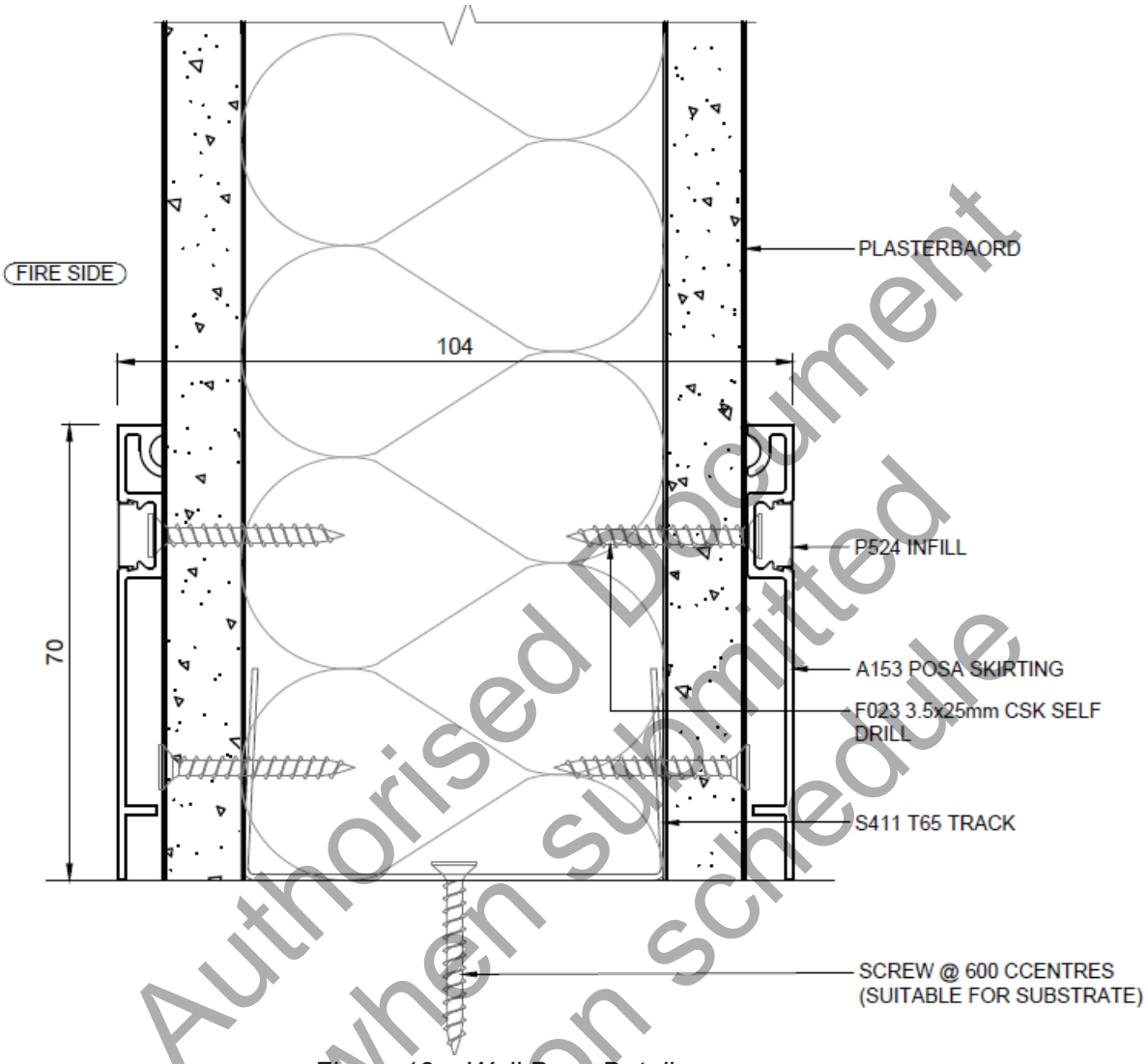


Figure 13 – Wall Base Detail

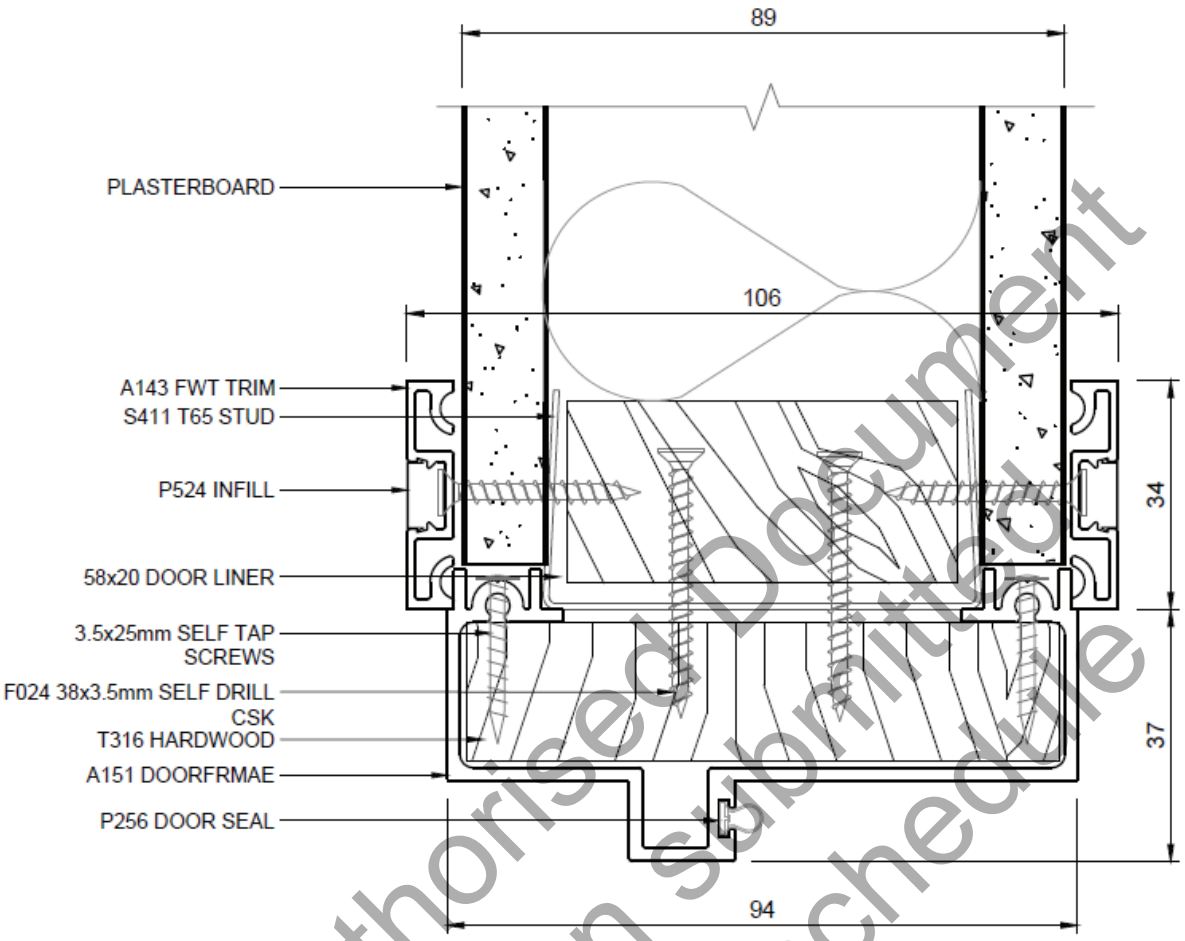


Figure 14 – Door Frame Head & Wall Detail

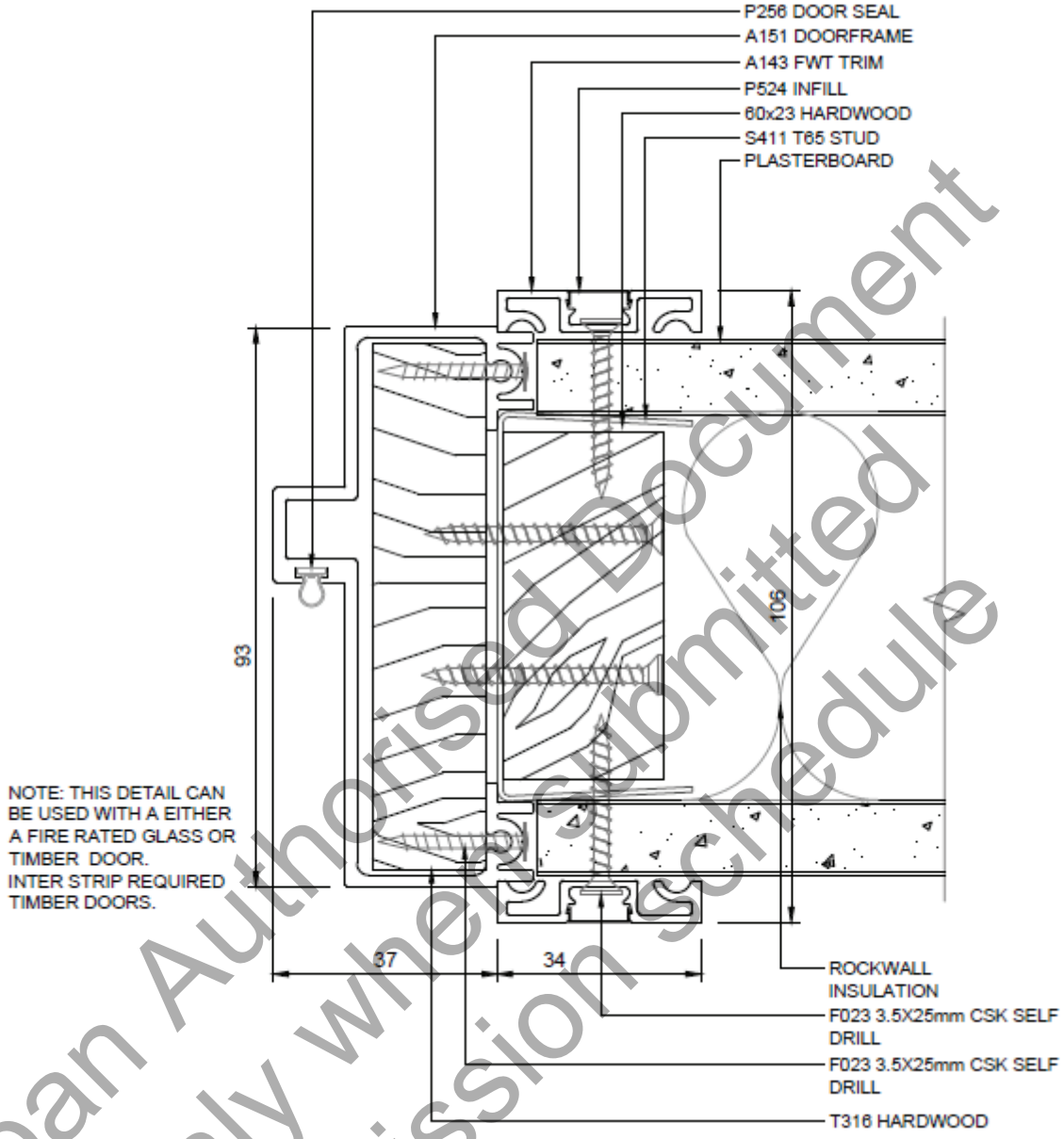


Figure 15 – Door Frame Jamb & Wall Detail

7.3 Structural Opening

The supporting construction must provide the required level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

The following table shows which frame types are permitted with steel stud, timber stud and masonry supporting constructions.

Frame		Supporting Construction		
Reference	Material	1:	2:	3.
		Flexible (steel stud)	Masonry	Timber Stud
M1	Steel	×	✓	×
M2	Steel	×	✓	×
M3	Steel	×	✓	×
M4	Steel	✓	✓	✓
M5	Aluminium BESPOKE	✓(Tested Steel option only)	×	×

M1, M2, M3 and M5 are approved in the supporting constructions they were tested in. M4 was tested in a steel stud partition, it is the opinion of Warringtonfire that this permits the assessment of masonry and timber stud supporting constructions as these types of supporting constructions will limit the deflection of the metal frame when used with a timber based door leaf.

7.4 Frame dimensions

The frame types are spilt into the following categories:

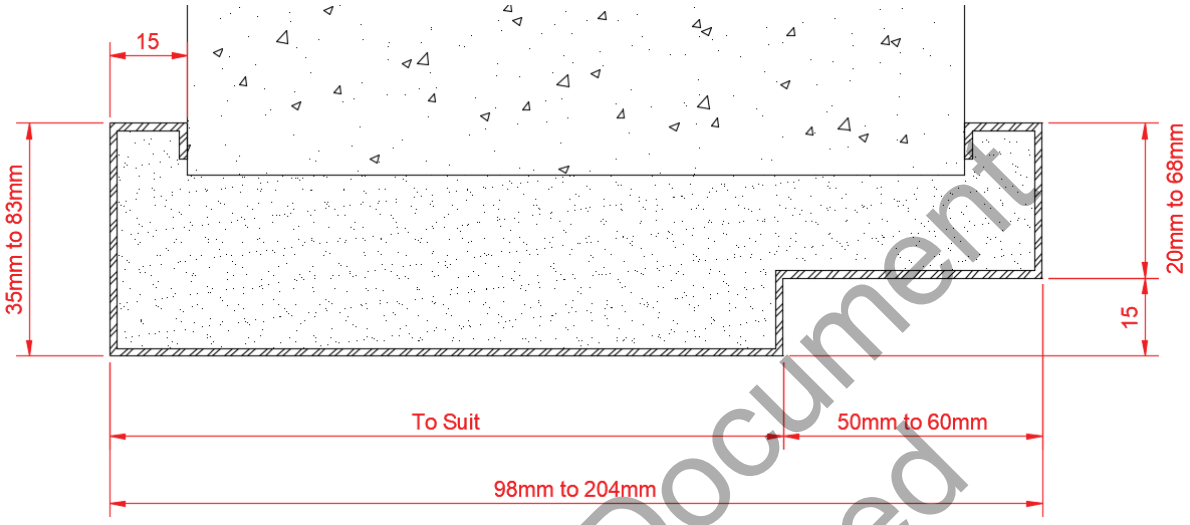
- Bespoke - (Frame M5)
- Standardised – (Frame M1, M2, M3, & M4)

Bespoke frame types are unique in design and do not represent standardised metal frame types, which prevents any assessment of changes to dimensions. Standardised frame types are more generic in design and the construction of frames may be varied within the following parameters:

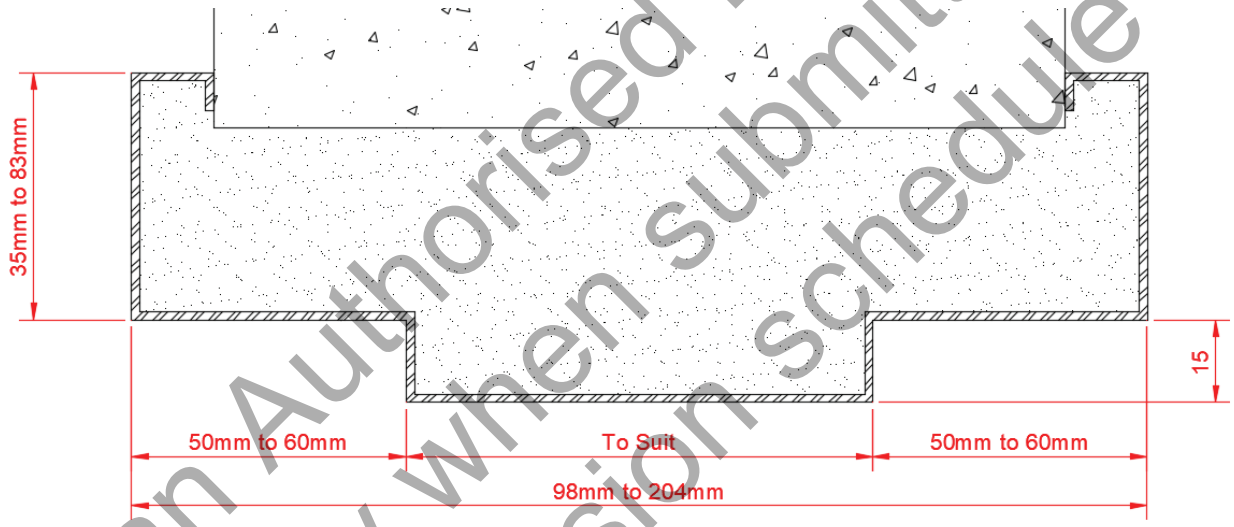
7.4.1 Alternative Frame Dimension

Each frame design below has been tested or assessed. Warringtonfire have assessed a range of dimensions for each frame design based on the tested frame dimension and adopting the methodology within BS EN 15269-3: 2012 and knowledge of timber doorsets tested in steel frames configurations. The permitted range for each frame design is specified below;

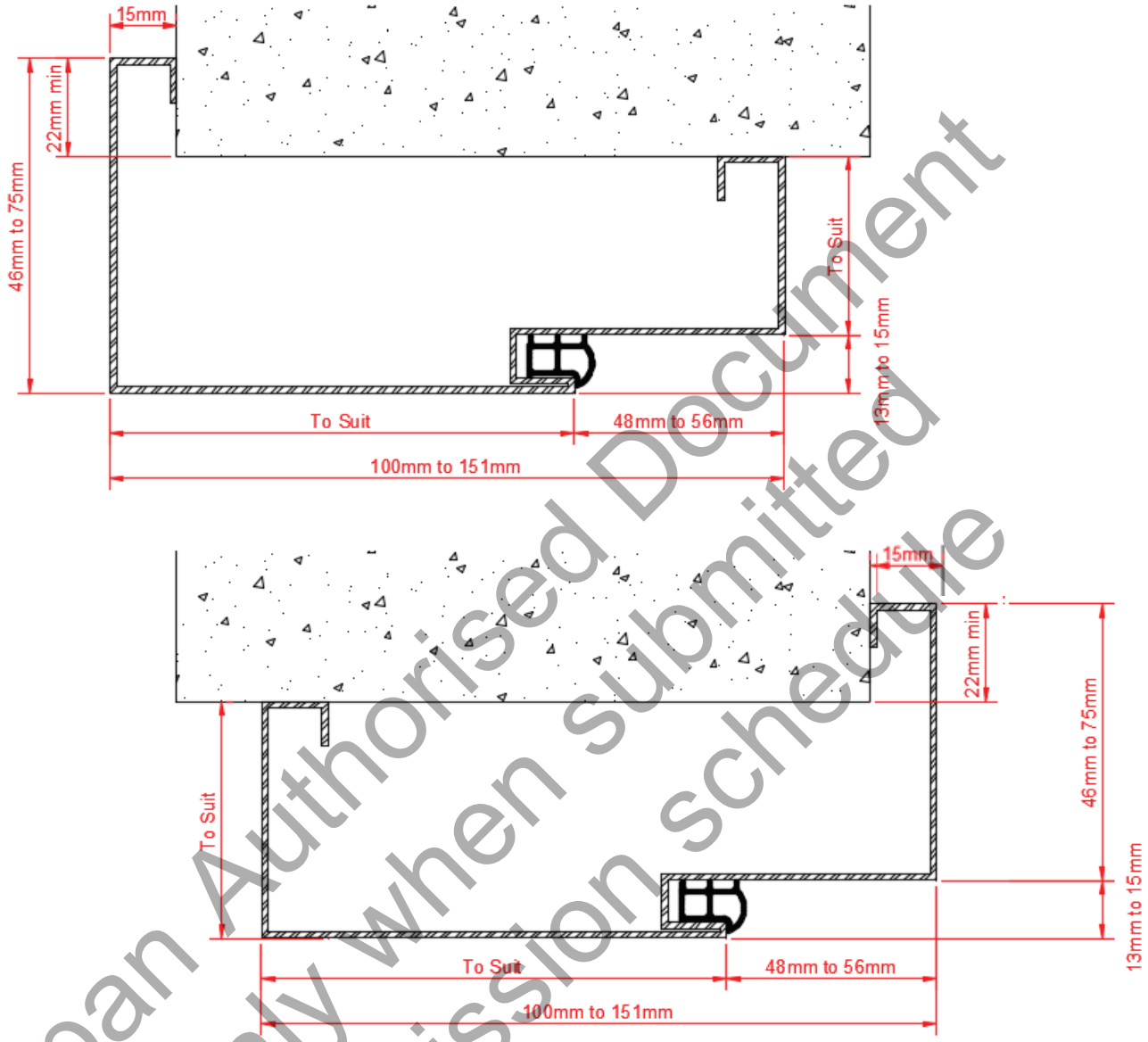
7.4.1.1 Frame M1



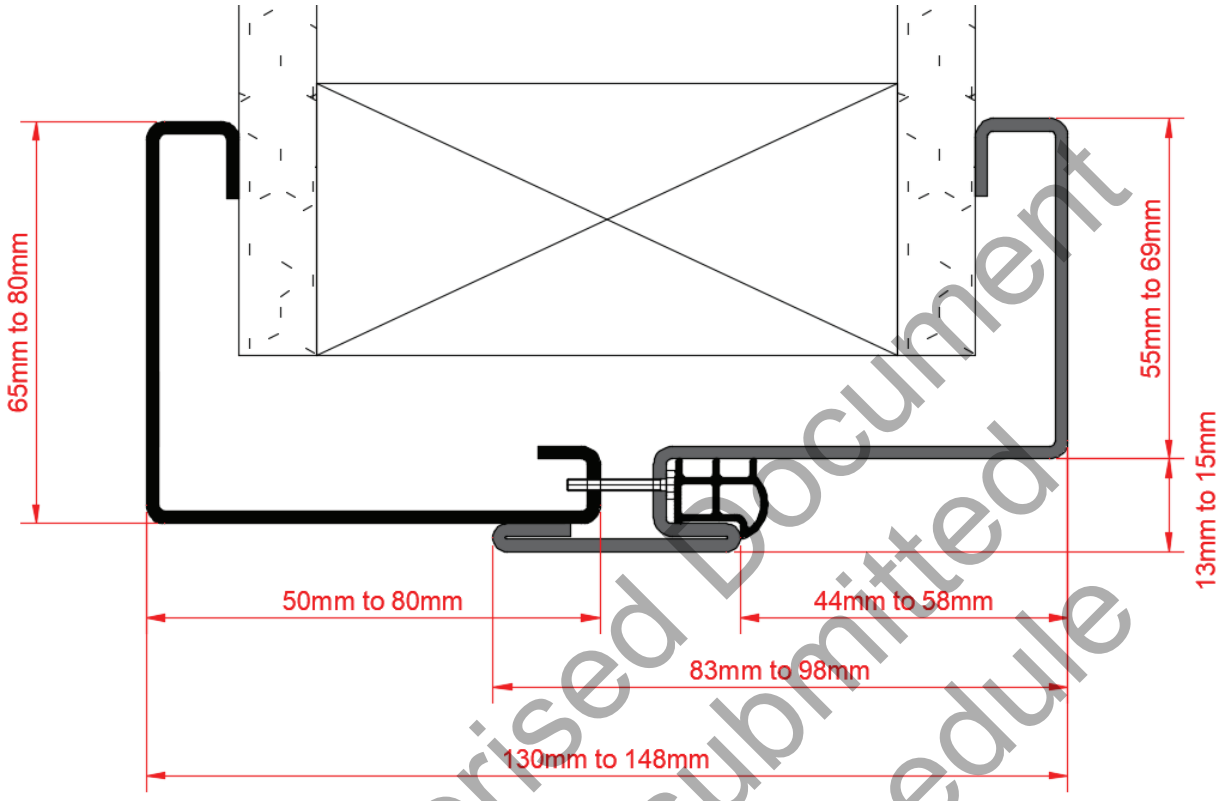
7.4.1.2 Frame M2



7.4.1.3 Frame M3



7.4.1.4 Frame M4



*The maximum frame depth is 148mm deep and cannot be exceeded. All dimensions must remain within the limits stated above.

7.4.1.5 Frame M5

No permitted size variations.

7.4.2 Amalgamation and Alternative Frame Design Justification

7.4.2.1 Frame M3

The frame design tested in report WARRES No. 111201, the pre-rolled galvanised steel hollow frame including integral stop which is wrapped around the wall on the stop side only, is covered as frame M3 in this assessment. This design is of the same basic construction as that tested in report RF04021 Doorset B, a steel wrap around frame on the rebated side with integral stop, as both are hollow wrap around frame designs and made of steel, with the main difference being that the half wrapped frame section being on alternative sides, stop and rebate respectively.

The test evidence shows that the half wrapped frame tested in report WARRES No. 111201 achieved 42 minutes integrity rating with a failure occurring at the top of the meeting edge and with the test terminating at 42 minutes 50 seconds. The insulation failure of the frame was recorded at 28 minutes. This was tested on an unlatched double doorset measuring 2042mm high x 836mm wide incorporating a 44mm thick door leaf.

The half wrapped frame design tested in report RF04021 Doorset B achieved 49 minutes integrity rating with a failure occurring at the top closing corner. The insulation failure of the frame was recorded at 30 minutes. This was tested on an unlatched single doorset measuring 2135mm high x 914mm wide incorporating a 44mm thick door leaf.

The data above indicates that the frame tested in report RF04021Doorset B achieved a better integrity and insulation performance. The door leaf was larger than that tested in report

WARRES No. 111201 and therefore subjected to more lateral defection which gives further reassurance that installing the wrap around on the rebated side is permitted. Both specimens were tested incorporating an unlatched 44mm thick Halspan particleboard core doorset design fitted in a masonry wall, which allows comparison between the tested door designs. Furthermore, both leaves experienced similar distortions, with the largest perimeter distortion on both doorsets being recorded as 15mm and 15.5mm at 45 minutes, showing the designs are comparable in distortion performance to one another. Final consideration is that test report RF04021 Doorset B was tested as a single doorset configuration unlike the double doorset tested in report WARRES No. 111201, which is a more onerous configuration, and therefore, must be installed using the perimeter intumescent protection proven with that double doorset design in test report WARRES No. 111201. Added assurance is given as both doorsets achieved well over the desired 30 minutes fire resistance integrity period, which gives further confidence in the performance of both frame types.

It is the opinion of Warringtonfire that by analysis of the data above, both frame types can be amalgamated and be treated as 1 design type. This frame type has been designated as frame M3 within this assessment. All door constructions, configurations, intumescent, leaf sizes and design types tested in reports WARRES No. 111201 and RF04021 Doorset B and assessed, can be applied to frame M3.

7.4.2.2 Frame M4

The frame design tested in report CFR1905171, a Steel Telescopic 2 part hollow wrap around frame with integral stop is covered as frame M4 in this assessment. This design is of a similar construction as that tested in report CFR1902021 and WF412658 doorset B, a 2 section Steel folded wrap around frame with ST99 Foam infill to the full depth of the architrave on the fireside only. All are 2 part steel frame types, with the main difference being the frame foam infill option used.

The test evidence shows that the 2 part hollow wrap around frame tested in report CFR1905171 achieved 33 minutes integrity rating, with a failure occurring via a cotton pad test at the top of the meeting edge and with the test terminating at 40 minutes 15 seconds. The insulation failure of the frame was recorded at 33 minutes. This was tested on a latched double doorset measuring 2438mm high x 1000mm wide incorporating a 44mm thick door leaf.

The 2 section Steel folded wrap around frame tested in report CFR1902021 achieved 59 minutes integrity rating when discounting the earlier failures isolated to the glazing, with a failure occurring 200mm above thermocouple 24 between the frame gap and with the test terminating at 63 minutes 51 seconds. The insulation failure of the frame was recorded at 47 minutes. This was tested on an unlatched double doorset measuring 2850mm high x 928mm wide incorporating a 54mm thick door leaf.

The 2 Part steel profiled wrap round frame design tested in report WF412658 achieved 60 minutes integrity rating when discounting the earlier failures isolated to the glazing, with no failures associated with the perimeter of the door leaf with the test terminating at 60 minutes. The insulation failure of the frame was recorded at 29 minutes. This was tested on a latched single doorset measuring 2850mm high x 926mm wide incorporating a 54mm thick door leaf.

The data above indicates that the 2 part frame types tested in reports CFR1902021 and WF412658 achieved a similar integrity performance. Both tests incorporated the same size door leaf and achieved significant overrun. Both of these frame types are of a similar design as that tested in report CFR1905171 but contain an infill within the frame member. Considering the doorset in test reports CFR1902021 and WF412658 were tested much larger and achieved a significant overrun, which has permitted a larger increase in leaf size when using these frame types; Warringtonfire has restricted the maximum envelopes of those calculated in test report CFR1902021 and WF412658 to infilled frame designs only. This gives sufficient

confidence that amalgamating the 3 frame designs is acceptable by restricting the door leaf size of the lowest performing frame type. The larger leaf sizes are restricted to having a Seal Tight Solutions ST99 FR foam in 1 part of the frame reveal section only and must be installed using a 54mm thick door leaf and Halspan 60 Ltd perimeter intumescent protection, as tested.

7.4.2.3 Frame M5

The frame design successfully fire tested in test report WARRES No. 118289 (aluminium with timber infill and architrave) has been used to support a comparable design, which is covered by this assessment. The assessed design comprises the same basic construction as that tested with a 2mm thick aluminium frame and sapele timber insert with a minimum density of 640kg/m^3. The assessed frame is of the same shape and dimension as that tested apart from the integral stop which is a different shape. The assessed frame is to maintain the same rebate size as tested, which using the methodology with BS EN 15269-3: 2012 section B.2.1, would permit the size reduction of the stop length. The aluminium FM trim architrave fitted on both sides comprises the same material, size and fixing method as previously tested. The supporting construction is restricted to the bespoke flexible partition successfully tested in report WARRES No. 118289 as specified in section 7.2. Considering the above, Warringtonfire positively assesses frame M5 as described in section 7, based on the cited test evidence.

7.4.3 Additional Frame Information

The frames listed above have been tested with standard hardware fitted such as

- 100x75mm steel hinges.
- DIN standard locks/latches
- Face fixed overhead door closers
- Flush bolts

The frames may be manufactured using either welded, bolted or knock down tabs as required. Joints must be tight and secure with no gaps. Fixing locations through the stop may be capped with steel or plastic grommets without compromising the integrity.

7.5 Overpanels

7.5.1 Solid Flush Overpanel: Leaf 2 Only – with Frame M4

A solid flush overpanel was successfully tested in report WF412658 and is permitted in this assessment to the following parameters.

- Leaf 2 (54mm thick).
- Frame M4.
- LSASD configuration.
- Intumescent specification DM4/2 (Section 4.5.6)

The overpanel must be constructed from a Halspan Prima 54mm thick panel. This must be additionally lipped using 8mm thick Sapele with a minimum density of 650kg/m^3 and fixed in place using an adhesive specified in section 9. A 3mm wide x 3mm deep quirk along the vertical and top edges of the overpanel can be applied to create a shadow gap detail as tested and shown in the drawing in section 7.5.3.2.

Table below specifies the maximum assessed overpanel dimensions.

Maximum Overpanel Dimension		
Configuration	Maximum Overpanel Height (mm)	Width (mm)
Single Leaf doorsets	650	Overall door width

7.5.2 Overpanel Fixing

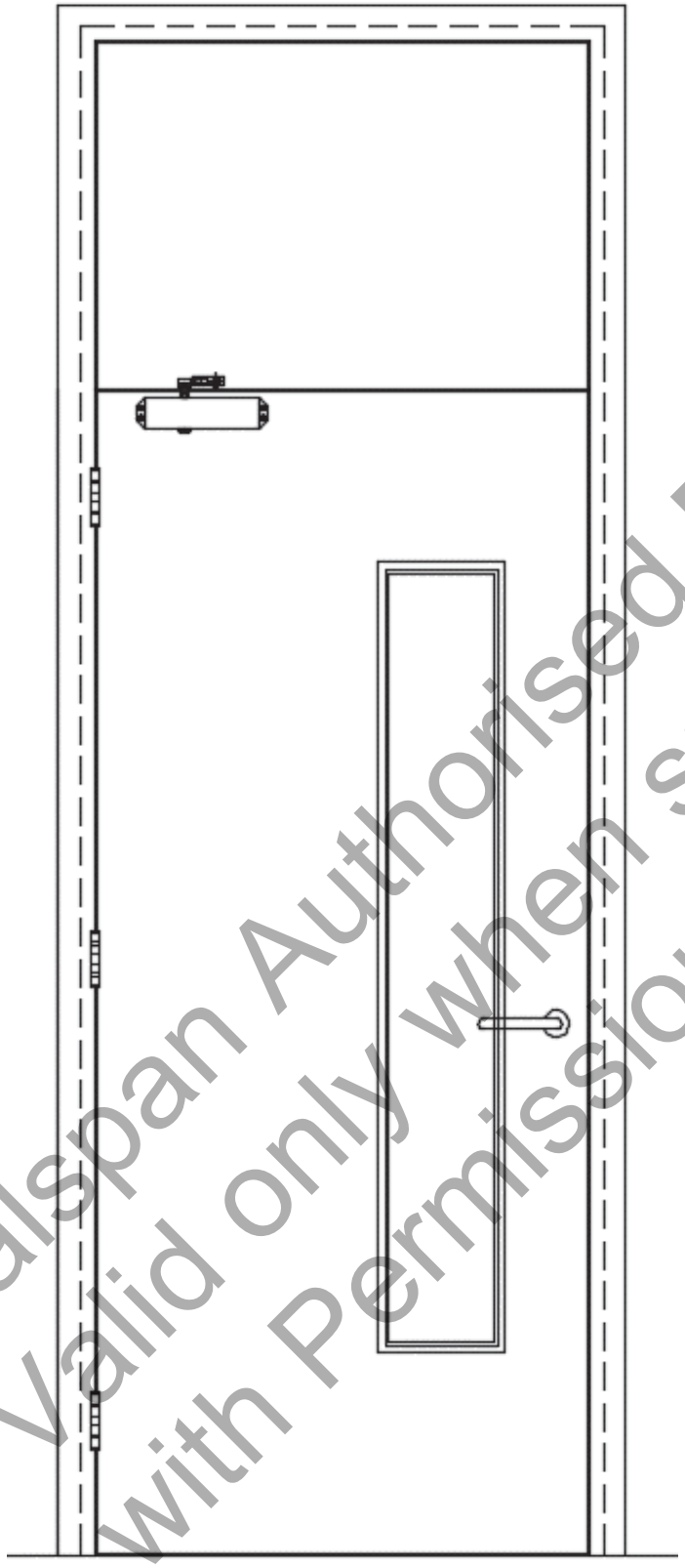
Overpanels must be fixed to the frame by the following method:

- Screwing through the rear of the frame using Ø5mm x 60mm long steel screws passing at least 30mm into the centre line of the overpanel. Fixings must be no more than 100mm from each corner and a maximum of 250mm centres.

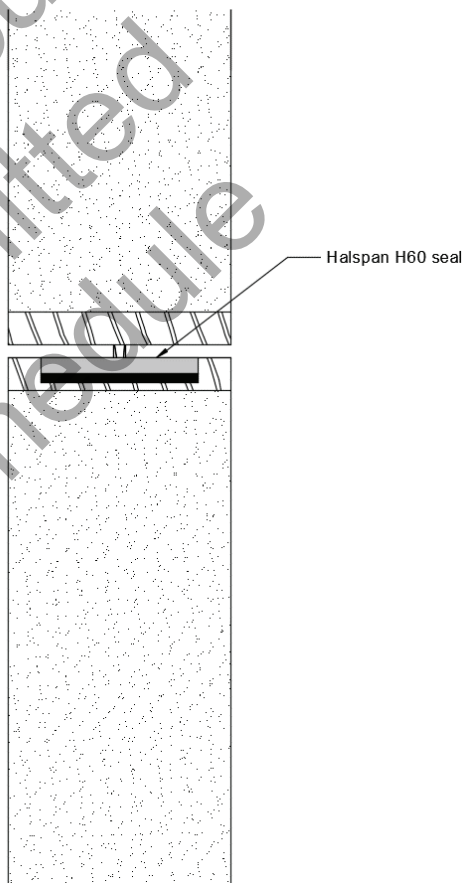
7.5.3 Overpanel Fire Sealing

The overpanel must be installed with a 38mm wide x 6mm deep Halspan H60 graphite intumescent seal fitted in the head and vertical edges of the panel. The frame to overpanel junction is permitted to have a maximum 0.5mm gap tolerance.

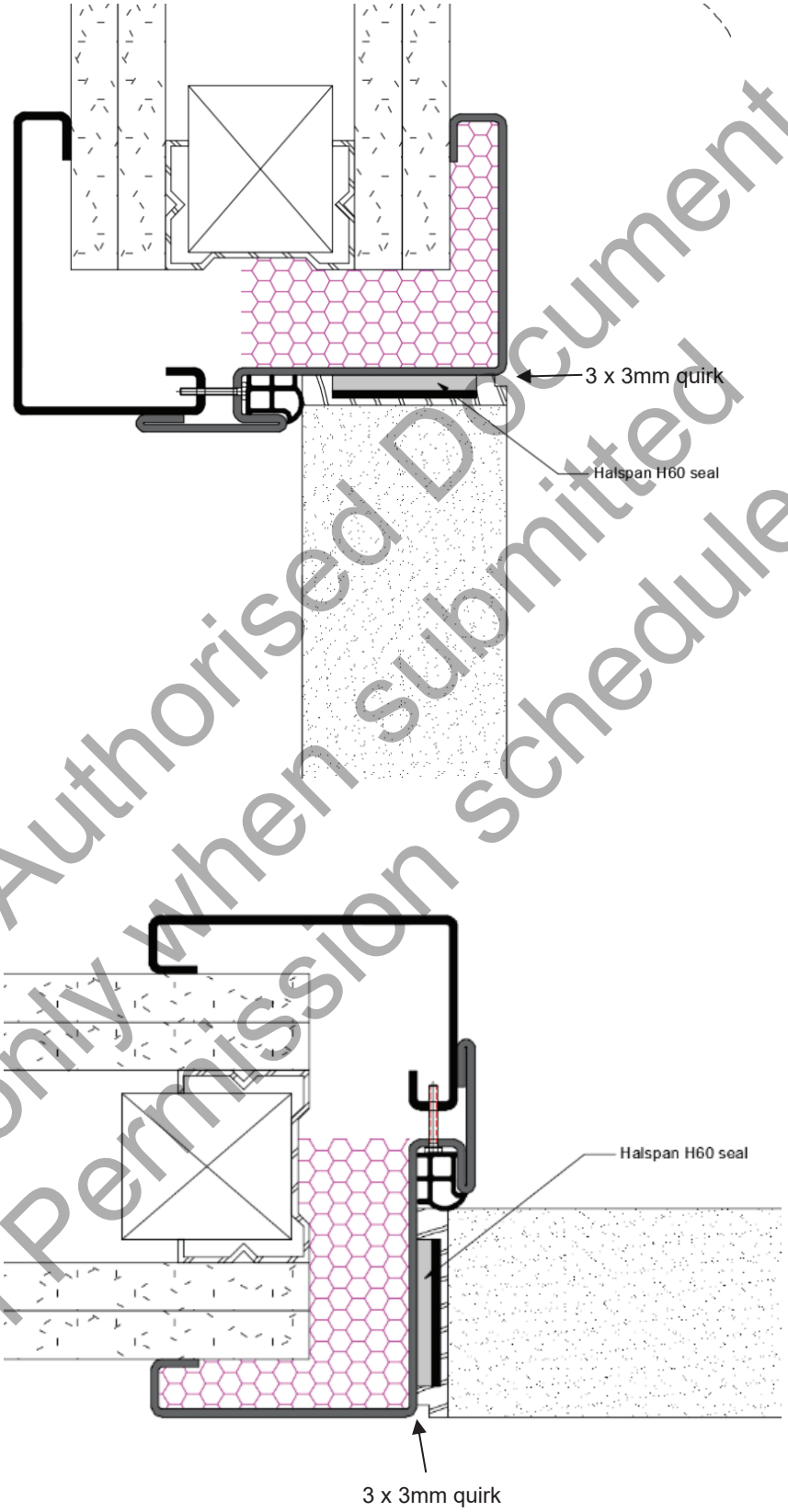
7.5.3.1 Overpanel Design



Leaf and Overpanel Junction



7.5.3.2 Overpanel Lipping Intumescent



7.6 Onsite Leaf Size Adjustment

Halspan **Prima 30** door leaves may be altered as follows:

Leaf Size Adjustment Specification	
Element	Reduction
Leaf	The manufactured size of the leaf may be reduced in height or width without restriction but must be lipped in accordance with this assessment.
Lipping	The dimensions stated in section 5.5.1 may be reduced by 1mm for fitting purposes but cannot go below the minimum.

7.7 Door Gaps

Door gaps and alignment tolerances must fall within the following range:

Door Gap & Alignment Tolerance Specification	
Location	Dimension
Door edge gaps	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. This is the maximum tolerance for **fire resistance only**.

8 Intumescent

8.1 Essential Hardware protection

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

Hardware Intumescent Specification		
Application	**Location**	**Product/Manufacturer**
Hinges	For Royde & Tucker 101 Hi Load lift off & Carillion/Neslo 4SI steel hinges, fitted under hinge blade on leaf side only	1mm Interdens – Dufaylite Developments Ltd. 1mm MAP paper – Lorient Polyproducts Ltd. 1mm Pyrostrip 300 – Mann McGowan 1mm Therm-A-Strip – Intumescent Seals Ltd. 1mm SLS-PAD-103 – Halspan Ltd
	For Halspan 30 HIN-BSS-104 steel & Zoo Hardware Ltd ZHSS243R Grade 13 stainless steel butt hinges, fitted under hinge blade on leaf side only	1mm Interdens – Dufaylite Developments Ltd. 1mm MAP paper – Lorient Polyproducts Ltd. 1mm Pyrostrip 300 – Mann McGowan 1mm Therm-A-Strip – Intumescent Seals Ltd. 1mm SLS-PAD-103 – Halspan Ltd.
	Alternative hinges as specified in section 10.4, fitted under hinge blade on leaf side only	2mm Interdens – Dufaylite Developments Ltd. 2mm MAP paper – Lorient Polyproducts Ltd. 2mm Pyrostrip 300 – Mann McGowan 2mm Therm-A-Strip – Intumescent Seals Ltd. 2mm SLS-PAD-123 – Halspan Ltd. 2mm Graphite – Sealmaster Ltd.
	For HAF SD4150H steel butt & Fireblock Steel hinges, fitted under hinge blade on leaf side only	

Lock/latches	Not required for tubular latches with a forend of 57mm in height or smaller	-
	For R60 Halspan Lockset LCK-BSS-100, fitted under latch forend	1mm Interdens – Dufaylite Developments Ltd. 1mm MAP paper – Lorient Polyproducts Ltd. 1mm Pyrostrip 300 – Mann McGowan 1mm Therm-A-Strip – Intumescent Seals Ltd. 1mm SLS-PAD-110 – Halspan Ltd.
	Alternative latches/locks as specified in section 10.3, fitted under latch forend	
	For Zoo Hardware ZDL0060LR lockset, fitted under latch forend	
	For Union 2 lever mortise latch, fitted encasing latch body and under latch forend (single leaf and double leaf)	2mm Therm-A-Strip – Intumescent Seals Ltd
	For double doorsets only, fitted under latch forend if the forend exceeds 150mm up to the maximum assessed dimension	1mm Interdens – Dufaylite Developments Ltd. 1mm MAP paper – Lorient Polyproducts Ltd. 1mm Pyrostrip 300 – Mann McGowan 1mm Therm-A-Strip – Intumescent Seals Ltd. 1mm SLS-PAD-109 – Halspan Ltd. 1mm SLS-PAD-110 – Halspan Ltd 1mm Graphite – Seal Tight Solutions Ltd
Flush bolts	For Halspan LCK-MSC-205, Zoo ZAS03 & Eclipse J34620 flush bolts, fitted lining all sides of the mortices	1mm SLS-PAD-111 – Halspan Ltd. 1mm Graphite – Seal Tight Solutions Ltd
	For HAF SD4150FB, Halspan LCK-MSC-210, Devon 94.156.61 & Simplex SPX101 / SDS101 flush bolts, fitted lining all sides of the mortices	2mm Interdens – Dufaylite Developments Ltd. 2mm MAP paper – Lorient Polyproducts Ltd. 2mm Therm-A-Strip – Intumescent Seals Ltd. 2mm Therm-A-Flex – Intumescent Seals Ltd 2mm Graphite –Kilargo Seals

Note:

The seal specification for each configuration is contained in sections 4.5.4.1 to 4.5.8.2.

9 Adhesives – All Leaf Types

The following adhesives must be used in construction:

Element	Product/Material Type
Decorative Facings	UF, PF, PU, PVA, PVAc or contact adhesive[1]
Timber lipping	UF, PF, PU, PVA, PVAc and PU hotmelt
T lippings	UF, PF, PU, PVA and PVAc
Bonded Up facing	PU, PVAc, Melamine, PF, or UF adhesive.
Edge protector	PVA
Aperture liner	UF, PVA and PU

Note:

[1]Contact adhesive has been permitted as an acceptable adhesive for decorative facings as the outer decorative facing will have negligible effect on the stability of the door leaf and will be rapidly consumed in fire test conditions. Decorative facings are given in section 5.7.1

10 Hardware

10.1 General

The following section details the permitted scope and constraints for fitting hardware to this door design. The following items of hardware must also bear the CE or UKCA Mark in addition to the requirements outlined in the following sections. The UKCA or CE mark must indicate that the hardware is suitable for fire doors in the classification code and declaration of performance issued by the hardware manufacturer:

- Latches & locks: Test Standard EN 12209
- Single axis hinges: Test Standard EN 1935
- Controlled door closing devices: Test Standard EN 1154
- Panic exit hardware: Test Standard EN 1125.

The following sections consider what alternative items of essential hardware can be used on these doorsets.

Each item of hardware is considered in each section giving the items of hardware which

- Have been tested – this information is collated in appendix B.
- Can be used as a result of an assessment of the appropriateness of the item of hardware, based on test evidence not commissioned by Halspan
- Can be used as a result of the CERTIFIRE approval of the item of hardware

Each section will consider the named item of hardware and detail if there are any limitations associated with

- Leaf size
- Configuration
- Intumescent seals
- Intumescent protection
- Frame

No item of hardware should be within

- 200mm of another item of hardware at the hanging jamb or head
- 300mm of another item of hardware at a meeting edge or closing edge as tested in WF415117.

The mortice for the hardware should be no closer than 20mm to any glazed aperture within the leaf.

Analysis of the data in section 3 indicates frames backfilled with cement have a greater reduction in temperatures recorded on the unexposed side of the frame than hollow frames or those backed with other materials. The cement assists with insulating the frame and lessening the transfer of heat to the unexposed side. This reduction of heat reduces the likelihood of heat bridging to the door edges and therefore limits erosion and charring to the door leaf edges. This provides scope to permit the use of certain items of hardware with these frames types, the details of which are given in the specific section for the item of hardware.

Hardware items should generally be fitted in accordance with the manufacturer's instructions. **However, the parameters and requirements of this assessment always take precedence, including specified protection such as hardware gaskets.** Referenced CERTIFIRE approved hardware may be incorporated subject to the design, material and dimensional limitations identified within this assessment report and identified on the relevant CERTIFIRE certificate.

10.2 Essential Hardware

The following table details the essential hardware for the various doorset configurations that are referenced in this assessment.

The following table includes a self-closing device, but for some permanently locked fire doors a closer is not used, providing it is fitted with the appropriate signage.

Configuration	Hardware
LSASD	1. Latch 2. Hinges 3. Overhead face fixed closer (Unless the doorset is to be kept locked)
ULSASD	1. Hinges 2. Overhead face fixed closer
LSASD+OP	1. Latch 2. Hinges 3. Overhead face fixed closer (Unless the doorset is to be kept locked)
LSADD	1. Latch 2. Hinges 3. Overhead face fixed closer (Unless the doorset is to be kept locked) 4. Flush bolt or surface mounted bolt
ULSADD	1. Hinges 2. Overhead face fixed closer

Note: It is permitted to omit the door closer and fit bolts to the inactive leaf of unlatched double doorsets. The active leaf must be fitted with a door closer and both leaves must carry the appropriate signage.

10.3 Latches & Locks

10.3.1 Single point latches & locks

A single point primary latch is suitable however a secondary lock may be used for increased security. The following details apply:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5
- Configurations that must include latches LSASD, LSASD+OP, LSADD *(check configuration limitations for each frame type in section 4.5.2.1)*
- In all instances the location of the spindle must be between 800 – 1300mm from the threshold.
- Intumescent Protection: see section 8.1

A single point primary lock (i.e. a locking mechanism only) is suitable however a secondary lock may be used for increased security. The following details apply:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5
- Configurations when only lock fitted ULSASD, ULSADD *(check configuration limitations for each frame type in section 4.5.2.1)*
- A secondary latch/lock must be located no closer than 300mm from primary and the top of the secondary latch/lock forend no closer than 150mm to the leaf head.
- Intumescent Protection: see section 8.1

Configurations that include roller catches and locks without latches (with self-closing devices) are considered to perform in a fire test as unlatched as there is no positive latching mechanism.

Intumescent requirements:

- Single point latch located in meeting edges must use a double strip intumescent detail in addition to the lock protection, as required.

The table below details the approved locksets, leaf types and frame types based on the primary test evidence in section 3.1 of this assessment.

Element	Leaf & Frame	Configuration	Manufacturer & Product Reference	Size (mm)
Locks & latches	3/M2	LSASD	1. Tubular mortice latch	57 x 26
	1/M3	LSASD	2. Union 2 lever mortise latch	152 x 22
	2/M4	LSASD or LSASD+OP	3. Zoo Hardware ZDL0060LR	235 x 22

The table below details the approved locks for double leaf doorset configurations based on primary test evidence.

Element	Leaf & Frame	Configuration	Manufacturer & Product Reference	Size of forend (mm)
Locks & latches (timber frame evidence used to support locks at meeting edges)	1/M4	LSADD	1. R60 Eurospec Lockset LCK-BSS-100	235 x 22
	1 & 2/M1, M3, M4 & M5	ULSADD	2. Union mortice latch	235 x 24
	1 & 2/M1, M3, M4 & M5	ULSADD	3. Halspan LCK-BSS-100 *	235 x 24
	1 & 2/M1, M3, M4 & M5	LSADD	4. Assa Abloy 4292	235 x 20
	1 & 2/M1, M3, M4 & M5	ULSADD	5. Henderson Hardware 3 lever lock/latch	152 x 22
	1 & 2/M1, M3, M4 & M5	ULSADD	6. Legge Tubular mortice latch	60 x 20
	1 & 2/M1, M3, M4 & M5	ULSADD	7. Colson Sash lock	156 x 25
	1 & 2/M1, M3, M4 & M5	ULSADD	8. Era Security Products Tubular mortise latch	57 x 25
	1 & 2/M1, M3, M4 & M5	LSADD	9. Devon 88.601.86	235 x 25

* The LCK-BBS-104 latch can be used instead of the successfully tested LCK-BSS-100 latch as it is of the same lock design but incorporates a radius forend. It is the opinion of Warringtonfire that the change in forend shape would have no significant effect on the doorsets fire resistance performance and therefore the LCK-BBS-104 latch is permitted in the leaf type, frame type and configuration given in the table above.

Locks and latches tested in double doorsets incorporating timber frames as summarised in the test evidence listed in Appendix Z can be installed into double doorsets in metal frames as where the lock is installed at the meeting edge, it will have no interaction with the metal frame and no significant effect to the overall fire resistance performance of the doorset. See section 10.3.1 for suitable alternative latch requirements.

See section 10.1 for cement backfilled frame justification which indicates a reduction in likelihood of heat bridging to the door edges and further erosion and charring to the door leaf edge housing the latch. It is the opinion of Warringtonfire that cement backfilled frames are permitted with the use of larger latches. Additionally, test reports CFR1912021 and WF412658 both incorporated frames backfilled with foam to half depth. Analysing the thermocouple readings record on the frame in both tests, the foam infill was shown to help insulate the metal frame which remained below 180ºC on the unexposed side for 50 minutes in test report CFR1912021 and 21 minutes and 23 minutes for specimens A and B in test WF412658. This data demonstrates that frame types backfilled with foam also provide insulating performance

characteristics beyond that of a hollow frame design and therefore are also acceptable with larger latches. All backfilled frames (M1, M2, M3 & M4) with either leaf 1, 2 or 3 may be fitted with alternative latches to the sizes given in section 10.3.2.

The 54mm thick door leaf permitted in this assessment is typically considered a 60 minute design consisting of an additional 10mm thickness of cellulosic material than the assessed 44mm thick door leaf. This added thickness will create a further barrier for the fire to burn through at the lock position, and because of this, all 54mm thick door leaf designs can be installed with larger latches as specified in section 10.3.1.

The hollow frame M3 was successfully tested incorporating a 152mm high latch forend fitted in a 44mm thick door blank. When the doorset comprises of a 44mm thick leaf 1 or 3, the doorset must be installed with the smaller sized latch as specified in section 10.3.3.

Frame M5 was not tested with a latch present, so it was an unlatched configuration which would allow latch configurations to be covered using the rational within section 4.5.3.1. The frame section has not been prepared to accommodate a latch however in the opinion of Warringtonfire a latch could be included for the following reason:

- The frame design is based on an aluminium section with a hardwood timber insert. The aluminium section would melt away when subject to a fire test and expose the timber insert which would perform with characteristics more in line with a timber frame.

For this reason, Warringtonfire have permitted smaller latches to the requirements in section 10.3.3 when the doorset comprises of one of the 44mm thick leaf 1 or 3 within this field of application assessment. Considering the analysis above, in all other instances alternative latches within section 10.3.1 can be used.

Alternatively, based on the maximum size of lock tested in single and double leaf configurations, alternative latches/locks which meet the following specification are acceptable, providing the lock has been tested to BS 476 Part 22 1987 or BS EN 1634 Part 1 in a solid timber doorset 44mm thick and achieved 30 minutes.

10.3.2 Alternative Latch Requirements - Larger Latch Option

Leaf 1 has been successfully tested with a latch engaged in report CFR1905171 to the sizes given below and the maximum permitted sizes for alternative hardware is given in the table below.

Permitted Applications	Element	Specification
Leaf 1, 2 & 3 Backfilled frames M1, M2, M3, M4 &Frame M5*	Maximum forend and strike plate dimensions	235mm high x 25mm wide x 4mm thick
	Maximum body dimensions	165mm high x 100mm wide x 18mm thick
	Intumescent protection	See section 8
	Materials	All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel, stainless steel or brass with a melting point ≥ 800ºC

*Only permitted with double doorset configurations and leaf 2 (54mm thick) design for frame M5.

In all instances the location of the spindle must be between 800 – 1200mm from the threshold.

Based on the maximum size of lock permitted above, alternative latches/locks which meet the following specification are acceptable:

- A Certifire approved lock/latch which is approved for 30 minutes in an ITM doorset, (i.e. a doorset incorporating Intumescent, Timber leaf and Metal frame), is acceptable providing the higher specification of hardware intumescent protection as required for the inclusion of the lock/latch within this Field of Application or the Certifire certificate are complied with. For example if the Certifire Certificate specifies intumescent protection to all concealed faces of the lock/latch and this Field of Application does not require intumescent protection to all concealed faced of the lock/latch, the fitting of the intumescent specified in the Certifire Certificate is required.

10.3.3 Leaf 1 & 3 single leaf doorsets – Hollow Frame M3 & Timber Infilled Frame M5

Leaf 1 has been successfully tested with a latch disengaged in report RF04021 and the maximum permitted sizes for alternative hardware is given in the table below.

Element	Specification
Maximum forend and strike plate dimensions	165mm high x 25mm wide x 4mm thick
Maximum body dimensions	145mm high x 100mm wide x 18mm thick
Intumescent protection	see section 8
Materials	All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel, stainless steel or brass with a melting point ≥ 800ºC

In all instances the location of the spindle must be between 800 – 1200mm from the threshold.

Alternative latches/locks, to the sizes specified above, which meet the following specification are acceptable:

- A Certifire approved lock/latch which is approved for 30 minutes in an ITM doorset, (i.e. a doorset incorporating Intumescent, Timber leaf and Metal frame), is acceptable providing the higher specification of hardware intumescent protection as required for the inclusion of the lock/latch within this Field of Application or the Certifire certificate are complied with. For example if the Certifire Certificate specifies intumescent protection to all concealed faces of the lock/latch and this Field of Application does not require intumescent protection to all concealed faced of the lock/latch, the fitting of the intumescent specified in the Certifire Certificate is required.

10.3.4 Cylinders

Cylinders have been suitably tested and where required for use with single point lock/latches are permitted for use within the following scope:

- The cylinder must be compatible with the lock/latch (which must be a lock/latch as detailed by section 10.3.1, 10.3.2 or 10.3.3).
- The cylinder must be constructed of either brass or steel with a melting point in excess of 800^0C.
- Cylinder dimensions may be up to 33mm high x 17mm wide at the maximum dimension and may be of euro profile or oval.
- Single and double cylinders, along with cylinder & turn are permitted.
- Door preparation for single cylinders shall penetrate only half the door thickness.
- Intumescent protection and tightness of fitting:
    - If the lock body is not protected with an intumescent material, the maximum clearance between leaf and cylinder is 1mm to each edge.
    - If the lock body is protected with an intumescent material, maximum clearance between leaf and cylinder is 3mm to each edge.
    - 1mm thick MAP or non-pressure forming graphite intumescent around the cylinder is optionally permitted.

10.3.5 Electro-magnetic locks

10.3.5.1 Assa Abloy electronic lock EL560

The following Assa Abloy electronic lock has been successfully tested in test reference CFR2010021-2, as follows:

- **EL560 electric mortice lock:** fitted with Assa Abloy handleset (INOXI 3-19/242) and cylinder (CY326). Fitted 900mm from bottom of the leaf.

Based on the test evidence, and on the basis of lock dimensions, the backfilled frame analysis and justification in section 10.1, this item is assessed as suitable for use when fitted as follows:

- Leaf: 1 and 2
- Frame: M1, M2, M3 and M4 backfilled only
- Door configuration:
  EL560 electronic mortice lock: LSASD and LSADD
- Maximum Lock Dimensions:
    a. Maximum forend and strike plate dimensions: 235mm high x 24mm wide x 3mm wide
    b. Maximum body dimensions: 169mm high x 133mm wide x 17mm thick.
- Intumescent protection: Fitted under latch forend and around the body of the lock, one of the following:
    a. Interdens – Dufaylite Developments Ltd.
    b. 1mm MAP paper – Lorient Polyproducts Ltd.
    c. 1mm Pyrostrip 300 – Mann McGowan
    d. 1mm Therm-A-Strip – Intumescent Seals Ltd.
    e. 1mm SLS-PAD-110 – Halspan Ltd.

In all instances the location of the spindle must be between 800 – 1200mm from the threshold.

10.3.6 Access Control Systems

The electronic access control systems detailed in the following sections have been successfully tested with the Prima 30 door blanks and are therefore suitable for use within the scope stated herein.

10.3.6.1 Assa Abloy RFID systems

The following Assa Abloy RFID card reader systems have been successfully tested in WF367904, as follows:

- **VingCard Classic RFID:** tested without a lockcase.
- **VingCard Signature RFID:** tested without a lockcase.

Based on the test evidence, and on the basis of lock dimensions, the backfilled frame analysis and justification in section 10.1, they are assessed as suitable for use within the following scope:

- Leaf: 2 only
- Frame: M1 and M4 backfilled only
- Door configuration: LSASD only
- Intumescent seals - Door leaf vertical edges: Minimum of 38mm wide is required.
- Intumescent protection: 1mm MAP or Interdens sheet Intumescent protection around all mortices and lock forend in the door leaf.
- VingCard Classic RFID and VingCard Signature RFID systems may only be used with the tested ANSI DB lockcase as tested.

10.3.6.2 Dormakaba RFID systems

The following Dormakaba RFID card reader systems have been successfully tested in test references DMT-DO-50-582-R1 and DMT-DO-50-583-R1, as follows:

- **79/RT series RFID:** – fitted with ASM mortice lock (M7X-AXXX1-XXX), strike plate (50413X-XXX/STRIKE ASA), handleset (069-510983, F79X-10X03XX-XXX, B76-XXXXXX-XXX).
- **Saffire LX series RFID:** consisting of ASM mortice assembly (MSX-AXXX1-XXX), face plate, strike plate (50413X-XXX/STRIKE ASA), handleset (FSXXXAKXXXAX-XX, 069-515541-XXX, BS-XXXXXXX-XX, 069-515488-1XXX).
- **Quantum RFID:** consisting of mortice assembly (A70000-HAND), reader assembly (A30940-E-COLOR), strike plate (30320-H-COLOR/ ASSY, STRIKE, BUTTONS), handleset (OS-LS1XXXXXXX, QM11XXXXXXXXXX).

Based on the test evidence, and on the basis of lock dimensions, the backfilled frame analysis and justification in section 10.1, they are assessed as suitable for use within the following scope:

- Leaf: 2 only
- Frame: M1 and M4 backfilled only
- Door configuration: LSASD only
- Intumescent seals - Door leaf vertical edges: Minimum of 38mm wide is required.
- Intumescent protection: 1mm MAP or Interdens sheet Intumescent protection around all mortices and lock forend in door leaf.

10.3.6.3 NSP Europe RFID systems

The following NSP Europe RFID card reader systems have been successfully tested in test reference WF401228, as follows:

- **SMF 614 RFID:** tested with SMF 02 Duo sash lock.
- **SMF Duo RFID:** tested with SMF 02 Duo sash lock.

Based on the test evidence, they are suitable for use within the following parameters:

- Leaf: 1 and 2
- Frame: M1, M2, M3 and M4 backfilled only
- Door configuration: LSASD only
- Intumescent protection: 1mm MAP or Interdens sheet Intumescent protection around all mortices and behind forend and keep.

10.3.6.4 Salto system

The following Salto card reader system has been successfully tested in test reference CFR2010021-1, as follows:

- **AELement Fusion:** tested with Salto Mortice Lock LE7Sxx.

Based on the test evidence, and on the basis of lock dimensions and the backfilled frame analysis and justification in section 10.1, they are suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M2, M3 and M4 backfilled only
- Maximum Lock Dimensions:
    a. Maximum forend dimensions: 235mm high x 24mm wide x 3mm wide
    b. Maximum body dimensions: 165mm high x 91mm wide x 15mm thick.
- Door configuration: LSASD only
- Intumescent protection: 1mm MAP or Interdens sheet Intumescent protection around all mortices and behind forend and lock forend in door leaf.

10.4 Hinges

The door can be hung using the following:

- Butt hinges

Concealed hinges and pivots are not permitted by this assessment.

10.4.1 Butt Hinges

These items are suitable in the following

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, M5
- Configuration: LSASD, ULSASD, LSASDOP, LSADD, ULSADD *(check configuration limitations for each frame type in section 4.5.2.1)*

All leaf and frame types have been successfully tested with hinges and those listed in Appendix B are suitable.

Alternatively, the following hinge specification is acceptable providing the hinge has been tested to BS 476 Part 22 1987 or BS EN 1634 Part 1 in a solid timber door leaf, 44mm thick hung in a metal frame and the doorset has achieved 30 minutes integrity (and insulation if applicable).

Leaves less than 2400mm (h) must be hung on a minimum of 3 hinges. Leaves greater or equal 2400mm (h) must be hung on 4 hinges. Hinges with the following specification are acceptable.

Leaves less than 1200mm (h) can be hung on a minimum of 2 hinges located 150mm from the top and bottom of the door leaf (top hinge location is measured from the top of the hinge blade to the top of the door leaf and bottom hinge location is measured from the bottom of the hinge to the bottom of the door leaf).

Element		Specification	
Blade height:		90 - 120mm	
Blade width (excluding knuckle):		30 - 35mm	
Blade thickness		2.5 - 4mm	
Fixings:		Minimum of 4 No. 30mm long No. 8 or No.10 steel screws per blade	
Materials:		Steel or stainless steel	
Hinge Position:	If 3 hinges are required:	Top	100 – 180mm from the head to top of hinge
		2nd	Minimum 200mm from top hinge or centrally fitted between top and bottom hinge
		Bottom	150 - 250mm from the foot of leaf to bottom of hinge

	If 4 hinges are required:	Top	100 - 180mm from the head to top of hinge
		2nd & 3rd	Equispaced between top and bottom or 2nd hinge 200mm from top hinge and 3rd hinge equally spaced between 2nd and bottom hinge
		Bottom	150 - 250mm from the foot of leaf to bottom of hinge
Intumescent protection:		See section 8	

Alternatively a Certifire approved hinge, meeting the requirements of the above table and, which is approved for 30 minutes in an ITM doorset (i.e. a doorset incorporating Intumescent, Timber leaf and Metal frame), is acceptable providing the higher specification of hardware intumescent protection as required for the inclusion of the hinge within this Field of Application or the Certifire certificate are complied with. For example if the Certifire Certificate specifies intumescent protection behind the hinge blades and this Field of Application does not require intumescent protection behind the hinge blades, the fitting of the intumescent specified in the Certifire Certificate is required.

10.5 Automatic Closing

Automatic closing can be provided by

- Overhead face fixed closer

Concealed closers, transom mounted closers, jamb mounted closers and floor springs are not permitted in this assessment.

10.5.1 Overhead Face Fixed Closer

These items are suitable in the following

Leaf: 1, 2 and 3

Frame: M1, M2, M3, M4, M5

Configurations LSASD, ULSASD, LSASD+OP, LSADD & ULSADD *(check configuration limitations for each frame type in section 4.5.2.1)*

All leaf and frame types have been successfully tested with overhead closers and those listed in Appendix B are suitable.

Alternatively a Certifire approved overhead face fixed closer which is approved for 30 minutes in an ITM doorset (i.e. a doorset incorporating Intumescent, Timber leaf and Metal frame), is acceptable providing all the requirements for the inclusion of the overhead face fixed closer required within this Field of Application and the Certifire certificate are complied with. For example if the Certifire certificate approves use, but places limitations on positioning, then these limitations must be followed.

10.6 Bolts

10.6.1 Surface mounted face fixed barrel bolts

Steel, stainless steel, aluminium or bronze surface mounted barrel bolts (of up 300mm long) may be surface fixed at the top and bottom of one leaf, at a minimum of 50mm from the meeting edge.

These items are suitable within the following scope:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, M5
- Configuration: All configurations
- Intumescent protection: none required

10.6.2 Flush Bolts

Flush bolts have been successfully tested in report CFR1905171. Flush bolts are suitable in the following when a latch is fitted:

- Leaf: 1 and 2
- Frame: M1, M3, & M4 (Frames must be backfilled) or M4 hollow frame design.
- Configurations LSADD *(check configuration limitations for each frame type in section 4.5.2.1)*
- Intumescent Protection: See section 8.1 and drawing below. Alternatively the hardware manufacturers tested gaskets may be used. Note: For steel frames, intumescent is not required behind the keep,
- 2No. Intumescent strips must be located in the leaf NOT containing the flush bolt.
- Flush bolts fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.

Flush bolts are suitable in the following when a lock is fitted:

- Leaf: 1 and 2
- Frame: M1, M3, & M4 (Frames must be backfilled) or M4 hollow frame design.
- Configurations ULSADD *(check configuration limitations for each frame type in section 4.5.2.1)*
- Intumescent Protection: See section 8.1 and drawing below. Alternatively the hardware manufacturers tested gaskets may be used. Note: For steel frames, intumescent is not required behind the keep,
- 2No.Intumescent strips must be located in the leaf NOT containing the flush bolt.
- Flush bolts fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.

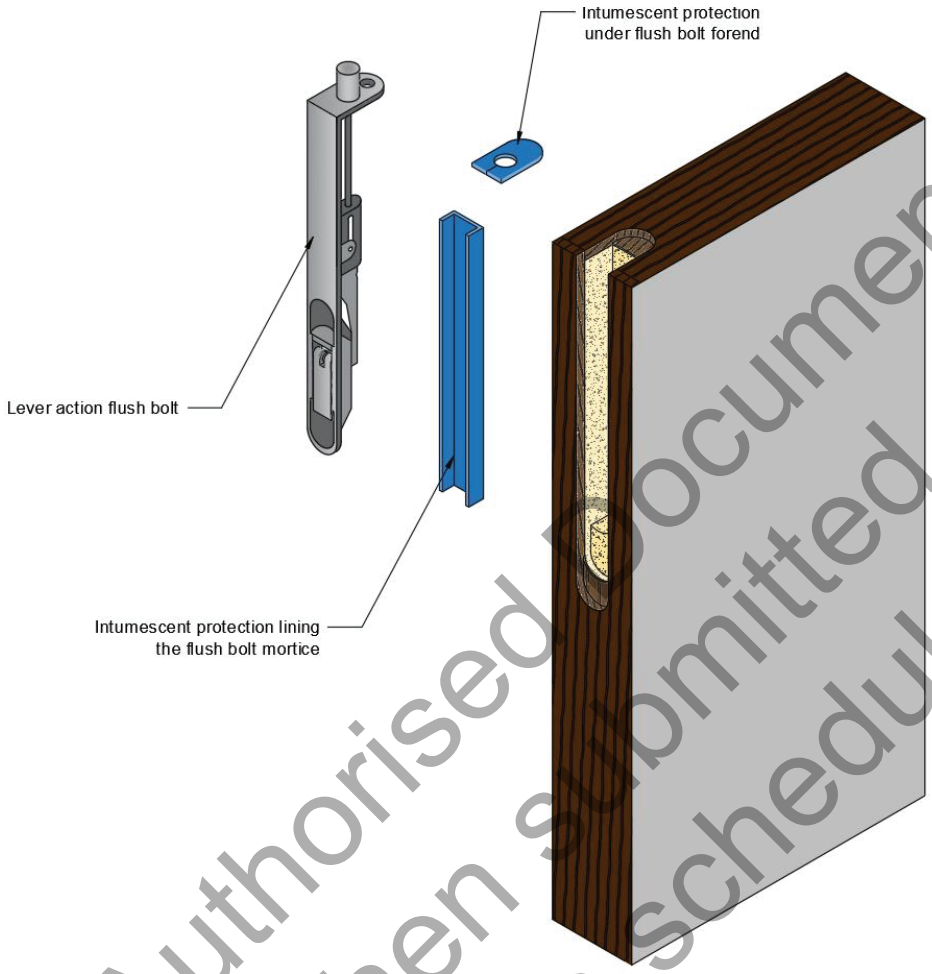
See section 10.1 for cement backfilled frame justification which indicates a reduction in likelihood of heat bridging to the door edges and further erosion and charring to the door leaf edge housing the flush bolt. It is the opinion of Warringtonfire that cement backfilled frames are permitted with the use of flush bolts.

Flush bolts tested and listed in Appendix B are suitable their requirements are given below.

Flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions are not exceeded based on test Chilt/RF15097.

- 610mm long x 20mm deep x 20mm wide.

Flush bolts must be steel and the mortice must be as tight to the mechanism as is compatible with its operation.



Example of intumescent protection for flush bolt

10.6.3 Royde & Tucker Anza surface mounted bolt

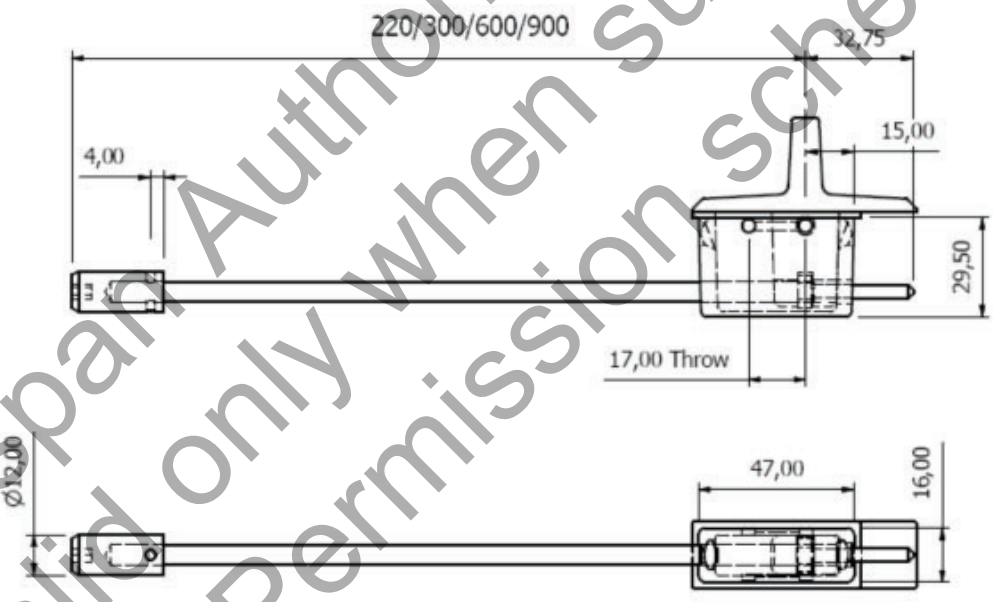
ANZ-220-BSS-FD (now with the product code ANZ-220-FD) has been successfully tested in CFR1009301-2 with the bolt activator in the face of the leaf, and with reference to the backfilled frame analysis and justification in section 10.1, is assessed as suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M3, & M4 (Frames must be backfilled)
- Door configuration: LSADD, ULSADD
- Intumescent protection:

  (a) 1mm thick interdens – Fitted to all sides of the mortice in the leaf face, under the guide plate in the leaf head and under the bolt keep in the frame head. This is supplied with the bolts from Royde & Tucker.

  (b) Minimum of 1No graphite based seal of minimum size 20x4mm, fitted centrally in the leaf head.

- The rebate in the leaf face for the operating handle must not be closer than 190mm to the top or bottom of the leaf or closer than 40mm to the meeting edge of the leaf.
- The bolt fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.
- The longer length product variants ANZ-300-FD, ANZ-600-FD and ANZ-900-FD are also permitted as the bolt activator will be located further away from the top and bottom of the door leaf.



10.6.4 Royde & Tucker Anza flush mounted bolt

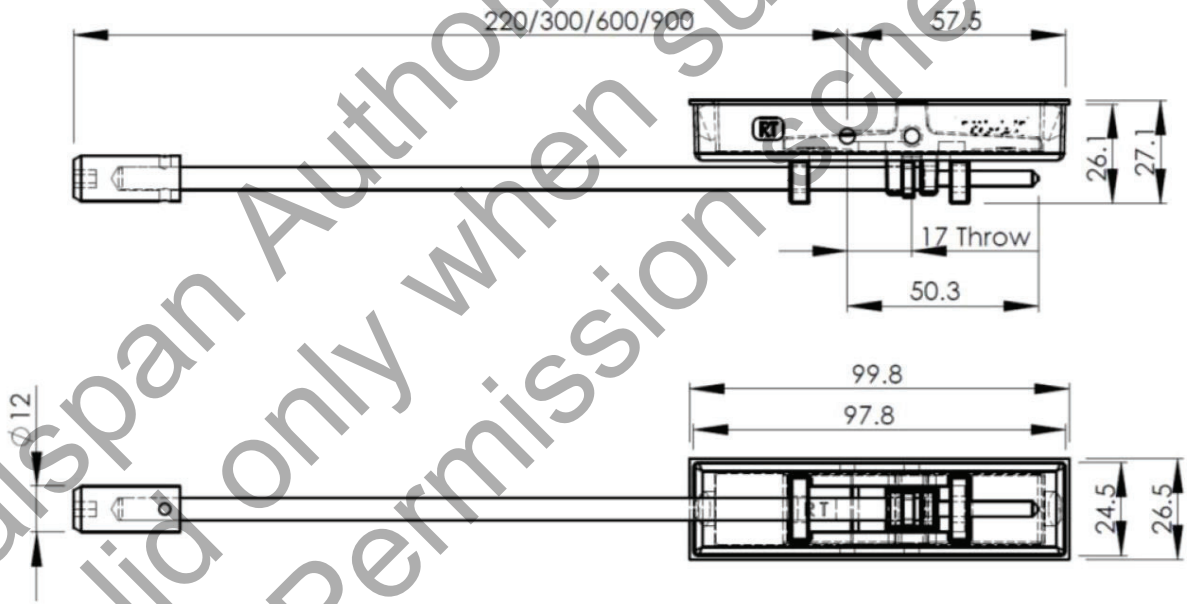
ANZ-220-BSS-FFD (now with the product code ANZ/R-220-FFD) has been successfully tested in CFR1009301-2 with the bolt activator in the meeting edge, and with reference to the backfilled frame analysis and justification in section 10.1, is assessed as suitable for use within the following scope:

- Leaf: 2
- Frame: M1, M3, & M4 (Frames must be backfilled).
- Door configuration: LSADD, ULSADD
- Intumescent protection:

  (a) 1mm thick interdens – Fitted to all sides of the mortice in the leaf edge, under the guide plate in the leaf head and under the bolt keep in the frame head. This is supplied with the bolts from Royde & Tucker

  (b) Minimum of 1No graphite based seal of minimum size 20x4mm, fitted centrally in the leaf head.

- The rebate for the operating handle recessed into the leaf edge must not be closer than 170mm to the top or bottom of the leaf and must be positioned centrally in the leaf edge
- The bolt fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.
- The longer length product variants ANZ/R-300-FFD, ANZ/R-600-FFD and ANZ/R-900-FFD are also permitted as the bolt activator will be located further away from the top and bottom of the door leaf.



10.7 Non Essential Hardware

10.7.1 Roller Catches

These items are suitable in the following:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5
- Configuration: ULSASD[1]

[1]Roller catches may be used with this door design but only in conjunction with a self-closing device. Roller catches may only be fitted to single acting, single leaf doorsets (SASD) and with door dimensions that fall within that permitted for unlatched, single acting, single leaf doorsets (ULSASD).

The roller catch must be steel or brass with a melting point ≥ 800 ^{0}C and must meet following dimension specification:

- Maximum forend and strike plate dimensions: 80mm high x 35mm wide x 4mm thick.
- Maximum body dimensions: 70mm high x 50mm wide x 20mm thick.
- Intumescent protection: None required
- Positioning must be no closer than 300mm from other meeting edge hardware and the top of the roller forend no closer than 150mm to leaf head.

Note DIN Standard Roller catches with integral locking function can be used up to forends of 235mm by 25mm with intumescent protection as detailed in Section 8.1 for lock/latches of this size.

10.7.2 Cable Loop & Cableways

The cable loops detailed in the following sections have been successfully tested with the Prima 30 door blank, and are therefore suitable for use within the scope stated herein.

See section 10.1 for cement backfilled frame justification which indicates a reduction in likelihood of heat bridging to the door edges and further erosion and charring to the door leaf edge.

On the basis of the tests cited in the following sections, which included Cable loops in doorsets, and following analysis of interruption of intumescent seals within the tested arrangements, it is the opinion of Warringtonfire that adding a steel cable loop to a steel cement backfilled frame type would have no significant effect on the doorsets fire resistance performance and therefore the cable loops listed below are permitted in this field of application report, when fitted with the minimum assessed intumescent seals for the scopes in the following sections.

10.7.2.1 Abloy EA280

This item has been successfully tested in test reference CFR2010021, with cable channels, and is assessed as suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement).
- Door configuration: LSASD, LSADD
- Intumescent protection:
  - (a) May be used with cableways which must be fitted and protected as detailed in section 10.7.2.5.
  - (b) Leaf hanging edge intumescent seal– A minimum of 30x4mm intumescent must be used. (refer to section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration)
- Cable loop must be fitted no higher than 1251mm from the bottom of the door jamb(s).
- Cable loop must not be within 100mm of hinge or other items of hardware along the frame jamb.

10.7.2.2 Dorma KU 260

This item has been successfully tested in test reference CFR2004171 (Right-hand doorset), with cable routes, and is assessed as suitable for use within the following scope:

- Leaf: 2 only
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement).
- Door configuration: LSASD, LSADD
- Intumescent protection:
  (a) May be used with cableways which must be fitted and protected as detailed in section 10.7.2.5.
  (b) Leaf hanging edge intumescent seal – A minimum of 38x4mm intumescent must be used. (refer to section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration).
- Cable loop must be fitted with the top of the face plate no more than 950mm above the bottom of the door jamb(s).
- Cable loop must not be within 100mm of hinge or other items of hardware along the frame jamb.

10.7.2.3 Gianni DL-500 & DL-417ST

These items have been successfully tested in test reference WF415117A, without a cable channel, and is suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement).
- Door configuration: LSASD
- Intumescent protection:
  (a) May be used with cableways which must be fitted and protected as detailed in section 10.7.2.5.
  (b) Leaf hanging edge intumescent seal – A minimum of 30x4mm intumescent must be used. (refer to section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration)
- Cable loop must be fitted no higher than 1030mm from the bottom of the door jamb.
- Cable loop must not be within 200mm of hinge or other items of hardware along the frame jamb.

10.7.2.4 Bartels Systembeschlage Pivota DX "Connect"

This item has been successfully tested in test reference WF337470A, without a cable channel, and is suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement)
- Door configuration: ULSASD, LSASD, ULSADD, LSADD
- Intumescent protection:
  (a) May be used with cableways which must be fitted and protected as detailed in section 10.7.2.5.
  (b) Leaf hanging edge intumescent seal – A minimum of 30x4mm intumescent must be used. (refer to section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration)
- Centre line of Cable loop forend must be fitted no more than 1375mm above the bottom of the door jamb.
- Cable loop must not be within 200mm of hinge or other items of hardware along the frame jamb.

10.7.2.5 Cableways

These items are suitable in the following 3 methods:

10.7.2.5.1 Cableway Method 1

- Leaf: 1 & 2
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement)
- Configurations: LSASD
- Maximum leaf size: 2100mm (h) x 926mm (w)
- Intumescent specification(check section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration):
  For Leaf 1: Minimum of 30x4mm intumescent must be used in the leaf edges
  For Leaf 2. Minimum of 38x4mm intumescent must be used in the leaf edges
- Grooves cannot be located within 100mm of the cableway.
- May be used with the cable loops detailed in sections 10.7.2.1 to 10.7.2.4, which must be located, fitted and protected as described.

Based on the integrity performance of the doorset construction, with no burn through of the core material, we consider it acceptable to allow the provision for a concealed cableway to facilitate electro-magnetic closing/latching mechanisms. The cableway must be concealed in the following way:

- A hole drilled centrally through the leaf of maximum 10mm diameter
- The cable for the electronic closing/latching mechanisms must be no more than 2mm smaller in diameter than the hole through the leaf unless wrapped in 1mm intumescent.
- The cable for the electronic closing/latching mechanism must be PVC encased
- The hole must be located below 1500mm from the threshold and must be spaced a minimum of 90mm from any apertures within the leaf e.g. glazing, air transfer grilles or letter plates etc.

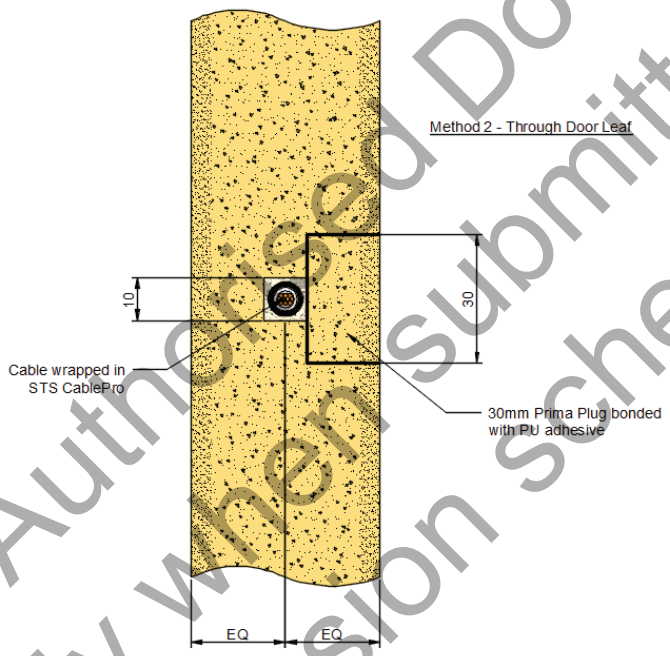
10.7.2.5.2 Cableway Method 2

Based on test evidence CFR2004171 (Right-hand doorset), using Leaf 2, and CFR2010021 (Right-hand doorset), using Leaf 1, with associated hardware and is suitable for use within the following scope:

- Leaf: 1 & 2
- Frame: M1, M2, M3, & M4 (Frames must be backfilled with cement)
- Configurations: LSASD, ULSASD, LSADD, ULSADD
- Maximum Leaf Size: 2440mm (h) x 926mm (w) or as limited by other hardware or the relevant configuration
- Intumescent specification:
  For Leaf 1: Minimum of 30x4mm intumescent must be used in the leaf edges
  For Leaf 2. Minimum of 38x4mm intumescent must be used in the leaf edges
- The leaf can be grooved
  For Leaf 1, grooves cannot be located within 100mm of the cableway.
- May be used with the cable loops detailed in sections 10.7.2.1 to 10.7.2.4, which must be located, fitted as described.
- Cableway must be no higher than 1500mm from the bottom of the leaf to centre of channel.
- Cableway must be spaced a minimum of 90mm from any apertures within the leaf e.g. glazing, air transfer grilles or letter plates etc.

This method comprises a 10mm high x 10mm wide horizontal channel through the full width of the leaf, central to the leaf edge and is concealed in the following way:

- Groove the face of the door core with a 10mm wide channel to a depth of 5mm below the centre of the door core (i.e. 27mm deep for 44mm cores and 32mm deep for 54mm cores)
- Groove the same face with a second groove 30mm wide x 17mm deep for 44mm cores or 23mm deep for 54mm cores, located centrally over the first groove
- Fit a plug in to the second groove 30mm wide by 17mm/23mm deep using Prima core. The plug should run the full length of the cableway and be bonded into place using PVA or PU adhesive
- The door core can then be lipped and calibrated in the usual manner
- Mortice out the for the lock and drill a 10mm hole through the lipping on the opposite edge
- When installing the cable, it must be protected with 1mm STS CablePro intumescent wrap



Cableway Method 2 detail – channel through centre of leaf thickness

10.7.2.5.3 Cableway Method 3

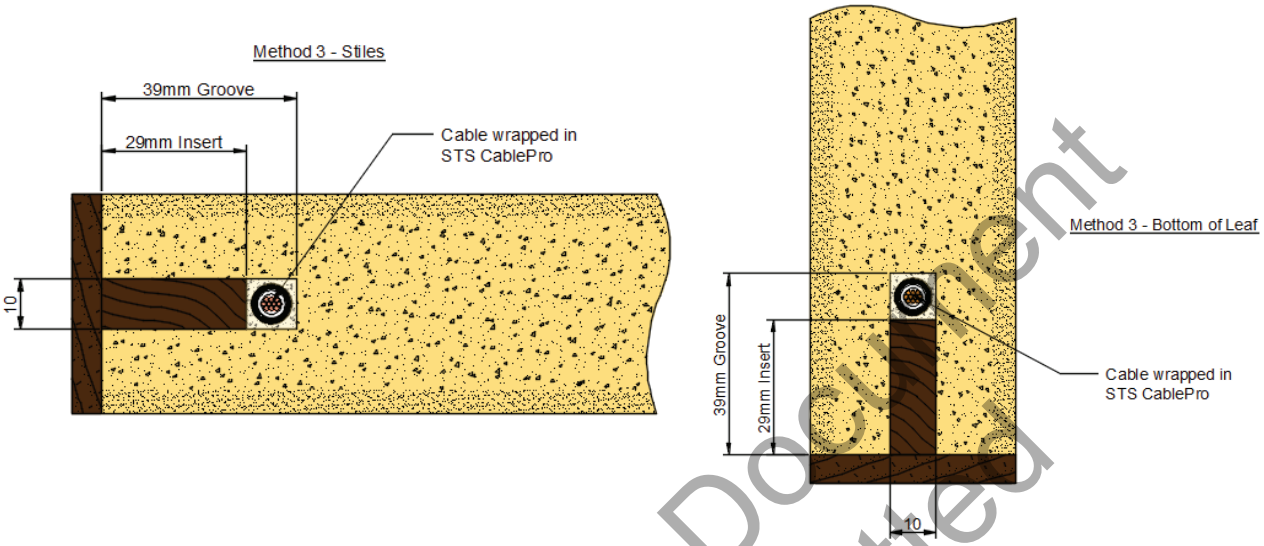
This item has been successfully tested in test reference CFR2004171 (Right-hand doorset), using Leaf 2, and CFR2010021 (Right-hand doorset), using Leaf 1, with associated hardware and is suitable for use within the following scope:

- Leaf: Leaf 1 & 2
- Frame M1, M2, M3, & M4 (Frames must be backfilled with cement)
- Configurations: LSASD, ULSASD, LSADD, ULSADD
- Maximum Leaf Size: 2440mm (h) x 926mm (w) or as limited by other hardware or the relevant configuration
- Intumescent specification:
  For Leaf 1: Minimum of 30x4mm intumescent must be used in the leaf edges
  For Leaf 2. Minimum of 38x4mm intumescent must be used in the leaf edges
- The leaf can be grooved
  For Leaf 1, grooves cannot be located within 100mm of the cableway.

- May be used with the cable loops detailed in sections 10.7.2.1 to 10.7.2.4, which must be located, fitted as described.
- Cableway must be no higher than 1500mm from the bottom of the leaf to centre of channel.
- Cableway must be spaced a minimum of 90mm from any apertures within the leaf e.g. glazing, air transfer grilles or letter plates etc.

This method comprises a 10mm high x 10mm wide channel central to the leaf edge, running down from the hanging edge to the bottom edge of leaf, along the bottom edge to the closing edge/meeting edge, and up along the closing edge/ meeting edge to the latch/lock location, and concealed in the following way:

- Groove the edge of the door core with a 10mm wide channel located centrally, to a depth of 39mm. This groove should run from the lock/keep location in the closing/meeting edge, down the edge, along the bottom of the door then back up the hanging edge to the cable loop location.
- Install the cable, protected with 1mm STS CablePro intumescent wrap, into the groove.
- Infill the groove with 29mm x 10mm Sapele (minimum density 640 kg/m^3), bonded in place with PU adhesive.
- The door core can then be lipped and calibrated in the usual manner.



(A): Cableway Method 3 detail – channel through vertical leaf edges

(B): Cableway Method 3 detail – channel through bottom of leaf edge

10.7.3 Handles

10.7.3.1 Lever Handles

Lever type handles have been successfully tested with the Prima 30 door blank, and subject to meeting the specification below they are suitable for use within the following scope:

- Leaf: 1, 2 and 3
- Frames: M1, M2, M3, M4, M5
- Configuration: All configurations
- Intumescent protection: none required

Lever handles are permitted providing they meet the specification given below:

- Steel, stainless steel, brass, aluminium or bronze are permitted
- Surface fixings or through fixings are permitted. If through fixed there must be no more than 0.5mm clearance between the hole and the fixing.
- The hole through the leaf to facilitate the spindle must be no greater than 20mm diameter.
- The design may be either lever on rose or lever on back plate up to the following maximum sizes:
  - Lever on rose with a rose diameter up to 54mm
  - Lever on back plate with a back plate size up to 243mm high x 56mm wide
  - Lever handle length 250mm.

The handle must be compatible with the lock/latch, such that the closing action of the doorset is not impeded.

10.7.3.2 Pull Handles

Steel, stainless steel, aluminium, brass or bronze handles may be surface-fixed or bolted through the door leaf, providing the length is limited to 1200 mm between the fixing points. If through fixed, there must be no more than 1mm clearance between the hole and stud.

These items are suitable in the following

- Leaf: 1, 2 and 3.
- Frame: M1, M2, M3, M4, & M5
- Configurations ULSASD, LSASD, LSASD+OP, ULSADD & LSADD.
- Intumescent protection: none required

A Zoo Hardware Ltd ZAAD600BSA aluminium D pull handle measuring Ø19mm x 618mm high x 65mm deep was successfully tested in test report CFR1912921 installed on the fire side of the door leaf using 2No. M8 x 60 countersunk steel through fixings. This pull handle design is therefore permitted in this field of application report installed onto leaf 2 (54mm thick). Alternative, aluminium pull handles of the same size or smaller, surface-fixed or bolted through, if no additional material is taken out of the door leaf than successfully tested, are permitted with leaf 2.

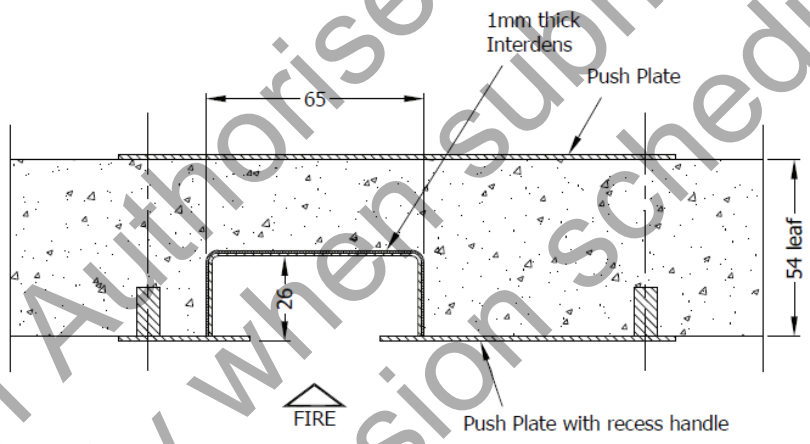
A Zoo Hardware ZCA030SA aluminium lever handle measuring 52mm high x 147mm wide x 19mm thick x 64mm projection was successfully tested in report WF412658. This lever handle design is therefore permitted in this field of application report installed onto leaf 2 (54mm thick). Alternative, surface mounted aluminium lever handles of the same size or smaller are permitted with leaf 2.

10.7.3.3 Recessed Pull Handles

Hoppe AR3903-BB-PULL-SSS recessed pull handle/push plate

This item has been successfully tested in test reference WF193473A, and is suitable for use within the following scope:

- Leaf: 2 only
- Frame: M1, M2, M3, M4, & M5
- Door configuration: All configurations
- Intumescent protection:
  (a) 1mm thick interdens – fitted beneath the recessed part of the pull handle
- The recessed pull handle/push plate must be located between 500mm and 1200mm above the threshold and no closer than 50mm to a door edge and no closer than 100mm to glazing, cableways or any hardware.
- The fixing plate must be surface mounted onto the face of the door leaf. This plate must not be recessed into the door leaf face.
- This item may be used in conjunction with a face fixed (not recessed) push plate in a "back-to-back" arrangement with the recessed pull handle to one face and the push plate to the other face of the leaf, through fixed and with a recess for the pull handle as tested and shown in the following drawing:



10.7.4 Push Plates & Kick Plates

Steel, stainless steel, brass or aluminium face-fixed hardware such as push plates and kick plates may be fitted to the doorsets and may be recessed to a maximum depth of 2mm 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.

When fitted recessed the plate may not be closer than 14mm to any leaf edge and may not be fitted below stops.

These items have been successfully tested in test reference Chilt/RF10111 and are suitable for use within the following scope:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5.
- Configurations ULSASD, LSASD, LSASD+OP, ULSADD & LSADD.
- Intumescent protection: none required

10.7.5 Panic Hardware

Panic hardware may be fitted, providing the installation does not require the removal of any timber from the leaf or any metal from the stop or frame reveal and it does not interfere with the self-closing action of the door leaf.

These items are suitable for use within the following scope:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5
- Configuration: LSASD, LSADD
- Intumescent protection: none required

10.7.6 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 +1 mm). Lenses must be glass and the item must be protected with a tested acrylic intumescent mastic or 1mm graphite sheet.

Fitted no closer than 75mm to door edge, glazing or any hardware.

Two door security viewers may be fitted to one door leaf if necessary and must be positioned a minimum of 75mm apart.

These items have been successfully tested in test reference Chilt/RF03076, and are suitable for use within the following scope:

- Leaf: 1, 2 and 3.
- Frame: M1, M2, M3, M4, & M5
- Configurations ULSASD, LSASD, LSASD+OP, ULSADD & LSADD.
- Intumescent protection: 1mm graphite sheet or as tested.

See Appendix B7 for tested security (eye) viewers and intumescent protection.

10.7.7 Environmental Seals

The tested seals are permitted in this assessment restricted to the frame it was tested with as specified in the table below:

Environmental Seal			
Test Report	**Frame**	**Product**	**Manufacturer**
CFR1905171	M4	AC5709	Rema
CFR1912021	M4	AADC0006	BOS
Warres 118289	M5	P256 *	Nelso

* The Nelso P256 PVC seal has been confirmed to be a rebranding of the Nelso GDF4 seal successfully tested in report Warres 118289 and is therefore permitted in this field of application report to the requirements given in the table above.

Whilst the above seals may be installed, it is beyond the remit of this Field of Application report to provide scope for acoustic or cold smoke control performance.

10.7.8 Threshold drop Seals

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

Automatic Threshold Drop Seal Types	
Product	**Manufacturer**
LAS8001si	Lorient Polyproducts Ltd.
RP8Si	Raven Products Ltd.
Schall-Ex Duo L-15	Athmer HG
NOR810, NOR810S	Norsound Ltd.
SLS-DRP range	Halspan Ltd.
STS 422 & ST422GT	Sealed Tight Solutions Ltd

Note:

Morticed in drop seal is not to be used in conjunction with a mortice in flush bolt at the bottom of meeting edge.

Whilst the above seals may be installed, it is beyond the remit of this Field of Application report to provide scope for acoustic or cold smoke control performance.

10.7.9 Pyroplex Air Transfer Grilles – Leaf 1, 2 and 3

The following fire tested Pyroplex air transfer grilles have been tested in report WF146520 and are therefore acceptable for use with the Halspan® **Prima** 30 doorset.

The grilles must be fitted no closer than 100mm from the edge of the door leaf and a minimum of 80mm apart if more than one grille is to be fitted.

The area occupied by the air transfer grille(s) must be deducted from the percentage of glazing, if both elements are fitted. The grilles may be fitted up to a maximum height of 2200mm from the threshold.

Part No.	**Dimensions** (mm)	**Air Flow** (sq. cm)	**Compatible Faceplates**
ATG 1500	150 x 150	153	FP1500
ATG 1503	150 x 300	307	FP1503
ATG 1300	300 x 300	614	FP1300
ATG 2251	112 x 225	161	FP2251
ATG 2250	225 x 225	323	FP2250

The Pyroplex air transfer grilles must be installed in accordance with the manufacturer's installation details, which include a 6mm thick hardwood aperture liner and Pyroplex intumescent mastic applied around the perimeter of the grille. Full details can be obtained from Pyroplex Ltd.

10.7.10 Mann McGowan Air Transfer Grilles – Leaf 1, 2 and 3

Pyrogrille 100 - transfer grilles have been tested in WF391351 in Prima core.

The grilles must be fitted no closer than 100mm from the edge of the door leaf and a minimum of 80mm apart if more than one grille is to be fitted.

The area occupied by the air transfer grille(s) must be deducted from the percentage of glazing, if both elements are fitted.

The grilles may be fitted up to a maximum height of 850mm from the threshold.

Grilles up to 600mm by 600mm may be fitted.

The air transfer grilles must be installed in accordance with the manufacturer's details.

10.7.11 Letter Plates

10.7.11.1 Tested Letter plates

The following letter plates have been tested and are approved for use:

- Halspan Letterplate (TS008 certified letterplate) – reference test WF428611
- Royde & Tucker (LP08-44 (CF255) - with 38 x 3 graphite collar reference test CFR 1903071 Rev 1.

The letter plates, fitted in the horizontal orientation, must be located between 200mm and 1200mm above the threshold and no closer than 100mm to a door edge, glazing or any hardware.

See Appendix B8 for tested letter plates / boxes.

The area of the tested letter plate (and air transfer grille if present) plus any glazing must not exceed the total permitted area for glazing in the leaf.

10.7.11.2 Alternative Letter plates

On the basis of Certifire Certificates, in ITM doorsets with solid timber door leaves, the following alternative Letterplates are permitted for use within the specified scopes. In all cases the alternative Letterplates, the product and/or its immediate packaging will be identified with the letter plate manufacturer's name, the product name or number, the Certifire name or name and mark, together with the relevant Certifire Certificate number.

The area of the alternative letter plate (and air transfer grille if present) plus any glazing must not exceed the total permitted area for glazing in the leaf.

10.7.11.2.1 Royde & Tucker Letterplates (CF255)

Certifire Certificate CF255 covers Royde & Tucker Letterplate assemblies (using brass, stainless steel or aluminium plates and a PVC encased intumescent lining for fitting horizontally, and steel letterplates for fitting vertically).

The permitted product codes for horizontal orientation fitting are:

LP02-44, LP02-54, LP03-44, LP03-54, LP08-44, LP08-54, LP05-44, LP05-54, LP06-44 and LP06-54.

The permitted product codes for vertical orientation fitting are:

LP02V-44, LP02V-54, LP03V-44, LP03V-54, LP08V-44 and LP08V-54.

All of the above Royde & Tucker letterplate assemblies are permitted for use within the following scope and subject to meeting the following requirements:

- Leaf: Leaf 1, 2 and 3

- Frame: M1, M2, M3, M4, M5
- Configuration: All configurations
- Where the letterplate is fitted in a horizontal orientation the letterplate system shall be located between 250mm and 1200mm above the threshold to the middle of the aperture, and no closer than 100mm to a door edge, glazing or any hardware.
- Where the letterplate is fitted in a vertical orientation the letterplate system shall be located between 1300mm and 1600mm above the threshold to the middle of the aperture, and no closer than 100mm to a door edge, glazing or any hardware.
- The fixings supplied by the letterplate manufacturer must be used.
- The standard product is designed to fit door leaves in three thickness ranges, of which the following two are suitable for the doorsets assessed herein: 42-47mm and 52-57mm, and the appropriate model must be selected.

10.7.11.2.2 Assa Abloy Firemaster Letterplate (CF219)

Certifire Certificate CF219 covers the Assa Abloy Firemaster Letterplate (a complete system using brass, stainless steel or aluminium plates and a PVC encased intumescent lining) is permitted for use within the following scope and subject to meeting the following requirements:

- Leaf: Leaf 1, 2 and 3
- Frame: M1, M2, M3, M4, M5
- Configuration: All configurations
- The fixings supplied by the letterplate manufacturer must be used.
- The letter plate, fitted in the horizontal orientation, must be located between 250mm and 1200mm above the threshold to the middle of the aperture, and no closer than 100mm to a door edge, glazing or any hardware.

10.7.11.2.3 UAP Soterian TS008 FD30 Letterplate (CF5723)

Certifire Certificate CF5723 covers the UAP Soterian TS008 FD30 Letterplates (a complete system using aluminium or steel flaps and outer casing with an inner body consisting of an aluminium profile with intumescent to the outer body of the letter plate as well as the internal sleeve) is permitted for use within the following scope and subject to meeting the following requirements:

- Leaf: Leaf 1, 2 and 3
- Frame: M1, M2, M3, M4, M5
- Configuration: All configurations
- The fixings supplied by the letterplate manufacturer must be used.
- The letter plate, fitted in the horizontal orientation, must be located between 290mm and 1200mm above the threshold to the middle of the aperture, and no closer than 100mm to a door edge, glazing or any hardware.

10.7.11.2.4 Lorient RJ008 Letterplate (CF5688)

Certifire Certificate CF5688 covers the Lorient RJ008 FD30 Letterplates (a complete system using aluminium or steel flaps and outer casing with an inner body consisting of an aluminium profile with intumescent to the outer body of the letter plate as well as the internal sleeve) is permitted for use within the following scope and subject to meeting the following requirements:

- Leaf: Leaf 1, 2 and 3
- Frame: M1, M2, M3, M4, M5
- Configuration: All configurations
- The fixings supplied by the letterplate manufacturer must be used.
- The letter plate, fitted in the horizontal orientation, must be located between 290mm and 1200mm above the threshold to the middle of the aperture, and no closer than 100mm to a door edge, glazing or any hardware.

11 Insulation

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

Insulation Performance Criteria		
Type		Details
Non-insulating		Doorsets incorporating more than 20% of non-insulating components e.g. non-insulating glazing, hollow or foam filled frames.
Partially insulating		Doorsets incorporating up to 20% of non-insulating components e.g. non-insulating glazing, hollow or foam filled frames.
Fully insulating	Steel frames back filled with mortar/concrete	Unglazed doorsets or doorsets including 30 minute insulating glazing (e.g. glasses 11 and 13-15 in sections 6.2 and 6.3) and incorporating frames backfilled with concrete or mortar.

12 Conclusion

This assessment provides a field of application for the Halspan 30 Prima metal frame product family which consists of Leaf 1, 2 and 3 to be installed in frames M1, M2, M3, M4 & M5. Providing the doorset design is constructed in accordance with the specification documented this field of application, it is Warringtonfire's opinion that, if the doorset were to be tested in accordance with BS 476: Part 22: 1987, the doorset would provide a minimum of 30 minutes integrity and insulation (subject to section 11).

Note:

The glazing units detailed in sections 6.8 & 6.9 are asymmetrical and have been tested from one side only. Therefore, where these units are specified the doorset must be considered as providing fire resistance from one side only. The orientation of the glazing unit when installed will determine the fire risk side of the doorset, with reference to sections 6.8 & 6.9.

13 Declaration by the Applicant

1) We the undersigned confirm that we have read and comply with obligations placed on us by the Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments and engineering evaluations based on fire test evidence 2021 Industry Standard Procedure
2) We confirm that any changes to a component or element of structure which are the subject of this assessment have not to our knowledge been tested to the standard against which this assessment has been made.
3) We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts be the subject of a failed fire resistance test to the standard against which this assessment is being made.
4) We understand that this assessment is based on test evidence and will be withdrawn should evidence become available that causes the conclusion to be questioned. In that case, we accept that new test evidence may be required.
5) We are not aware of any information that could affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask the assessing authority to withdraw the assessment.

(In accordance with the principles of FTSG Resolution No. 82: 2001)

Signed: A. Davies

Name: Andy Davies

Position: Technical Manager

Date: 19/10/2022

For and on behalf of: Halspan Ltd

14 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 or modifications. 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 to Warringtonfire, the assessment will be unconditionally withdrawn, and the applicant will be notified in writing. Similarly, the assessment evaluation is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence.
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 against the ISO 834 time/temperature curve that is stipulated in the standard this assessment concludes to. 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 authorities or any other third parties as sufficient for that or any other 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.

15 Validity

1) The assessment is initially valid for five years after which time it is recommended to be submitted to Warringtonfire for re-appraisal.
2) This assessment report is not valid unless it incorporates the declaration given in Section 13 duly signed by the applicant.

Position:	Assessor	Co-author	Reviewer
Signature:			
Name:	*E. L. Wilson	*Chris Newton	*Kevin Towler
Title:	Senior Product Assessor	Product Assessor	Senior Product Assessor

* For and on behalf of Warringtonfire

Appendix A: Revisions

Rev.	Job Ref.	Date	Description
A	Chilt/A00065	23.05.00	Revalidation and update to include Halspan 30 steel/aluminium frame doorsets and all additional test evidence.
B	Chilt/A01206	14.12.01	5 year revalidation and update including additional test evidence.
C	Chilt/A03032	13.08.03	Update into the new report format with additional cover relating to Sureguard edge protectors and laminates, ironmongery, MDF and softwood glazing beads.
D	Chilt/A05012	24.01.05	Update to include new test data covering lippings, ironmongery, glazing, intumescent seals and framing.
E	Chilt/A10027	29.05.10	Update to include new test data covering lippings, hardware, feature grooves, glazing, 617 Intumescent seals, PVC lippings and fire stopping details. The report has been technically reviewed and revalidated for a further 5 year period.
F	Chilt/A10216	20.10.10	Update to include grooves with hardwood inserts, re-instate security viewers, new sealing to structural opening section, recessed push/kick plates, inclusion of glazing system 30049, inclusion of Norfast perimeter seal.
G	Chilt/A11167	11.08.11	Update to include test evidence for Prima Plus design. Scope of application for Prima Plus design is contained in Appendix H.
H	CNA/F15271	11.12.15	Review, update and revalidation for a further 5 year period. The update to include STS perimeter seals, overpanels with the Prima Plus design, Pyroguard EI 30 glass, side panels & Tectus concealed hinges.
I	CNA/F15315	17.12.15	Update to include STS glazing system; Ref: ST105GT, STS smoke control seals; Ref: ST1009, STS drop seals; Ref: ST422 & STS hardware gaskets; Ref: ST30, based on FEP/F14207 Rev. B, FEP/F15034 & FEP/F15097.
J	WF516654	19.10.22	Revision of assessment scope in new report layout based on BSEN 15725: 2010. Revised assessment to cover only metal based frames. The following sections have been included: • Access Control Systems • Cable loops: Additional features / hardware: • Listing of lever handles in Appendix • Hoppe AR3903 recessed pull handle/push plate • Surface Mounted Panic hardware • 2No. Door Security Viewers and appendix • Letter plate Halspan TS008 (• Surface mounted barrel bolts. • R&T Anza bolts

16 Appendix B: Test evidence supporting specific items of hardware

Appendix B1 Closer Test Evidence

Summarised from evidence within Section 3 and Appendix Z

Closer Test Evidence						
Test report	**Frame**	**Configuration**	**Leaf Dimensions (mm)**	**Closer**	**Size (mm)**	**Protection**
RF01073 Doorset A	1	ULSADD	2135 high x 800/300 wide	Dorma TS83V overhead closer	233 x 60	N/A
RF01073 Doorset B	1	ULSASD	2135 high x 1105 wide	Dorma TS83V overhead closer	233 x 60	N/A
RF01074 Doorset A	1	ULSADD	2145 high x 795/300 wide	Dorma TS83V overhead closer	233 x 60	N/A
RF01074 Doorset B	1	ULSASD	2135 high x 1105 wide	Dorma TS83V overhead closer	233 x 60	N/A
RF02082 Doorset B	2	ULSASD	2135 high x 916 wide	Dorma TS83V overhead closer	233 x 60	N/A
RF04021 Doorset B	3	ULSASD	2135 high x 914 wide	Dorma TS83V overhead closer	233 x 60	N/A
CFR1905171	4	LSADD	2438 high x 1000/1000 wide	Halspan R60 series CLR-AGN-100 surfaced mounted closers	248 x 59	N/A
CFR1902021	4	ULSADD	2850 high x 928/928 wide	Halspan R9000 series Halspan R60 CLR-BSS-101 surface mounted closer	236 x 55	N/A
WARRES No. 111201	3	ULSADD	2042 high x 826/826 wide	Dorma Door Controls ltd TS 73 face fixed closer.	210 x 60	N/A

WARRES No. 118289	5	ULSADD	2700 high x 835/835 wide	Briton 2003 E face fixed closer	248 x 46	N/A
WF412658 Doorset A	4	LSADS	2850 high x 926 wide	Halspan R60 Aluminium Power Closer CLR-BSS-101 59 x 248 x 42	248 x 59	N/A
WF412658 Doorset B	4	LSASD+OP	2194 high x 926 wide	Halspan R60 Aluminium Power Closer CLR-BSS-101	248 x 59	N/A

Appendix B2 Hinge Test Evidence

Hinge Test Evidence						
Test report	**Frame**	**Configuration**	**Leaf Dimensions (mm)**	**Hinge**	**Size (mm)**	**Protection**
RF01073 Doorset A	1	ULSADD	2135 high x 800/300 wide	Royde & Tucker 101 Hi Load lift off hinge	100 x 35	Intumescent Seals Ltd Therm-A-Strip 2mm thick (leaf side only)
RF01073 Doorset B	1	ULSASD	2135 high x 1105 wide	Royde & Tucker 101 Hi Load lift off hinge	100 x 35	Intumescent Seals Ltd Therm-A-Strip 2mm thick (leaf side only)
RF01074 Doorset A	1	ULSADD	2145 high x 795/300 wide	Royde & Tucker 101 Hi Load lift off hinge	100 x 35	Intumescent Seals Ltd Therm-A-Strip 2mm thick (leaf side only)
RF01074 Doorset B	1	ULSASD	2135 high x 1105 wide	Royde & Tucker 101 Hi Load lift off hinge	100 x 35	Intumescent Seals Ltd Therm-A-Strip 2mm thick (leaf side only)
RF02082 Doorset B	2	ULSASD	2135 high x 916 wide	Royde & Tucker 101 Hi Load lift off hinge	100 x 35	N/A
RF04021 Doorset B	3	ULSASD	2135 high x 914 wide	Royde & Tucker R207 butt hinge	100 x 35	Intumescent Seals Ltd Therm-A-Strip 2mm thick (leaf side only)
CFR1905171	4	LSADD	2438 high x 1000/1000 wide	4No Halspan 30 HIN-BSS-104 steel hinge	101 x 31	Halspan Ltd SLS-PAD-103 1mm thick (leaf side only)
CFR1902021	4	ULSADD	2850 high x 928/928 wide	4No. Zoo Hardware Ltd ZHSS243RS	102 x 31	N/A
WARRES No. 111201	3	ULSADD	2042 high x 826/826 wide	3No. Fireblock Steel hinges	101 x 30	Sealmaster Ltd graphite intumescent strip 2No. layers 20 x 2
WARRES No. 118289	5	ULSADD	2700 high x 835/835 wide	4No. Carillion/ Neslo4SI steel hinge	102 x 29	N/A

WF412658 Doorset A	4	LSASD	2850 high x 926 wide	4No. Zoo Hardware Ltd ZHSS243R Grade 13 stainless steel butt hinge	101.6 x 30	graphite hinge pad SLS-PAD-103 1mm thick
WF412658 Doorset B	4	LSASD+OP	2194 high x 926 wide	4No. Zoo Hardware Ltd ZHSS243R Grade 13 stainless steel butt hinge	101.6 x 30	graphite hinge pad SLS-PAD-103 1mm thick

Appendix B3 Lock & Latch Test Evidence

Tested with Metal Frames (Single Doors only)

Lock/Latch Test Evidence						
Test report	**Frame**	**Configuration**	**Leaf Dimensions (mm)**	**Lock/Latch**	**Forend Size (mm)**	**Protection**
RF02082 Doorset B	2	ULSASD	2135 high x 916 wide	Tubular mortice latch	57 x 26	N/A
RF04021 Doorset B	3	ULSASD	2135 high x 914 wide	Union 2 lever mortise latch	152 x 22	Intumescent Seals Ltd Therm-A-Strip 2mm thick fitted encasing latch body and behind latch and keep forend.
WF412658 Doorset A	4	LSASD	2850 high x 926 wide	Zoo Hardware ZDL0060LR	235 x 22	Halspan SLS-PAD-110 1mm thick encasing latch body and fitted behind latch and keep forend.
WF412658 Doorset B	4	LSASD+OP	2194 high x 926 wide	Zoo Hardware ZDL0060LR	235 x 22	Halspan SLS-PAD-110 1mm thick encasing latch body and fitted behind latch and keep forend.

Appendix B4 Lock & Latch Test Evidence

Tested with Metal Frames (Double Doors only)

Lock/Latch Test Evidence						
Test report	**Frame**	**Configuration**	**Leaf Dimensions (mm)**	**Lock/Latch**	**Forend Size (mm)**	**Protection**
CFR1905171	4	LSADD	2438 high x 1000/1000 wide	R60 Eurospec Lockset LCK-BSS-100	235 x 22	Halspan SLS-PAD-109 1mm thick fitted behind latch and keep forend.

Appendix B5 Lock & Latch Test Evidence

Tested with Timber Frames (Double doorsets only)

Lock & Latch Test Evidence							
Test Report Reference	**Configuration**	**Test Result (integrity)**	**Frame Material**	**Lock/Latch Type**	**Lock/Latch**	**Lock/Latch Size (forend)**	**Lock/Latch Protection**
BMT/FEP/F15097	ULSADD	33	European Redwood	Mortice lock/latch	Union Union mortice latch	235 x 24	STS 1mm graphite
CFR1903181	LSADD	35	European Redwood	Mortice lock/latch	Halspan LCK-BSS-100	235 x 24	SLS-PAD-109 (1mm)
LP-636.3/09	LSADD	34	Softwood	Mortice lock/latch	Assa Abloy Abloy 4292	235 x 20	
Chilt/RF09069	LSADD	37	European redwood	Tubular latch	E*S E*S tubular steel mortise latch	57 x 26	
RF95042	ULSADD	35	Sapele	Mortice lock/latch	Henderson Hardware 3 lever lock/latch	152 x 22	1mm Interdens
RF97063	ULSADD	45	Sapele	Tubular latch	Legge Tubular mortice latch	20 x 15 x 60	1mm Interdens
Warres No. 112248	ULSADD	30	European redwood	Mortice lock/latch	Colson Sash lock	100 x 75	Acrylic mastic
WF372220 AR1	LSADD	42	Mahogany	Mortice lock/latch	Devon 88.601.86	235 x 25	1mm Interdens

Appendix B6 Bolt Test Evidence

Bolt Test Evidence								
Test Report	**Frame**	**Configuration**	**Frame Material**	**Bolt Type**	**Bolt Manufacturer**	**Bolt Reference**	**Bolt Size (mm)**	**Bolt Protection**
CFR1905171	4	LSADD	Steel	Flush bolt	Halspan	LCK-MSC-205	203 x 19.5 x 3.9	Halspan R-30 SLS-PAD-111 1mm thick lining rebates.
BMT/FEP/F15097	N/A	ULSADD	European Redwood	Flush bolt	Zoo	ZAS03	600 x 20 & 200 x 20	STS 1mm graphite
BMT/FEP/F15214 AR1	N/A	LSADD	Mahogany	Flush bolt	Eclipse	J34620	155 x 20 & 38 x 18	SLS-PAD-110 (1mm)
CFR1808311	N/A	LSADD	Douglas Fir	Surface bolt	Royde & Tucker	Barza bolt / Barza keep	222 x 17.5 x 25 / 6 x 47 x 25	None
CFR1909021	N/A	LSADD	European Redwood	Flush bolt	Halspan	LCK-MSC-210	202 x 17 x 20 x 0.9	Therm-A-Strip (10 x 2)
WF372220 AR1	N/A	LSADD	Mahogany	Flush bolt	Devon	94.156.61	205 x 20 / 20 x 38	2mm Therm-A-Strip
WF372227 AR1	N/A	LSADD	Beech wood	Flush bolt	Simplex	SPX101 / SDS101	170 x 26 / 60 x 24	2mm Kilargo

Appendix B7 Door Viewer Test Evidence

Test Report Reference	Config.	Test Result (integrity)	Frame Material	Door Viewer	Viewer Protection
BMT/FEP/F15270 AR1	LSASD	39	Sapele	Eurospec - SWE1000SSS (15Ø)	None
CFR1903071 Rev 1	LSASD	39	Unsorted redwood	Lorient - LRJ3745 (38Ø)	2mm graphite
CFR1903071 Rev 1	LSASD	39	Unsorted redwood	Lorient - LRJ3745 (38Ø)	2mm graphite
CFR2010021	LSASD	38	Tulipwood	JNF - IN.23.010B (14Ø)	None
WF380315B	ULSASD	36	Pine	Arrone Door Viewer AR539	0.6mm graphite

Appendix B8 Letter Plate Test Evidence

Letter Plate Test Evidence				
Test Report Reference	**Configuration**	**Test Result (integrity)**	**Frame Material**	**Letter Plate**
WF428611	LSASD	34	Softwood	Halspan TS008 Certified Letterplate (see note to test report summary)
CFR1903071 Rev 1	LSASD	39	Unsorted redwood	Royde & Tucker (LP08-44 (CF255) - with 38 x 3 graphite collar
CFR1811211	ULSASD	38	Douglas Fir	Royde & Tucker LP08V-44-PSS-C (vertical letterplate) – 38 x 3 graphite collar

Appendix B9 Cable Loop Test Evidence

Test Report Reference	Config.	Test Result (integrity)	Frame Material	Cable Loop Manufacturer	Cable Loop Reference	Cable Loop Protection	Cable Loop Notes
WF415117A	LSASD	36	Redwood	Gianni Industries Inc	DL-500 & DL-417ST	1mm Interdens	2 cable loops fitted
CFR2010021	LSADD	30	Redwood	Assa Abloy	EA280	1mm MAP	2no cable loop. 1no fitted in each jamb
CFR2004171 RH	LSADD	53	Sapele	Dormakaba	KU 260	1mm MAP SLS-PAD-107	2no cable loop. 1no fitted in each jamb
WF337470A	ULSASD	39	Softwood 450kg/m3	Bartels Systembeschlage	Pivota DX “Connect”	1mm Lorient Interdens	1no conductor loop fitted concealed to leaf and hanging jamb

Appendix B10 Handle Test Evidence

Test Report Reference	Config.	Test Result (integrity)	Frame Species	Handle Type	Handle Manufacturer	Handle Model Reference	Handle Protection
WF193473/A	ULSADD	50	Sapele	Push plate & recessed pull	HOPPE	AR3903-BB-PULL-SSS	1mm interdens
WF193473/A	ULSADD	50	Sapele	Knobset	HOPPE	AR3901/10-UN-SSS	
WF193473/A	ULSADD	50	Sapele	Turn & release	HOPPE	AR3901/29-SSS	
CFR2004171 LH	LSASD	46	Sapele	Lever type	Zoo Architectural Hardware	ZCA030SA	1mm SLS-PAD-107
WF380315/C Issue2	ULSASD	36	Pine	Lever type	Arrone	E1140/42H/42HS	
CFR1009301 LH	LSASD	50	Pine	Lever type	Dline		
CFR2010021 RH	LSADD	30	Redwood	Lever type	Assa Abloy	INOXI 3-19/242 levers	

Appendix Z Supporting Test Evidence

Test Report BMT/FEP/F15214 AR1

The referenced test report summarised below is being used as supplementary evidence to support the use of flushbolts and general evidence for Leaf 1.

Date of test:	05.Oct.2015
Identification of test body:	Warringtonfire Testing and Certification Ltd
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Door,– LSADD Doorset with Glazed Apertures
Summary of test specimen:	Leaf: Overall Size: 2205 (h) x 1000/1000 (w) x 46mm (t) Core: Halspan Optima 30, 44mm thick Lipping: mahogany (640kg/m3), 10mm thick to all edges Facing: 1mm veneer Frame: Head & Jambs: Mahogany (640kg/m3), 32 x 70mm, with 15 x 24mm deep planted stop Frame Fixing: 4No 100 x 8 screw per jamb & 2No per head.
	Intumescent: Head & Jambs: 1no 15x4 Halspan SLS-PLA. Fitted 15mm from exposed face in frame reveal. Partially interrupted by hinges leaving 2mm continuous, and fully interrupted by flushbolt keep. Meeting Edges: 1no 10x4 Halspan SLS-PLA. Fitted 18mm from exposed face in the meeting edge of both leaves. Fully interrupted by flushbolt body in right leaf edge. Hardware: Hinges: 3No Halspan HIN-BSS-104 standard hinges per leaf Closer: 1No Halspan R30 Eco Closer Fig.1 per leaf Lock/Latch: 1No Halspan R30 lock – LCK-BSS-100 in main leaf. Flushbolt: 2No Eclipse 155 x 20, in slave leaf. Handle: 1No Aluminium lever set on rose to main leaf Hardware Protection: Around Bolt Body, Under Forend, Keep & Bolt keep: 1mm thick Halspan SLS-PAD-110 Glazing: Glass: Schott Pyran S. 635 x 187 x 6. 1No glazed panel per leaf Beading: Mahogany (640kg/m3), chamfered beads. Glazing System: Glazing Perimeter: Halspan 30 Glazing seal SLS-GLZ-200 (10x3) used around glass both sides Doorset Orientation: Opening towards heating conditions. Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 40 minutes Insulation: 40 minutes (In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation)

Test Report BMT/FEP/F15270B AR1

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	03.Dec.2015
Identification of test body:	Warringtonfire Testing and Certification Ltd
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Door – LSASD Insulated, unglazed timber doorset
Summary of test specimen:	Leaf: Leaf Sizes: 2400 (h) x 1000 (w) x 44 (t) Core: Halspan Optima 30, 44mm thick. Lipping: Sapele (640kg/m3) 6mm thick to all edges. Intumescent: Head & Jambs: 1no 15x4 Halspan SLS-PLA-103. Fitted 15mm from exposed face in frame reveal. Fully interrupted by hinges and latch keep. Leaf Bottom Edge: 1no 35x14 Halspan SLS-DRP-300. Fitted centrally. Frame: Head & Jambs: Sapele (640kg/m3), 44 x 90mm deep including a rebated stop 12mm thick. Architrave: MDF to exposed face. 45 x 18mm thick. Hardware: Hinges: 4no Halspan HIN-BSS-104 standard hinges equi-spaced Closer: 1no Halspan R30 Eco Closer Fig.1 Latch/Lock: 1no Halspan R30 lock – LCK-BSS-100 Handle: 1no Aluminium lever set on rose to main leaf Eye Viewer: 1no door viewer at 1500mm AFFL (Eurospec SWE1000SSS) Hardware Protection: Under Forend & Keep: 1mm thick Halspan SLS-PAD-110 Glazing: none Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 39 minutes Insulation: 39 minutes

Test Report CFR1808311

The referenced test report, summarised below is being used as supplementary evidence to support the use of flushbolts and general evidence for Leaf 1.

Date of test:	31.Aug.2018
Identification of test body:	Cambridge Fire Research
Sponsor:	Halspan Limited
Tested Product:	Right Hand Doorset: Latched, Single Acting, Double Door – LSADD Insulated, unglazed timber unequal double doorset – LSADD
Summary of test specimen:	Leaf: Overall Size: 2403mm (h) x 828/282mm (w) x 44mm (t) Core: Halspan Optima 30, 44mm thick. Lipping: 6mm thick Sapele (640kg/m3) to vertical edges only. Intumescent: Head & Jambs: 1no 15x4 Halspan SLS-PLA-103. Fitted 16mm from unexposed face. Fully interrupted by hinges and bolt keep. Meeting Edges: 2no 10x4 Halspan SLS-PLA-111. Fitted 4.5mm and 30mm from unexposed face in main leaf. Both seals partially interrupted by latch forend with 70% remaining continuous. 1no 10x4 Halspan SLS-PLA-111. Fitted centrally in slave leaf. Fully interrupted by latch keep. Frame: Head & Jambs: Douglas Fir (530kg/m3), 33 x 100mm deep, with 16 x 35mm deep door stops. Hardware: Hinges: 4no Halspan HIN-BSS-104 per leaf Closer: 1no Halspan R6000/CLR-BSS-101 to main leaf Lock/Latch: 1no Halspan LCK-BSS-100 to main leaf Lock/Latch Size: (Forend): 235 x 23mm Handle: 1no Zoo Hardware, Halspan LCK-MISC-200 Flushbolt: 2no Royde & Tucker Barza bolt to slave leaf – face mounted Hardware Protection: Under Hinges: 1mm thick Halspan SLS-PAD-102. Around Latch Body: 1.5mm thick Halspan SLS-PAD-109. Under Bolt Keep: 1mm thick Therm-A-Flex. Glazing: none Doorset Orientation: Opening away from heating conditions.
Test Standard:	BS EN 1634-1:2014
Performance:	Integrity: 41 minutes (no failure) Insulation: 41 minutes (no failure)

Test Report BMT/FEP/F15272 AR1

The referenced test report, summarised below is being used as supplementary evidence to support the use of flushbolts and general evidence for Leaf 1.

Date of test:	08.Dec.015
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Door - ULSADD Insulated, unglazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2630mm (h) x 901/901mm (w) x44mm (t) Core: Halspan Optima 30, 44mm thick. Lipping: 6mm thick Sapele lippings all edges (640kg/m3) Intumescent: Head & Jambs: 1no 10x4 Halspan SLS-PLA-100. Fitted 17mm from unexposed face in frame reveal. Fully interrupted by hinges. Meeting Edges: 2no 10x4 Halspan SLS-PLA-100. Fitted 10mm apart and 7mm from exposed face in the meeting edge of the left leaf. Frame: Head & Jambs: Mahogany (560kg/m3), 44 x 90mm deep including rebated door stops 12 wide. Architrave: MDF, 45 x 18mm thick to exposed face. Hardware: Hinges: 4no Halspan HIN-BSS-103 standard hinges equi-spaced Closer: 1no Halspan R30 Eco Closer Fig.1 to each leaf Lock/Latch: none fitted Hardware Protection: Under Forend & Keep: 1mm thick Halspan SLS-PAD-110 Glazing: none Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	Integrity: 34 minutes Insulation: 34 minutes

Test Report BMT/FEP/F16050B AR1

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	10.Mar.2016
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Door - LSASD Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2100mm (h) x 900mm (w) x 44mm (t) Core : Halspan Optima 30, 44mm thick Lipping: 10mm thick Sapele lippings to top & vertical edges only (640kg/m3) Intumescent: Leaf Head: 1no 10x4 Pyroplex FO8500. Fitted 17mm from exposed face. Leaf Vertical Edges: 1no 10x4 Pyroplex FO8500. Fitted 17mm from exposed face. Smoke/Acoustic: 1no 10x11 Halspan SLS-TRI-100 triple fin fitted in frame shut all round. Frame: Head & Jambs: Sapele (640kg/m3) 44 x 230mm deep including 10mm wide rebated door stops Architrave: 45x18 architraves in MDF to exposed face. Hardware: Hinges: 4no Halspan HIN-BSS-104 standard hinges Closer: 1no Halspan R30 Eco Closer Fig.1 Latch/Lock: 1no Halspan R60 lockset LCK-BSS-100 Handle: 1no Aluminium lever set on rose Hardware Protection: None Glazing: none Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	Integrity: 47 minutes Insulation: 47 minutes

Test Report CFR1111221 A

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	22.Nov.2011
Identification of test body:	Cambridge Fire Research Ltd
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Door – LSASD A: Left hand specimen, Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 926 (w) x 44mm (t) Core: Halspan Optima 30 (601kg/m3 tested), 44mm thick. Lipping: 8mm thick Sapele, to vertical edges only. Frame: Head & Jambs: European Redwood, 32 x 70mm deep with 12 x 22mm deep planted stop. Frame Fixing: 4no 5 x 90mm long screws per jamb Intumescent: Head & Jambs: 1no 10x4 ISL Therm-A-Seal, fitted 17mm from exposed edge. 11x4 seals fitted centrally to frame reveal. Hardware: Hinges: 3no Jedo 1121-CPD-AC-0033 butt hinges. Closer: Halspan R30 Eco Power closer R6000 CLR-AGN-100 Lock/Latch: 1no The Dale Collection, SAA Sandal internal door pack, CSP706. Handle: The Dale Collection, SAA Sandal internal door pack, CSP706. Hardware Protection: Latch Body, Under Forend & Keep: 1mm thick ISL Therm-A-Strip. Glazing: None Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 37 minutes Insulation: 37 minutes (integrity failure)

Test Report CFR1111221 B

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	22.Nov.2011
Identification of test body:	Cambridge Fire Research Ltd
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Door – LSASD B: Right hand specimen, Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 926 (w) x 44mm (t) Core: Halspan Prima 30 (572kg/m3 tested), 44mm thick. Lipping: 8mm thick Sapele, to vertical edges only. Frame: Head & Jambs: European Redwood, 32 x 70mm deep with 12 x 22mm deep planted stop. Frame Fixing: 4no 5 x 90mm long screws per jamb Intumescent: Head & Jambs: 1no 10x4 ISL Therm-A-Seal, fitted 17mm from exposed edge. 10x4 seals fitted centrally to frame reveal. Hardware: Hinges: 3no Jedo 1121-CPD-AC-0033 butt hinges. Closer: Halspan R30 Eco Power closer R6000 CLR-AGN-100 Lock/Latch: 1no The Dale Collection, SAA Sandal internal door pack, CSP706. Handle: The Dale Collection, SAA Sandal internal door pack, CSP706. Hardware Protection: Latch Body, Under Forend & Keep: 1mm thick ISL Therm-A-Strip. Glazing: None Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 37 minutes Insulation: 37 minutes (integrity failure)

Test Report CFR1803021 A

The referenced test report, summarised below is being used as supplementary evidence for feature grooves.

Date of test:	02.Mar.2018
Identification of test body:	Cambridge Fire Research
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Door – ULSADD A: Left hand specimen, Insulated, unglazed timber unequal double doorset
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 927/455 (w) x 45mm (t) Core: Halspan Optima, 3no layer particleboard (620kg/m3), 44mm thick. With 16 x 7 vertical & horizontal oak inserts fitted into 10 x 6 grooves. Lipping: 6mm thick, American Oak (770kg/m3) to vertical edges only Facing: 0.5mm thick Oak veneer. Frame: Head & Jambs: Softwood (470kg/m3), 32 x 95 deep with 15 x 35 deep pinned stop. Frame Fixing: 5no 6 x 100 long screw fixings per jamb. Intumescent: Head & Jambs: 1no 15x4 Halspan SLS-PLA-103, fitted 15mm from exposed face. Meeting Edge: 2no 10x4 Halspan SLS-PLA-101, fitted 5mm from each face and 15mm apart in main leaf.
Summary of test specimen (continued):	Hardware: Hinges: 3no Halspan 60 HIN-BSS-104 Closer: 1no Halspan R30 Eco Closer, CLR AGN 100 (concealed) Latch/Lock: 1no Halspan R30, LCK-BSS-100 (disengaged for test) Handle: 1no Zoo ZCA030SA Flushbolt: 1no Zoo hardware, at top & bottom of slave leaf (engaged for test) Hardware Protection: Under Forend & Keep: 1mm thick Halspan SLS-PAD-110 Under Hinges: 1mm thick Halspan SLS-PAD-103. Under Flushbolt: 1mm thick ISL Therm-A-Strip Glazing: None Specific Feature Being Tested: Feature grooves and inserts, and concealed closer. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS EN 1634-1:2014
Performance:	Integrity: 38 minutes (no failure) Insulation: 38 minutes (no failure)

Test Report CFR1803021 B

The referenced test report, summarised below is being used as supplementary evidence for feature grooves.

Date of test:	02.Mar.2018
Identification of test body:	Cambridge Fire Research
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door– ULSASD B: Right hand specimen, Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 825 (w) x 45mm (t) Core: Halspan Optima, 3no layer particleboard (620kg/m3), 44mm thick. With 10 x 6 2no vertical & 4no horizontal sapele inserts fitted into 3.5 x 2 V-grooves. Lipping: 6mm thick, Sapele (640kg/m3) to vertical edges only Facing: 0.5mm thick Sapele veneer. Frame: Head & Jambs: Softwood (470kg/m3), 32 x 95mm deep with 15 x 35mm deep pinned stop. Frame Fixing: 5no 6 x 100 long screw fixings per jamb. Intumescent: Head & Jambs: 1no 15x4 Halspan SLS-PLA-103, fitted 15mm from exposed face.
Summary of test specimen (continued):	Hardware: Hinges: 3no Halspan 60 HIN-BSS-104 Closer: Halspan R30 Eco Closer, CLR AGN 100 (concealed) Latch/Lock: 1no Halspan R30, LCK-BSS-100 (disengaged for test) Handle: Halspan LCK MISC 200 Hardware Protection: Under Forend & Keep: 1mm thick Halspan SLS-PAD-110 Under Hinges: 1mm thick Halspan SLS-PAD-103. Glazing: None Specific Feature Being Tested: Feature grooves and inserts, and concealed closer. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS EN 1634-1:2014
Performance:	Integrity: 38 minutes (no failure) Insulation: 38 minutes (no failure)

Test Report CFR1809181_Rev 1

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	18.Sep.2018
Identification of test body:	Cambridge Fire Research
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door – ULSASD Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2440 (h) x 918 (w) x 44mm (t) Core: Halspan Optima 30 (620kg/m3), 44mm thick. Lipping: 7mm thick Sapele (640kg/m3) to all edges Frame: Head & Jambs: Douglas Fir (550kg/m3), 32 x 134mm deep, with 12 x 25mm deep planted door stops projecting 12mm into furnace. Frame Fixing: 6no No.10 x 3 inches long screw fixings per jamb. Intumescent: Head & Jambs: 1no 15x4 Halspan SLS-PLA-103, fitted 16mm from exposed face. Fully interrupted at hinges and latch keep. Hardware: Hinges: 4no Halspan HIN-BSS-104 standard hinges Closer: 1no Halspan R6000 Eco Closer, CLR-AGN-100 Lock/Latch: 1no Halspan LCK-BSS-100 (disengaged for test) Handle: 1no Zoo Hardware, ZCA030SA Hardware Protection: Under Forend & Keep: 1mm thick Halspan SLS-PAD-105 Glazing: None Specific Feature Being Tested: Softwood frames projecting 12mm into the furnace creating a 12mm deep flash gap around the perimeter. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476 Part 22:1987
Performance:	Integrity: 36 minutes (no failure) Insulation: 36 minutes (no failure)

Test Report CFR1808101

The referenced test report, summarised below is being used as supplementary evidence for Leaf 2.

Date of test:	10.Aug.2018
Identification of test body:	Cambridge Fire Research
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Door– LSADD Insulated, unglazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2400 (h) x 1000/1000 (w) x 54mm (t) Core: Halspan Optima (620kg/m3), 54mm thick. Lipping: Sapele (640kg/m3), 18mm thick to top and vertical edges, with 13 x 12mm rebates at hanging stiles & head and 42 x 12mm rebates at meeting stiles. Frame: Head & Jambs: Sapele (640kg/m3), 43 x 69mm deep, including 11.5 x 12mm deep integral stops with over rebated frames Frame Fixing: 6no No.10 x 3 inches long screw fixings per jamb. Intumescent: Head & Jambs: 2no 15x4 Halspan SLS-PLA series, fitted 21mm & 43mm from exposed face. Seal fitted at 21mm partially interrupted at hinges with 73% remaining, other seal is fully interrupted Meeting Edge: 2no 15x4 Halspan SLS-PLA series, fitted 4mm & 26mm from exposed face. Seal fitted at 4mm fully interrupted by latch keep and partially interrupted by flushbolts with 80% remaining. Other seal partially interrupted by latch keep and flushbolts with 13% and 33% remaining respectively.
Summary of test specimen (continued):	Hardware: Hinges: 4no Halspan 60, HIN-BSS-104, Grade 13 Closer: 1no Dorma TS92G, per leaf. Lock/Latch: 1no Halspan R60, LCK-BSS-100 Handle: 1no Zoo Hardware, ZCA030SA, per leaf. Flushbolt: 1no Zoo ZAS03RSS, top & bottom of right leaf. Hardware Protection: Under Hinges: 1mm thick SLS-PAD-103 Under Forend & Keep: 1mm thick Halspan SLS-PAD-109 Glazing: None Specific Feature Being Tested: To obtain evidence for over rebated frames Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476 Part 22:1987
Performance:	Integrity: 58 minutes Insulation: 58 minutes

Test Report Chilt/RF11005A

The referenced test report, summarised below is being used as supplementary evidence for glazing.

Date of test:	07.Feb.2011
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door - ULSASD A: Left hand specimen, Insulated, glazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 916 (w) x 44mm (t) Core: Halspan Optima 30 (603kg/m3 tested), 44mm thick. Lipping: 6mm thick Sapele (719kg/m3 tested) to all edges Frame: Head & Jambs: European Redwood (510kg/m3), 32 x 70mm deep, with planted stops. Architrave: European Redwood, 16mm thick to fire side only Frame Fixing: 4no 5 x 100mm long screw fixings per jamb Threshold: non combustible Intumescent: Head & Jambs: 1no 10x4 ISL Therm-A-Seal, fitted centrally. Fully interrupted at hinges & latch.
Summary of test specimen (continued):	Hardware: Hinges: 3no Royde & Tucker H105 lift off hinges. Closer: 1no Dorma TS73 overhead closer. Lock/Latch: 1no E*S tubular mortice latch (disengaged for test) Handle: 1no Aluminium lever type handle Hardware Protection: None Glazing: Glass: Pilkington Pyroshield 2, 6mm thick Glass Size: 1011 x 315mm wide Beading: Sapele (640kg/m3), 21.5 x 19mm deep, chamfered and bolected. Glazing System: Glazing Perimeter: 2mm thick Sealmaster Fireglaze between glass and beads. Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 43 minutes Insulation: 43 minutes

Test Report Chilt/RF06048A

The referenced test report, summarised below is being used as supplementary evidence for T-lippings.

Date of test:	25.Apr.2006
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Double Acting, Single Door – DASD A: Left hand specimen, Insulated, timber double doorset
Summary of test specimen:	Leaf: Overall size: 1980 (h) x 755 (w) x 45mm (t) Core: Halspan Optima, solid particleboard (620kg/m3), 44mm thick. Lipping: Sapele (650kg/m3), max. 5mm thick to min. 2mm thick (radii) to hanging edge, 8mm thick to closing edge. And a 10 (t) exposed lip with 38 (w) x 15 (d) tongue 'T' profile to the top & bottom edges. Frame: Head: European Redwood (450kg/m3), 99 x 44 thick. Jambs: 99 x 44 thick, with 63 x 7mm deep scalloped recess in hanging edge. Frame Fixing: 3no 8 x 100 long screw fixings per jamb. Threshold: European Redwood (450kg/m3). Intumescent: Head & Jambs: 1no 15x4 ISL Therm-A-Seal fitted centrally. Hardware: Floor Spring: Dorma BTS80F concealed floor spring. Door Bottom Strap: Dorma 7421 Door Top Strap: Dorma 8066 Frame Top Pivot: Dorma 8066 Lock/Latch: none fitted Hardware Protection: Top & Bottom Strap: 1-2mm thick graphite based intumescent protection pack. Glazing: None Doorset Orientation: Opening in both directions
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 34 minutes Insulation: 34 minutes

Test Report Chilt/RF06074

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	08.Jun.2006
Identification of test body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd).
Sponsor:	Halspan Ltd
Tested Product:	Double Acting, Single Door - DASD Insulated, unglazed timber double action doorset
Summary of test specimen:	Leaf: Overall Size: 1985mm (h) x 760mm (w) x 45mm (t) Core: Halspan Optima 44mm thick. Lipping: 8mm thick Sapele (radiused to 3mm thick) to hanging edge, 8mm thick Sapele lipping to closing edge, 44x10mm Sapele lipping to top & bottom edge (T-Profile) (650kg/m3) Intumescent: Head & Jambs: 15x4 ISL Therm-a-seal. Fitted centrally to frame perimeter Frame: Head & Jambs: European Redwood (450kg/m3), 44 x 88mm deep, hanging edge scalloped to accept radiused door edge. Threshold: Softwood 160 x 95mm overclad in plasterboard to accommodate the floor spring Hardware: Bottom Pivot: 1no Dorma BTS80F floor spring with bottom centre strap Top Pivot: 1no Dorma 8066 Top centre & strap Hardware Protection: 1-2mm thick graphite based intumescent protection to top strap and bottom strap Glazing: None Doorset Orientation: Opens in both directions
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 34 minutes Insulation: 34 minutes

Test Report Chilt/RF08127

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	22.Sep.2008
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Door with Overpanel – ULSADD+OP Insulated, unglazed timber double doorset with Overpanel
Summary of test specimen:	Leaf: Overall Size: 2315mm (h) x 916/916mm (w) x 44mm (t) Core: Halspan Optima 30, 44mm thick. Lipping: 10mm thick Sapele to vertical edges, and 18mm thick rebated lipping to top edge of leaf. Overpanel: Overall Size: 400mm (h) x 1835mm (w) x 44mm (t) Core: Same as leaf Lipping: 18mm thick Sapele, rebated lipping to bottom edge. Frame: Head & Jambs: European Redwood (510kg/m3), 45 x 70mm deep including rebated stops 14mm thick. Intumescent: Leaf Head: 1no 10x4G Halspan SF. Fitted 6mm from exposed face within the top of rebated upstand Jambs: 1no 10x4G Halspan SF. Fitted centrally in frame reveal finishing at the base of the Overpanel. Fully interrupted by hinges. Meeting Edges: 2no 10x4G Halspan SF. Fitted 10mm apart and 8mm from exposed face in right leaf only. Overpanel: 1no 10x4G Halspan SF. Fitted 6mm from unexposed face within the top of rebate upstand in bottom edge.
Summary of test specimen (continued):	Hardware: Hinges: 3no Halspan R30 standard hinges per leaf. Closer: 1no Halspan Power Closer to each leaf. Lock/Latch: none fitted. Hardware Protection: None Glazing: none Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 38 minutes Insulation: 38 minutes

Test Report Chilt/RF09010

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	16.Jan.2009
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Door - LSASD Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2045mm (h) x 904mm (w) x 46mm (t) Core: Halpsan Optima 30 door blank, 44mm thick. Lipping: 2mm thick PVC lippings to top & vertical edges only. Facing: 0.7mm decorative veneer each face. Intumescent: Head & Jambs: 15x4 Halspan SFS twin fin seals. Fitted centrally to frame reveal. Smoke/Acoustic Seal: Halspan triple fin SAS 1BLTR. Fitted to frame reveal against door stop. Leaf Bottom: SAC PA 08935 drop seal Frame: Head & Jambs: European Redwood (510kg/m3), 42 x 92mm deep with 12mm thick integral door stop. Architrave: 16mm thick architrave to exposed face
Summary of test specimen (continued):	Hardware: Hinges: 3no Assa Lift off hinges ref 3248 Closer: 1no Halspan R30 O/H Closer Fig.1 ref CBSSN30 Latch/Lock: 1no Halspan 90 mortice lock Ref LKBSSN30 Handle: 1no Lever type handle on roses Hardware Protection: Under Forend & Keep: 1mm thick Interdens intumescent to lock body & under forend & keep Glazing: None Specific Feature Being Tested: PVC lippings Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 56 minutes Insulation: 56 minutes (integrity failure)

Test Report WF 384748A AR1

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	29.Jun.2017
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Door - LSASD Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2065mm (h) x 934mm (w) x44mm (t) Core: Optima 30, 44mm thick. Lipping: 5mm thick Sapele (640kg/m3) to all edges. Frame: Head & Jambs: Steamed Beech 640kg/m3 32x119, planted door stops pinned 18x50, 45x18 MDF architraves to exposed face. Frame Fixing: 4no 5 x 80mm long screws per jamb. Intumescent: Head & Jambs: 1no 15x4 LP1504. Fitted 18mm from exposed face. Partially interrupted by hinges with 3mm remaining continuous. Fully interrupted by latch keep. Smoke/Acoustic: Halspan triple fin smoke seal to door shut – SLS-TRI-105. Hardware: Hinges: 3no Halspan R30 standard hinges ref HIN-BSS-104 Closer: 1no Halspan R30 O/H Closer Fig.1 ref CLR-AGN-100 Lock/Latch: 1no Halspan R30 mortice lock Ref LCK-BSS-100 Handle: 1no Aluminium Lever set on rose Hardware Protection: Under Forend & Keep: 1mm thick Halspan SLS-PAD-110 Glazing: None Doorset Orientation: Open towards heating conditions.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	Integrity: 34 minutes Insulation: 34 minutes (integrity failure)

Test Report CFR 1005241

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test:	24.May.2010
Identification of test body:	Cambridge Fire Research
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door - ULSASD Insulated, unglazed timber single doorset within large screen
Summary of test specimen:	Leaf: Overall Size: 2040mm (h) x 827mm (w) x44mm (t) Core: Prima 30, 44mm thick. Lipping: 10mm thick sapele (650kg/m3) to vertical edges only. Frame (Door): Head & Jambs: Sapele (650kg/m3) 44 x 94mm deep, with 15mm thick planted stops. Frame Fixing: 4no dia 5 x 100mm long screws per jamb Frame (Screen): Sapele (650kg/m3), 39 x 94mm deep to 44 x 94mm deep for all screen components Intumescent: Head & Jambs: 1no 15x4 ISL Therm-A-Blade. Fitted centrally in frame reveal.
Summary of test specimen (continued):	Hardware: Hinges: 3no Halspan R30 hinges – HIN-BSS-104 Closer: 1no Halspan R30 O/H Closer Fig.1 ref CLR-AGN-100 Lock/Latch: 1no tubular mortice latch – disengaged for test Handle: 1no Aluminium lever type handle Hardware Protection: None Glazing (Screens): Glass: 15mm Pyroswiss Foam 30 to all apertures, Beading: Splayed Sapele beads fixed with screws. Glazing System: Glazing Perimeter: 15x2mm thick Therm-A-Glaze 45 between glass and beads. Doorset orientation: Opens toward heating conditions.
Test Standard:	BS 476 Part 22
Performance:	Integrity: 31 minutes Insulation: 31 minutes

Test Report Chilt/RF01056A

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test	09.Jul.2001
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door - ULSASD A: Left hand specimen, Insulated, glazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 827 (w) x 44mm (t) Core: Halspan 3 layer particle board (650kg/m3), 44mm thick, with 3no 5x4 horizontal groove channels. Lipping: Sapele (640kg/m3), 10mm thick, on vertical edges only. Facing: None Frame: Head & Jambs: European Redwood (510kg/m3), 30x70 with 14mm thick planted stop. Architrave: Softwood, 60x15 applied to exposed face. Threshold: non-combustible. Frame Fixing: Unknown Intumescent: Head & Jambs: 1no 10x4 ISL Therm-A-Seal, fitted centrally. Hardware: Hinges: 3no Royde & Tucker H105 Closer: Cairney Hardware, Mitron C2300 concealed overhead now Rutland ITS.11204. Latch: None Handle: None
Summary of test specimen (continued):	Hardware protection: Closer (body & channel): Cairney Hardware Mitron 30 minutes intumescent pack now known as Rutland IP.114 Glazing: Glass: Sureglaze 'Insul', 7mm thick. Aperture: 998 x 250 Beading: Sapele (640kg/m3) 15x18 square section, with 4x4 quirk. Glazing System: 10x2 ISL Therm-A-Strip between the glass and bead, fitted into rebate. Specific Feature Being Tested: 3no face grooves in door 5x4mm, Concealed closer. Quirk beads and Sureglaze glass Doorset Orientation: Open towards heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance	Integrity: 39 minutes Insulation: 13 minutes

Test Report Chilt/RF01059A

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	16.Jul.2001
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door - ULSASD A: Left hand specimen, Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2040mm (h) x 825mm (w) x 44mm (t) Core: Halspan 30 door blank (650kg/m3). 44mm thick. Lipping: 10mm thick Sapele H/W (640kg/m3) to vertical edges only. Frame: Head & Jambs: MDF (730-750kg/m3) 30 x 120mm deep, with 12mm thick planted MDF door stop. Architrave: MDF Torus architrave 70 x 20mm thick applied to exposed face. Frame Fixing: not detailed Intumescent: Head & Jambs: ISL Therm-a-seal 10x4 centrally to frame reveal. Hardware: Hinges: 3no R&T H105 lift off hinges 100x75 Closer: 1no Dorma TS73V O/H door closer Fig.1 Lock/Latch: 1no Henderson Hardware tubular mortice latch Handle: 1no Aluminium lever set Hardware Protection: None Glazing: none Doorset Orientation: Open towards heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 39 mins Insulation: 39 mins

Test Report Chilt/RF05148B

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test:	09.Mar.2006
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door– ULSASD B: Right hand specimen, Insulated, glazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2040mm (h) x 913mm (w) x 44mm (t) Core: Halspan Prima 30 (630kg/m3), 44mm thick. Lipping: 6mm thick Sapele (650kg/m3) to all edges. Frame: Head & Jambs: Sapele (650kg/m3), 32 x 90mm deep, with 12 x 25mm deep planted door stop. Intumescent: Head & Jambs: 1no 10x4 ISL Therm-A-Seal. Fitted centrally in frame reveal. Fully interrupted by hinges. Hardware: Hinges: 3no Royde & Tucker H105 lift off hinges. Closer: 1no Dorma TS73V overhead closer. Hardware Protection: None Glazing: Glass: Pilkington Pyroshield, 6mm thick. Aperture Size: 995 x 297mm Beading: Sapele chamfered and bolected. Glazing System: Glazing Perimeter: 2mm thick Therm-A-Strip between glass and beads. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 36 mins Insulation: 36 mins

Test Report Chilt/RF06068B

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test	26.May.2006
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door– ULSASD B: Right hand specimen, Insulated, glazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2090 (h) x926 (w) x44mm (t) Core: Halspan Prima 44 door blank (630kg/m3), 44mm thick. Lipping: Sapele (640kg/m3), 6mm thick on vertical edges only. Frame: Head & Jambs: European Redwood (510kg/m3), 32x90 with 12x25 planted stop. Architrave: European Redwood (510kg/m3), 16mm thick. Threshold: non-combustible. Frame Fixing: 4no 100mm long wood screws per jamb Intumescent: Head & Jambs: 15x4 ISL Therm-A-Seal, fitted centrally.
Summary of test specimen (continued):	Hardware: Hinges: 3no Interior Hardware Steel Butt hinges Closer: Dorma TS73V Overhead closer Latch: None fitted Hardware Protection: None Glazing: Glass: Pilkington Pyrodur Plus, 7mm thick. Aperture Size: 1896 x 656 Beading: Sapele, 18 x 21 chamfered hook beads Glazing System: 2mm Therm-A-Strip between glass and beads. Specific Feature Being Tested: Large glazing: Pattern 10 single doorset. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 32 mins Insulation: 20 mins

Test Report Chilt/RF08039

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test	28.Mar.2008
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Door – ULSADD Insulated, unglazed timber double doorset, unequal leaves
Summary of test specimen:	Leaf: Overall Size: 2055 (h) x 912/415 (w) x 46mm (t) Core: Halspan Prima door blank (630kg/m3), 44mm thick. Lipping: Doelken PVC Edgeband, 2mm thick, on all edges. Facing: Steamed Beech Veneer, 0.7mm thick, on both faces. Frame: Head & Jambs: European Redwood (510kg/m3), 42x92 with 12mm deep integral stop. Architrave: European Redwood, 18mm thick. Frame Fixing: 3no 80mm long wood screws per jamb Threshold: non combustible Intumescent: Head & Jambs: 15x4 Halspan Fireseal SF G2BN2100, fitted centrally Meeting Edge: 15x4 Halspan Fireseal SF G2BN2100, fitted on right leaf.
Summary of test specimen (continued):	Hardware: Hinges: 3no ASSA 3244 Closer: 1no Halspan 30 9500 series overhead type closer Latch: 1no Ingersoll Rand 5520 (disengaged for test) Handle: 1no Ingersoll Rand Steel lever set on rose Hardware Protection: Forend & Keep: 1mm thick Halspan Fireseal SF PLK1G4 Glazing: None Specific Feature Being Tested: PVC Lipping Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 50 minutes Insulation: 50 minutes

Test Report Chilt/RF00067A

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test:	03.Aug.2000
Identification of test body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Door - ULSADD A: Left hand specimen, Insulated, glazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2102mm (h) x 509/877mm (w) x 44mm (t) Core: Halspan 30 door blank (650kg/m3), 44mm thick. Lipping: 9mm thick Ash (710kg/m3) to vertical edges only. Frame: Head & Jambs: Sapele (728kg/m3) 30 x 70mm deep with 13.5mm thick planted door stop pin fixed. Architrave: Sapele Architrave to exposed face 53 x 15mm Frame Fixing: 5no dia 5 x 80mm long screws per jamb Intumescent: Head: 1no 20x4 LP2004. Fitted centrally in frame reveal. Jambs: 1no 10x4 LP1004. Fitted centrally in jamb frame reveal. Fully interrupted by hinges. Meeting Edges: 2no 10x4 LP1004. Fitted centrally and 8mm apart in meeting edge of right leaf.
Summary of test specimen (continued):	Hardware: Hinges: 3no R&T H105 hinges 100x75 per leaf Closer: 1no Dorma TS73V Door Closer Fig.1 per leaf Lock/Latch: 1no Henderson 100x75 3-lever lock (disengaged for test) Handle: 1no Aluminium lever set Hardware Protection: Under Hinges, Forend & Keep: 1mm thick Lorient Interdens Around Lockcase: 1mm thick Lorient Interdens Glazing (Main Leaf): Glass: Pilkington Pyroshield Safety 6mm. Aperture Size: 900 x 200mm. Beading: Dark Red Meranti, chamfered hook over beads pin fixed Glazing System: Glazing Perimeter: 10x2mm thick Therm-A-Strip let into face of bead facing the glass Doorset Orientation: Open towards heating conditions.
Test Standard:	BS EN 1634-1:2000 & BS EN 1363-1:1999
Performance:	Integrity: 37 mins Insulation: 38 mins

Test Report Chilt/RF00067B

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	03.Aug.2000
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door - ULSASD B: Right hand specimen, Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2101mm (h) x 826mm (w) x 44mm (t) Core: Halspan 30 door blank (650kg/m3), 44mm thick. Lipping: 9mm thick Utile (660kg/m3) to vertical edges only. Frame: Head & Jambs: Sapele (728kg/m3) 30 x 70mm deep with 13.5mm thick planted door stop. Architrave: Sapele Architrave to exposed face 53 x 15mm Frame Fixing: 5no dia 5 x 80mm long screws per jamb Intumescent: Head: 1no 20x4 LP2004. Fitted centrally in frame reveal. Jambs: 1no 10x4 LP1004. Fitted centrally in frame reveal. Fully interrupted by hinges.
Summary of test specimen (continued):	Hardware: Hinges: 3no R&T H105 hinges 100x75 Closer: 1no Dorma TS73V Door Closer Fig.1 per leaf Lock/Latch: 1no Henderson 100x75 3-lever lock (disengaged for test) Handle: 1no Aluminium lever set Hardware Protection: Under Hinges, Forend & Keep: 1mm thick Lorient Interdens Around Lockcase: 1mm thick Lorient Interdens Glazing: None Doorset Orientation: Open towards heating conditions.
Test Standard:	BS EN 1634-1:2000 & BS EN 1363-1:1999
Performance:	Integrity: 43 mins Insulation: 43 mins

Test Report Chilt/RF00068A

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	15.Sep.2000
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door - ULSASD A: Left hand specimen, Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2702mm (h) x 915mm (w) x 44mm (t) Core: Halspan 30 door blank (650kg/m3), 44mm thick. Lipping: 10mm thick Sapele (670kg/m3) to vertical edges only. Frame: Head & Jambs: Sapele (670kg/m3) 43.5 x 93.5mm deep, with 12mm deep integral door stop. Architrave: Sapele Architrave to exposed face 50 x 15mm Frame Fixing: 5no dia 5 x 80mm long screws per jamb Intumescent: Head: 1no 20x4 LP2004. Fitted centrally in frame reveal. Leaf Hanging & Latching Edges: 1no 30x2 100EC. Fitted centrally grooved into the rear face of lipping. Seal is continuous beneath hinges.
Summary of test specimen (continued):	Hardware: Hinges: 4no R&T H105 lift off hinges 100x75 Closer: 1no Dorma TS73V Door Closer Fig.1 Lock/Latch: none fitted Hardware Protection: Under Hinges: 1mm thick Lorient Interdens Glazing: None Specific Feature Being Tested: Tall doorset, Concealed intumescent Doorset Orientation: Open towards heating conditions.
Test Standard:	BS EN 1634-1:2000 & BS EN 1363-1:1999
Performance:	Integrity: 42 mins Insulation: 42 mins

Test Report Chilt/RF02082A

The referenced test report, summarised below is being used as supplementary evidence for:

Prima 38mm thick core with no bond up. Not used for envelopes but demonstrates the performance of the basic 38mm thick core and for justification of minimum leaf thickness when applying grooves.

Date of test:	09.Sep.2002
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd).
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Door - ULSADD A: Left hand specimen, Insulated, unglazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2135 (h) x 825/500 (w) x 38mm (t) Core: Halspan Prima 30 (640kg/m3), 38mm thick. Lipping: Sapele (640kg/m3), 6mm thick to vertical edges only. Frame: Head & Jambs: European Redwood (510kg/m3), 32x95 with 12mm deep planted stop pinned. Frame fixing: Unknown Architrave: European Redwood (510kg/m3), 60x16 to exposed face. Intumescent: Frame Head & Jambs: 1No 20x4 Therm-A-Seal, fitted centrally. Meeting Stiles: 2No 10x4 Therm-A-Seal, fitted 6mm apart in one meeting stile.
Summary of test specimen (continued):	Hardware: Hinges: 3No Royde & Tucker, H105 Closer: 1No Dorma, TS73V Latch: none fitted. Hardware Protection: None Glazing: None Specific Feature Being Tested: Basic 38mm thick leaf construction Doorset Orientation: Open towards heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 41 minutes Insulation: 41 minutes

Test Report Chilt/RF04021A

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test:	08.Mar.2004
Identification of test body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Door - ULSADD A: Left hand specimen, Insulated, glazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2135mm (h) x 825/501mm (w) x 44mm (t) Core: Halspan Prima (630kg/m3), 44mm thick. Lipping: 10mm thick Sapele (640kg/m3) to vertical edges only. Frame: Head & Jambs: Sapele (650kg/m3), 51 x 90mm deep, with 14mm deep integral stop. Intumescent: Head & Jambs: 1no 20x4 Therm-A-Stop & 1no 10x4 Therm-A-Seal. Fitted 8mm apart in frame reveal, and Therm-A-Seal fitted 5mm from exposed face. Seals fully interrupted by hinges. Leaf Bottom Edge: 1no 38x2 Therm-A-Flex. Fitted centrally. Meeting Edge: 1no 20x4 Therm-A-Stop & 1no 10x4 Therm-A-Seal. Fitted 5mm apart, and Therm-A-Seal fitted 5mm from exposed face in left leaf edge only.
Summary of test specimen (continued):	Hardware: Hinges: 3no Royde & Tucker R107 lift off hinges per leaf Closer: 1no Dorma TS73V per leaf. Lock/Latch: Union 2 lever mortice latch (disengaged for test) Handle: 1no aluminium lever set Hardware Protection: Around Lockcase, Under Hinges, Forend & Keep: 2mm thick ISL Therm-A-Strip. Glazing: Glass: Sureglaze wired glass, 6mm thick Aperture Size: 500 x 400mm wide Beading: Sapele, 21 x 30mm high, chamfered and bolected. Glazing System: Glazing Perimeter: 2mm thick Sealmaster GL60 liner to aperture & 4mm thick Fireglaze mastic between glass and beads Specific Feature Being Tested: Wired glazing, Enhanced intumescent seal arrangement. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 52 mins Insulation: 52 mins (In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation)

Test Report Chilt/RF10111

The referenced test report, summarised below is being used as supplementary evidence for recessed push plates and general evidence for Leaf 1.

Date of test:	26.Aug.2010
Identification of test body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Door - ULSADD Insulated, unglazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2800mm (h) x928/928mm (w) x44mm (t) Core: Halspan Prima 44mm door blank (630kg/m3). Lipping: 6mm thick Sapele (640kg/m3) to vertical edges only. Intumescent: Head & Jambs: 1No 24.5x1.5 Norfast to door head and hanging stiles. Meeting Edges: 2No 10x4 Therm-a-seal fitted 10mm apart in one meeting stile. Smoke/Acoustic Seal: Norseal 710 perimeter smoke seal in door shut against stop. Frame: Head & Jambs: European Redwood (510kg/m3) 32 x 70mm deep with 12 x 25mm deep planted stop. Architrave: 18mm thick softwood architrave to exposed face. Frame Fixing: 5 x 100mm long woodscrews at 600-800mm centres
Summary of test specimen (continued):	Hardware: Hinges: 4No CP Building Systems lift off hinges 100x75 per leaf Closer: 1No Dorma TS71 Door Closer per leaf Lock/Latch: none Push Plate: 1No 400 (h) x 900 (w) x 1.6mm (t) S/S pushplate flushed into each door on the exposed face only at 800mm up from FFL Hardware Protection: None Glazing: None Specific Feature Being Tested: Tall double doorset, Norfast intumescent seals, large push plates recessed into the face of the door leaves Doorset Orientation: Open towards heating conditions.
Test Standard:	BS EN 1634-1:2000 & BS EN 1363-1:1999
Performance:	Integrity: 46 mins Insulation: 46 mins

Test Report Chilt/RF97091

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test:	10.Oct.1997
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd (Timber & Door Products)
Tested Product:	Unlatched, Single Acting, Double Door with Overpanel – ULSADD+OP Insulated, glazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2130mm (h) x 915/915mm (w) x 45mm (t) Core: Halspan 30 particleboard, 45mm thick. Lipping: Sapele (650kg/m3), 10mm thick to vertical edges and 18mm thick rebated lip to top edge. Overpanel: Overall Size: 800 (h) x 1830 (w) x 45mm (t) Core: same as leaf core Lipping: Sapele (650kg/m3), 18mm thick rebated lip to bottom edge Frame: Head & Jambs: Sapele (650kg/m3), 45 x 70mm deep, with 12mm deep integral stop Architrave: 12.5mm thick plasterboard to exposed face Intumescent: Leaf Head: 1no 10x4 LP1004. Fitted centrally within rebate Jambs: 1no 10x4 Lorient LP1004. Fitted centrally to frame jamb reveals. Fully interrupted by hinges. Meeting Edge: 2no 10x4 LP1004. Fitted centrally and 12mm apart in the meeting edge of one leaf only. Overpanel: 1no 10x4 LP1004. Fitted centrally within rebate in bottom edge of Overpanel. Hardware: Hinges: 3no Steel Butt hinges 100x75 per leaf Closer: 1no Dorma TS73V per leaf Lock/Latch: 1no Tubular mortice latch (disengaged for test) Handle: 1no Aluminium lever type handle Hardware Protection: None fitted Glazing (Both Leaf): Glass: Pilkington Pyroshield, 6mm thick. Aperture Size: 900 x 500mm wide Beading: Sapele, 18 x 22mm, bolected and chamfered. Glazing System: Glazing Perimeter: 10x2 ISL Therm-A-Strip between beads and glass. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 39 minutes Insulation: 39 minutes (In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation)

Test Report PX06466A

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test:	29.Mar.2011
Identification of test body:	SP Technical Research Institute of Sweden
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Door – LSADD Insulated, glazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2135 (h) x 915/915 (w) x 44mm (t). Core: Halspan Prima 30 (630kg/m3), 44mm thick. Lipping: 6mm thick Sapele (640kg/m3), to vertical edges. Frame: Head & Jambs: European Redwood (510kg/m3), 32 x 94mm deep with 12mm thick planted stop. Frame Fixing: 5no steel screws per jamb and 1 in the head Threshold: Sapele (640kg/m3), 32 x 95mm Intumescent: Frame Head & Jambs: 1no 15x4 Halspan SLS-PLA-103, fitted centrally. Meeting Edge: 1no 10x4 Halspan SLS-PLA-100 & SLS-BRU-100, fitted 10mm apart in one meeting stile. Smoke/Acoustic Seal: 1no Halspan SLS-TRI-100/2 placed in door shut. And 1no 30x7 Halspan SLS-DRP-111 in bottom of leaf.
Summary of test specimen (continued):	Hardware: Hinges: 3no Halspan R30 butt hinges per leaf. Closer: 1no Halspan R30 Eco Power CLR-AGN-100 overhead closer per leaf. Lock/Latch: 1no Halspan mortice lock LCK-BSS-200 Handle: 1no Steel lever set on rose Hardware Protection: Under Forend & Keep: 1mm thick Halspan Fireseal SFPLK1G4. Glazing (Both Leaf): Glass: Pyroswiss Foam 30-15, 15mm thick Glazing Aperture: 980 (h) x 230 (w) Beading: Sapele (650kg/m3), 15mm high, chamfered & bolected. Glazing System: Glazing Perimeter: 2mm Halspan SLS-MISC-300 acrylic intumescent mastic between glass and beads Specific Feature Being Tested: Doorset with large, insulated glazing Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS EN 1634-1:2008 & BS EN 1363-1:1999
Performance:	Integrity: 36 mins no failure Insulation: 36 mins no failure

Test Report Chilt/RF95042A

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	25.Jul.1995
Identification of test body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd (Timber & Door Products)
Tested Product:	Unlatched, Single Acting, Single Door - ULSASD A: Left hand specimen, Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2100mm (h) x 874mm (w) x 44mm (t) Core: Halspan Chipboard, 44mm thick. Lipping: 10mm thick Utile (660kg/m3) to vertical edges only. Frame: Head & Jambs: Sapele (728kg/m3), 32 x 70mm deep with 12mm thick planted stop Architrave: 12.5mm thick plasterboard to exposed face Threshold: non combustible Intumescent: Frame Head: 1no 20x4 LP2004. Fitted centrally to frame head. Jambs: 1no 10x4 Lorient LP1004. Fitted centrally in frame jamb reveal. Fully interrupted by hinges and latch keep. Hardware: Hinges: 3no Royde & Tucker H105 Closer: 1no Dorma TS72V Latch/Lock: 1no Henderson Hardware 3-lever (disengaged for test) Handle: 1no Henderson Lever type handle Hardware Protection: Under Hinges: 1mm thick interdens Around Lockcase: 1mm thick interdens Glazing: None Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 49 minutes Insulation: 49 minutes

Test Report Chilt/RF95042B

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test:	25.Jul.1995
Identification of test body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd (Timber & Door Products)
Tested Product:	Unlatched, Single Acting, Double Door - ULSADD B: Right hand specimen, Insulated, glazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2100mm (h) x 874/874mm (w) x 44mm (t) Core: Halspan Chipboard, 44mm thick. Lipping: 10mm thick Utile (660kg/m3) to vertical edges only. Frame: Head & Jambs: Sapele (728kg/m3), 32 x 70mm deep with 12mm thick planted stop Architrave: 12.5mm thick plasterboard to exposed face Threshold: non combustible Intumescent: Frame Head: 1no 20x4 LP2004. Fitted centrally to frame head. Jambs: 1no 10x4 Lorient LP1004. Fitted centrally in frame jamb reveal. Fully interrupted by hinges and latch keep. Meeting Edge: 2no 10x4 LP1004. Fitted centrally and 9mm apart in meeting edge of the left leaf. Partially interrupted by latch. Hardware: Hinges: 3no Royde & Tucker H105 Closer: 1no Dorma TS72V per leaf Latch/Lock: 1no Henderson Hardware 3-lever (disengaged for test) Handle: 1no Henderson Lever type handle Hardware Protection: Under Hinges: 1mm thick interdens Around Lockcase: 1mm thick interdens Glazing (Both Leaf): Glass: Pyroguard, 6mm thick Glass Size: 446 x 196mm Beading (Left Leaf): Dark Red Meranti, 20 x 22.5mm deep, bolected and chamfered. Beading (Right Leaf): Dark Red Meranti, 20 x 22.5mm deep, bolected and squared on the unexposed face. Glazing System: Glazing Perimeter (Left Leaf): 10 x 0.8mm thick HAZGLAZE 30. Fitted between rear face of bead and glass. Glazing Perimeter (Right Leaf): Lorient, system 36. Fitted between rear face of bead and glass. Specific Feature Being Tested: First Prima 44mm single door test Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 35 minutes Insulation: 35 minutes (In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation)

Test Report WARRES 118409 A

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test	17.Apr.2001
Identification of test body:	Warrington Fire Research
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door - ULSASD A: Left hand specimen, Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2700 (h) x 836 (w) x 43mm (t) Core: Halspan particle board (650kg/m3), 43mm thick. Lipping: 6mm thick, Sapele (640kg/m3), to vertical edges only. Frame: Head & Jambs: European Whitewood (450kg/m3), 32x95 with 12x25 planted door stop. Frame Fixing: 5no 150x5 screws per jamb Intumescent: Head: 1no 20x4 ISL Therm-A-Seal, fitted centrally. Jambs: 1no 10x4 ISL Therm-A-Seal, fitted centrally Hardware: Hinges: 4no Royde & Tucker H105 Closer: 1no Briton 2003E Hardware Protection: Hinges: 1mm thick ISL Therm-A-Strip Glazing: None Doorset Orientation: Open towards heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance	Integrity: 41 minutes Insulation: 41 minutes

Test Report WARRES 112248A

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test	22.Feb.2000
Identification of test body:	Warrington Fire Research
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Door– ULSADD A: Left hand specimen, Uninsulated, glazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 726/412 (w) x 45 (t) Core: Halspan particle board (650kg/m3), 44mm thick. Lipping: Sapele (750kg/m3), 6mm thick, to vertical edges. Facing: Sapele veneer, 0.7mm thick, to both faces. Frame: Head & Jambs: European Redwood (490kg/m3), 28x94 with 11x25 planted stop. Threshold: European Redwood, 24x88 with 6mm thick supalux lining. Frame Fixing: 3no 100x5 screws per jamb Intumescent: Head & Jambs: 1no 10x4 Lorient LP1004. Fitted centrally. Meeting Edge: 1no 10x4 Lorient LP1004. Fitted centrally in both meeting edges opposing each other. Hardware: Hinges: 4no Annstar Ironmongery steel butt hinges Closer: 1no Dorma TS73. Lock/Latch: 1no Colson sashlock (disengaged for test) Handle: 1no Contract Ironmongery aluminium lever set Hardware Protection: Hinges, Lock/Latch: MIFP310WV Acrylic intumescent mastic. Glazing (Both Leaves): Glass: Pilkington Pyroshield Safety, 6mm thick. Aperture Size: Large Leaf – 1724x270, Small Leaf – 1700x150 Beading: Large Leaf – Sapele (750kg/m3), 39x30 & 22x30, chamfered hook over beads rebated over each other. Small Leaf – Sapele (750kg/m3), 2no 23.5x20, chamfered hook over beads & square sections forming ladder frame. Glazing System: Large Leaf: 2mm bed of MIFP310WV Acrylic intumastic between beads and glass. Small Leaf: 10x2 ISL Therm-A-Strip between glass and beads. Specific Feature Being Tested: Leaf & half doorset with large glazing areas. Ladder pattern beading Doorset Orientation: Open towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance	Integrity: 30 minutes Insulation: N/A

Test Report CFR1909021

The referenced test report, summarised below is being used as supplementary evidence for glazing, flush bolts and Leaf 2.

Date of test:	02.Sep.2019
Identification of test body:	Cambridge Fire Research
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Door - LSADD Insulated, glazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2441(h) x 1000/1000(w) x 55(t) Core: Optima 54mm thick particle board (630kg/m3). Lipping: Sapele (640kg/m3), 6mm thick on vertical edges. Facing: 0.5mm thick sapele veneer. Frame: Head & Jambs: Redwood (450kg/m3), 32x96 with 15x30 pinned stop. Frame Fixing: 6No dia 5 x 100mm long steel screws per jamb. Architrave: not listed Intumescent: Head & Jambs: 1No 15x4 Halspan SLS-PLA-103. Meeting Edge: 2No 10x4 Halspan SLS-PLA-101 in left meeting stile.
Summary of test specimen (continued):	Hardware: Hinges: 4No Halspan 60 Closer: Halspan R6000 Series CLR-AGN-100 Latch: Halspan R60 lockset. Flushbolt: Halspan LCK-MSC-210 Handle: 1No Halspan LCK-MSC-200 Hardware Protection: Hinges: 1mm thick Halspan SLS-PAD-103. Lock/Latch: 1mm thick Halspan SLS-PAD-110 Forend & Keep: 1mm thick Halspan SLS-PAD-110 Flushbolt: 10x2 Therm-A-Strip covering unexposed faces Glazing (Both Leaves): Glass: Pilkington Pyrodur Plus, 7mm thick. (The client has stated this glass is now referenced: 30-105, and is identical to the glass originally tested and recorded in the test report) Aperture: 1009 x 409 Beading: Sapele (640kg/m3), 21 x 28 bolected Bead Fixing: dia 1.6 x 50mm long steel pins. Glazing System: 10x4 ISL Therm-A-Strip inside glazing bead. Doorset Orientation: Open towards heating conditions.
Test Standard:	BS EN 1634-1:2014 + A1:2018
Performance:	Integrity: 45 minutes Insulation: 45 minutes (doors);12 minutes (glazing)

Test Report Chilt/RF09069

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test	29.May.2009
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd.
Tested Product:	Unlatched, Single Acting, Double Door with Overpanel – ULSADD+OP Insulated, unglazed double leaf, single acting, timber doorset with overpanel
Summary of test specimen:	Leaf: Overall Size: 2160 (h) x 926/926 (w) x 44mm (t) Core: Halspan particleboard (628kg/m3), 44mm thick. Lipping: Sapele (640kg/m3), 6mm thick lip on vertical edges, and 19mm thick rebated lip on leaf head. Overpanel: Overall Size: 288 (w) x 1852 (h) x 44mm (t) Core: same as leaf core Lipping: Sapele (640kg/m3), 19mm thick rebated lip to bottom edge of overpanel. Frame: Head & Jambs: European Redwood (510kg/m3), 70 x 32mm with 12mm deep planted stop Architrave: European Redwood (510kg/m3), 18mm thick. Frame Fixing: 4no. 80mm long steel woodscrews per jamb Threshold: non combustible Intumescent: Leaf Head: 1no 10x4 Halspan Fireseal SF G1BN2100, fitted centrally. Jambs: 1no 10x4 Halspan Fireseal SF G1BN2100, fitted centrally and finishing 10mm above overpanel lipping. Meeting Edge: 2no 10x4 Halspan Fireseal SF G1BN2100, fitted centrally and 10mm apart in right leaf. Overpanel: 1no 10x4 Halspan Fireseal SF G1BN2100, fitted centrally in rebate of lip in bottom edge Hardware: Hinges: 3no. Halspan HBSSN30 each leaf Closer: 2no Halspan R30 CBSSN30 overhead closer, Latch: E*S tubular steel mortice (disengaged) Handle: Aluminium lever handle. Hardware Protection: none Glazing: none Specific Feature Being Tested: Double door with overpanel, Halspan seals and ironmongery Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 37 minutes Insulation: 37 minutes

Test Report Chilt/RF01103

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test:	22.Oct.2001
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd.
Tested Product:	Unlatched, Single Acting, Double Door – ULSADD Insulated, glazed leaf and a half, single acting, timber doorset
Summary of test specimen:	Leaf: Overall Size: 2085 (h) x 850/442 (w) x 44mm (t) Core: Halspan Optima 30, 44mm thick. Lipping: 10mm thick Sapele (640kg/m3), to vertical edges only. Frame: Head & Jambs: European Whitewood (450kg/m3), 90 x 32 with 25 x 12 planted stop Frame Fixing: Not detailed Architrave: European Whitewood (450kg/m3), 70 x 16. Threshold: non-combustible. Intumescent: Head: 1no 20x4 ISL Therm-A-Seal, fitted centrally. Jambs: 1no 10x4 ISL Therm-A-Seal, fitted centrally. Meeting Edge: 1no 10x4 ISL Therm-A-Seal, fitted centrally in left & right leaf edges.
Summary of test specimen (continued):	Hardware: Hinges: 3no. Royde & Tucker H105 lift off hinges Closer: Dorma TS73V overhead closer Latch: none fitted Hardware Protection: None fitted Glazing (Left Leaf only): Glass: Pyroshield Safety Glass, 6mm thick. Aperture Size: 1000 x 400 wide Beading: Sapele (640kg/m3), 20 x 24 deep, bolected, chamfered & recessed in rear face. Glazing System: 10x2 ISL Therm-A-Strip, fitted in a recess in the rear face of glazing bead Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 39 minutes Insulation: 39 minutes (In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation)

Test Report WF 403596A AR1

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1 opening away from heating conditions.

Date of test:	20.Aug.2018
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Door– ULSASD Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2400 (h) x 1000 (w) x 44mm (t) Core: Halspan Optima 30 (620kg/m3), 44mm thick. Lipping: 6mm thick Sapele (640kg/m3) to all edges. Frame: Head & Jambs: European Redwood (510kg/m3), 95 x 32mm thick, with 32 x 12mm thick planted stop. Frame Fixing: 4no 5 x 100mm long steel screws per jamb Architrave: 45 x 18mm thick MDF (750kg/m3) to exposed face only. Threshold: Promat Supalux, 9mm thick. Intumescent: Head & Jambs: 1no 15x4 STS 154FO fitted centrally. Partially interrupted at the hinges with 1mm remaining continuous, and fully interrupted at the latch. Smoke/Acoustic Seal: 1no 11x5 STS 1009 fitted to upstand of door stop . Hardware: Hinges: 4no Jedo 102 butt hinges Closer: Synergy Hardware S800 EN2-5 overhead closer Latch: Harbrine mortice lock/latch with Euro-cylinder with thumbturn, Hoppe Arrone AR8100 (disengaged for test) Furniture: Harbrine lever handle and lock escutcheon, Instinct Hardware IH 1912 Hardware Protection: none Glazing: none Specific Feature Being Tested: Opening away from heating condition. Sealed Tight Solutions seals. Doorset Orientation: Opening away from heating conditions.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	Integrity: 42 minutes – No failure Insulation: 42 minutes - No failure

Test Report WF 372220 AR1

The referenced test report, summarised below is being used as supplementary evidence for hardware and Leaf 1.

Date of test:	28.Sep.2016
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Door - LSADD Insulated, unglazed timber double doorset
Summary of test specimen:	Leaf: Overall Size: 2040mm (h) x 984/984mm (w) x 44mm (t) Core: Optima 30, 44mm thick. Lipping: 10mm thick Mahogany (600kg/m3) to all edges. Frame: Head & Jambs: Mahogany (600kg/m3) 42 x 158mm deep, with 18mm thick planted door stops. Architrave: 70 x 20mm thick architraves to exposed face. Frame Fixing: 4no 5 x 80mm long screws per jamb Intumescent: Leaf Head: 1no 15x4 FO8700. Fitted 15mm from exposed face. Leaf Hanging Edges: 1no 15x4 FO8700. Fitted 15mm from exposed face. Fully interrupted by hinges. Meeting Edges: 2no 10x4 FO8500. Fitted 8mm apart and 8mm from exposed face in the meeting edge of one leaf. One seal fully interrupted by latch keep. Second seal partially interrupted by latch keep with 3mm remaining continuous. Flushbolt body partially interrupts both seals with 2mm remaining continuous. Hardware: Hinges: 4no Devon hinges ref 89.338.86 to each leaf Closer: 1no Devon O/H Closer Fig.1 ref 86.214.86 FC to main leaf Lock/Latch: 1no Devon mortice lock Ref 88.601.86 to main leaf Handle: 1no Lever type handle and lock escutcheon FE54-133.6 Flushbolt: 2no Devon Flushbolts 94.156.61 – 205x20 size Hardware Protection: Under Forend: 1mm thick Interdens. Around Flushbolt body & Under Keep: 2mm Therm-A-Strip. Glazing: None Doorset Orientation: Open towards heating conditions.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	Integrity: 42 minutes Insulation: 42 minutes (integrity failure)

Test Report WF 372222A AR1

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test	27.Sep.2016
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Door - LSASD Insulated, unglazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2404mm (h) x 1085mm (w) x 44mm (t) Core: Optima 30, 44mm thick. Lipping: 10mm thick Mahogany (600kg/m3) to all edges. Frame: Head & Jambs: Mahogany (600kg/m3) 42 x 156mm deep, with 18mm thick planted door stops. Architrave: 70 x 16mm thick architraves to exposed face. Frame Fixing: 4no 5 x 80mm long screws per jamb. Intumescent: Leaf Head: 1no 15x4 Pyroplex FO8700. Fitted 15mm from exposed face. Leaf Vertical Edges: 1no 15x4 Pyroplex FO8700. Fitted 15mm from exposed face. Fully interrupted by hinges and latch forend. Smoke/Acoustic Seal: 12x12 Pyroplex smoke seal 9946 to door shut. Hardware: Hinges: 4no Devon hinges ref 89.338.86 Closer: 1no Devon O/H Closer Fig.1 ref 86.214.86 FC Lock/Latch: 1no Devon mortice lock Ref 88.601.86 Handle: 1no Lever type handle and lock escutcheon FE54-133.6 Hardware Protection: Around Lockcase, Under Forend & Keep: 1mm thick Interdens Glazing: None Doorset orientation: Open towards heating conditions.
Test Standard:	BS 476: Part 20/22: 1987
Performance	Integrity: 48 minutes Insulation: 48 minutes (integrity failure)

Test Report WF 412654B

The referenced test report, summarised below is being used as supplementary evidence for false glazing beads and decorative grooves.

Date of test:	17.Jun.2019
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Door - LSASD B: Right hand specimen, Insulated, glazed timber single doorset
Summary of test specimen:	Leaf: Overall Size: 2135 (h) x 926 (w) x 44mm (t) Core: Halspan Prima 30 (630kg/m3), 38mm thick. Incorporating 5 x 1mm thick & 10 x 1mm thick aluminium inserts fitted inside grooves on both faces. Lipping: 6mm thick Sapele (640kg/m3).to vertical edges only Facing: 3mm thick MDF (720kg/m3) bonded with PU. Frame: Head & Jambs: European Redwood (500kg/m3), 32 x 90mm deep, with 12 x 25mm deep planted door stops. Frame Fixing: 4no 5 x 100mm long screw fixings per jamb. Intumescent: Frame Head & Jambs: 1no 15x4 Halspan SLS-PLA series graphite type seal, fitted 15mm from exposed face. Fully interrupted at hinges and latch.
Summary of test specimen (continued):	Hardware: Hinges: 3no Halspan R30 HIN-BSS-103. Closer: 1no Halspan Eco CLR-AGN-100 overhead closer Lock/Latch: 1no Halspan R60 mortice lock/latch – LCK-BSS-100 Handle: 1no Zoo LCK-MSC-200 aluminium handle Hardware Protection: Under Forend & Keep: 1mm thick MAP Glazing: Glass: Pyroguard EW30, 7mm thick. Aperture Size: 1500 x 400mm wide Beading: Sapele (640kg/m3), 24 x 23mm deep perimeter beads, squared & bolected, and 24 x 23mm deep false beads fitted horizontally at 349mm centres. Glazing System: Glazing Perimeter: 10x2 ISL Therm-A-Strip between glass and beads and under false beads (ladder frame) Specific Feature Being Tested: grooves, aluminium inserts Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS EN 1634-1: 2014 & BS EN 1363-1: 2012
Performance:	Integrity: 30 minutes Insulation: 30 minutes

Test Report Chilt/RF03076

The referenced test report, summarised below is being used as supplementary evidence for hardware, T-lippings, glazing and Leaf 3.

Date of test	14.Aug.2003
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd.
Tested Product:	Latched, Single Acting, Single Door – LSASD Insulated, glazed single leaf, single acting, timber doorset with side panels
Summary of test specimen:	Leaf: Overall Size: 2060 (h) x 930 (w) x 44mm (t) Core: Halspan 30 (630kg/m3), 38mm thick. Lipping: Sapele (650kg/m3), 25mm thick T-shaped lippings. Facing: WBP Plywood (650kg/m3), 3mm thick. Frame: Head & Jambs: Sapele (650kg/m3), 95 x 44mm with 21mm deep integral stop Frame Fixing: 100mm long steel screws Threshold: non combustible Intumescent: Head: 1no 10x4 Lorient LP1004 Fitted centrally. Hanging Jamb: 1no 10x4 Lorient LP1004. Fitted centrally. Fully interrupted by hinges. Closing Jamb: 1no 25x4 Lorient LP2504. Fitted centrally. Leaf Bottom: 47x14 Lorient IS8010 drop seal. Fitted centrally. Hardware: Hinges: 3no Stanley butt hinges. Closer: Mitron concealed overhead closer. Now known as Rutland ITS.11204 Latch: GU Ferco 3 point lock. Handle: Steel lever handle. Eye Viewer: Lorient LRJ 3745. Letterplate: Lorient LRJ 8042F Hardware Protection: Around Latch Body: 2mm thick Therm-A-Flex. Under Forend: 2mm thick Therm-A-Flex Leaf Glazing (Top): Glass: Pilkington Pyrodur laminated glass Class A Safety, 13mm thick. Aperture Size: 190 x 850mm Beading: Sapele, 20 x 16, chamfered & bolected. Leaf Glazing (Bottom): Glass: Pilkington Pyrodur lamented glass Class A Safety, 13mm thick. Aperture Size: 190 x 685mm Beading: Sapele, 20 x 16, chamfered & bolected. Glazing System (Leaf): Glazing Perimeter: 2mm thick Lorient Figure 1 glazing seal, between glass and bead.

Summary of test specimen (continued):	Centre Glazed Panel & Side Screen: Frame Head: Sapele (650kg/m3), 95 x 40 with 32mm deep integral stop Frame Jambs & Base: Sapele (650kg/m3), 95 x 32 with 20mm deep integral stop Transom (Centre Panel only): Sapele (650kg/m3), 95 x 32 with 2no 20mm deep integral stop Glass: Pilkington Pyrodur laminated double glazed unit Aperture Size (Centre Glazing – Top Pane): 1137 x 922 Aperture Size (Centre Glazing – Bottom Pane): 1137 x 1075 Aperture Size (Side Glazing Pane): 337 x 2027 Beading: Sapele, 20 x 33, chamfered. On exposed side. Glazing System (Centre & Side Glazing): 2mm thick Lorient Figure 1 glazing seal, between glass and bead. Specific Feature Being Tested: Optima 30 Bond Up test. 3 point GU Ferco Lock & concealed closer. Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 26 minutes (Letterplate); 30 minutes (Leaf) Insulation: 24 minutes

Test Report Chilt/RF07008A

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	13.Feb.2007
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Lorient Polyproducts Ltd.
Tested Product:	Unlatched, Single Acting, Double Door – ULSADD A: Left hand specimen, Insulated, unglazed one and a half leaf, single acting, timber doorset
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 302/827 (w) x 45mm (t) Core: Halspan Prima 30 (630kg/m3), 45mm thick. Lipping: 8mm thick Sapele (640kg/m3) to all edges. Frame: Head & Jambs: European Redwood (510kg/m3), 70 x 33mm thick, with 23 x 12mm thick planted stop Frame Fixing: 3no. 100mm long steel woodscrews per jamb. Architrave: European Redwood (510kg/m3), 18mm thick. Threshold: non-combustible. Intumescent: Frame Head & Jambs: 1no 15x4 Palusol 100P, fitted centrally. Fully interrupted at hinges. Meeting Edge: 2no. 10x4 Palusol 100P, fitted 10mm apart & 7.5mm from exposed face in right meeting edge. Both strips partially interrupted at latch forend with 2.5mm remaining. Hardware: Hinges: 3no. Royde & Tucker 105 lift off hinges, Closer: Dorma TS73V overhead door closer, Lock/Latch: Legge 'life' mortice latch (disengaged), Handle: Aluminium Lever handles Bolt: Aluminium surface mounted barrel bolts (engaged) Hardware Protection: none Glazing: none Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 36 minutes Insulation: 36 minutes

Test Report Chilt/RF07008B

The referenced test report, summarised below is being used as supplementary evidence for Leaf 1.

Date of test:	13.Feb.2007
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Lorient Polyproducts Ltd.
Tested Product:	Unlatched, Single Acting, Double Door – ULSADD B: Right hand specimen, Insulated, unglazed one and a half leaf, single acting, timber doorset
Summary of test specimen:	Leaf: Overall Size : 2040 (h) x 300/827 (w) x 45mm (t) Core: Halspan Prima 30 (630kg/m3), 45mm thick. Lipping: 8mm thick Sapele (640kg/m3) to all edges. Frame: Head & Jambs: European Redwood (510kg/m3), 70 x 33mm thick, with 23 x 12mm thick planted stop Frame Fixing: 3no. 100mm long steel woodscrews per jamb. Architrave: European Redwood (510kg/m3), 18mm thick. Threshold: non-combustible. Intumescent: Head & Jambs: 1no 15x4 LP1504, fitted centrally. Fully interrupted at hinges. Meeting Edge: 2no. 10x4 Lorient LP1004 fitted 10mm apart & 7.5mm from exposed face in right meeting edge. Both strips partially interrupted at latch forend with 2.5mm remaining.
Summary of test specimen (continued):	Hardware: Hinges: 3no. Royde & Tucker 105 lift off hinges, Closer: Dorma TS73V overhead door closer, Lock/Latch: Legge 'life' mortice latch (disengaged), Handle: Aluminium Lever handles Bolt: Aluminium surface mounted barrel bolts (engaged) Hardware Protection: none Glazing: none Specific Feature Being Tested: Lorient Type 617 intumescent Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 42 minutes Insulation: 42 minutes

Test Report WARRES 145632A

The referenced test report, summarised below is being used as supplementary evidence for Leaf 3.

Date of test:	21.Apr.2005
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd.
Tested Product:	Unlatched, insulated, single acting, single leaf, timber doorset – ULSASD
Summary of test specimen:	Leaf: Overall Size: 2042mm (h) x 926mm (w) x 44mm (t) Core: Halspan Lite (500kg/m3), 38mm thick Lipping: Meranti (650kg/m3), 6mm thick to vertical edges. Facing: Medium Density Fibreboard (700kg/m3), 3mm thick Frame: Head & Jambs: Whitewood (450kg/m3), 70 x 32mm thick, with 25 x 12mm thick planted stop. Frame Fixing: 5no. 4.9 x 100mm long screws per jamb Intumescent: Head & Jambs: 1no 15x4 Lorient LP1504. Fitted centrally in frame reveal. Hardware: Hinges: 3no. butt hinges per leaf Closer: 1no New Star Controls, 5003 overhead closer per leaf. Lock/Latch: Interior Hardware, 76mm Euro Profile sashlock (disengaged) Handle: 2no Shephards 2987, lever handles PAA Hardware Protection: None fitted Specific Feature Being Tested: Halspan Lite 44mm Bond Up with lipping extended to cover facing material. Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476-22:1987
Performance:	Integrity: 38 minutes Insulation: 38 minutes

Test Report WARRES 150116

The referenced test report, summarised below is being used as supplementary evidence for Leaf 3.

Date of test:	07.Nov.2005
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd.
Tested Product:	Unlatched, insulated, single acting, double leaf, timber doorset with glazed aperture – ULSADD
Summary of test specimen:	Leaf: Overall Size: 2042mm (h) x 926/926mm (w) x 44mm (t) Core: Halspan Lite (500kg/m3), 38mm thick Lipping: Meranti (650kg/m3), 6mm thick to vertical edges. Facing: Medium Density Fibreboard (700kg/m3), 3mm thick Frame: Head & Jambs: Whitewood (450kg/m3), 93 x 32mm thick, with 25 x 12mm thick planted stop. Frame Fixing: 5no. 4.9 x 100mm long screws per jamb Intumescent: Head & Jambs: 1no 15x4 Lorient LP1504. Fitted centrally in frame reveal. Meeting Edges: 1no 10x4 Lorient LP1004. Fitted offset from centre and uninterrupted in both leaves. Hardware: Hinges: 3no. butt hinges per leaf Closer: 1no Dorma TS71 overhead closer per leaf. Lock/Latch: none fitted
Summary of test specimen (continued):	Hardware Protection: None fitted Glazing (one Leaf only): Glass: CGI International, Pyroguard 7, 7.7mm thick. Aperture: 1176mm x 620mm wide Beading: Sapele (650kg/m3), chamfered and bolected. Glazing System: Glazing Perimeter: Lorient Figure 1 gasket, between glass and beading Specific Feature Being Tested: Halspan Lite 44mm Bond Up with glazing. Lipping extended to cover facing material. Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476-22:1987
Performance:	Integrity: 30 minutes Insulation: 30 minutes (In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation)

Test Report CFR1903071

The referenced test report, summarised below is being used as supplementary evidence for hardware and Leaf 1.

Date of Test:	07.Mar.2019
Identification of Test Body:	Cambridge Fire Research Ltd.
Sponsor:	Halspan Ltd.
Tested Product:	Latched, Single Acting, Single Door– LSASD Latched, Single Acting, Single Leaf, Timber Doorsets
Tested Orientation:	Left doorset: Opening in towards heating condition Right doorset: Opening away from the heating conditions
Summary of Test Specimen:	Leaf: Overall Size: 2440 (h) x 1001 (w) x 45mm (t) Core: Halspan Prima 30 Three-layer Particleboard (630kg/m3), 44mm thick Lipping: Sapele (640kg/m3), 6mm thick to all four edges Facing: 0.5mm thick, Sapele veneer Frame: Head & Jambs: Redwood (535.6kg/m3), 94 x 32mm thick, with 30 x 15mm thick planted stop. Frame Fixing: 5No 5 x 100mm long steel screws per jamb Intumescent: Frame Reveal/Leaf Edges: 1No 15x4 Halspan Plain fire seal, fitted centrally and 1no. 25 x4mm Halspan plain seal 11mm from hinge knuckle face in closing edge only Smoke seal: Halspan triple fin affixed to frame adjacent to stop Hardware: Hinges: 4No Halspan 30min butt hinges Closer: Rutland R6000 series overhead door closer, Rutland TS.6204 Lock/Latch: ERA 6945-80-85MA 3-point latch/lock Lock/Latch Status: Engaged for test Letterplate: Royde & Tucker LP08-44 Door Viewer: Lorient LRJ 3745 wide angle door viewer Drop seal: Halspan SLS-DRP-300 drop seal Handle: Aluminium lever handle

Summary of test specimen (continued):	<u>Hardware Protection:</u> Under Hinges: 1mm thick Halspan graphite hinge pad Rear of strike body and faces of keeps: 1mm thick Halspan graphite sheet Faces of latch/hook boxes body: 1mm Halspan ammonium phosphate sheet Around letterplate: Royde & Tucker graphite collar 38 x 3mm One side of barrel of door viewer: Lorient Polyproducts graphite-based liner 119 x 42 x 2mm
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** 39 minutes **Insulation:** 39 minutes

Test Report WF 391351A

The referenced test report, summarised below is being used as supplementary evidence to support the Pyrogrille 100 air transfer grilles.

Date of test:	09.Dec.2017
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Mann McGowan Fabrications Ltd
Tested Product:	2no. Insulated, single acting single doorsets - LSASD
Summary of test specimen:	Leaf: Overall Size (Door A): 2040 (h) x 926 (w) x 44mm (t) Overall Size (Door B): 2040 (h) x 926 (w) x 54mm (t) Core (Door A): Halspan Optima 30, 44 mm thick Core (Door B): Halspan Optima 60, 54mm thick Lipping: 6mm thick Sapele (640kg/m3), to all four edges. Frame: Head & Jambs (Door A): Redwood (450kg/m3), 95 x 44mm with 45 x 12mm deep rebated stop. Head & Jambs (Door B): Sapele (640kg/m3), 95 x 44mm with 55 x 12mm deep rebated stop. Frame Fixing: 150mm x 5.8mm diameter wood screws Intumescent: Head & Jambs (Door A): 1no 15x4 Palusol 500PSA, fitted centrally in rebate Head & Jambs (Door B): 2no 15x4 Palusol 500PSA, fitted centrally in rebate
Summary of test specimen (continued):	Hardware: Hinges: 3no Royde & Tucker Hi Load 105 Lift-off hinges Closer:1no Rutland TS3204 Closer Latch: 1no Smith & Locke 3006K (engaged) Handle: Locke & co 2000 series lever handle. Air Transfer Grille: 1no Pyrogrille 100 Hardware Protection: Under Hinges (Door A): 1mm thick Mann McGowan Interdens Under Hinges (Door B): 2mm thick Mann McGowan Interdens Around Lockcase (Door A): 1mm thick Mann McGowan Interdens Around Lockcase (Door B): 2mm thick Mann McGowan Interdens Under Forend and Keep (Door A): 1mm thick Mann McGowan interdens Under Forend and Keep (Door B): 2mm thick Mann McGowan interdens Around Grille Perimeter: Mann McGowan Pyromas A acrylic sealant Glazing: Not tested Specific Feature Being Tested: Pyrogrille 100- Mann McGowan air transfer grille Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS EN 1634-1:2014
Performance:	Integrity: 40 minutes (DOOR A); 69 minutes (DOOR B) Insulation: 40 minutes (DOOR A); 69 minutes (DOOR B)

Test Report WF146520

The referenced test report, summarised below is being used as supplementary evidence to support the Pyroplex air transfer grilles.

Date of test:	08.Jun.2005
Identification of test body:	Warringtonfire Testing and Certification Ltd
Sponsor:	Pyroplex Ltd.
Tested Product:	Indicative test of 4no. air transfer grilles within timber door leaf constructions
Summary of test specimen:	Leaf: Overall Size: 990mm (h) x 900mm (w) x 44/54mm (t) Core: Halspan Prima 44mm thick (containing Grilles C & D) and 54mm thick (containing Grilles A & B) with 6mm hardwood lining Hardware: All grilles 0.6mm galvanised steel assembled in a modular format with a clip system to connect the grille facings Grille A: 225mm x 112mm x 40mm in top half of door leaf Grille B: 300mm x 300mm x 40mm in bottom half of door leaf Grille C: 225mm x 112mm x 40mm in top half of door leaf Grille D: 300mm x 300mm x 40mm in bottom half of door leaf Hardware Protection: Grille A: 4no layers, 40mm (w) x 3.5mm (t) and 224mm (l) of Pyroplex intumescent Grille B: 5no layers, 40mm (w) x 3.5mm (t) and 148mm (l) of Pyroplex intumescent Grille C: 4no layers, 40mm (w) x 3.5mm (t) and 224mm (l) of Pyroplex intumescent Grille D: 5no layers, 40mm (w) x 3.5mm (t) and 148mm (l) of Pyroplex intumescent Specific Feature Being Tested: Pyroplex Air Transfer Grilles
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: Grille A 41 minutes Grille B 55 minutes Grille C 46 minutes Grille D 45 minutes

Test Report Chilt/RF08169

The referenced test report summarised below is being used as supplementary evidence to support the Pyrotech glass.

Date of test	22.Nov.2008
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Essex Safety Glass
Tested Product:	uninsulated, glazed single leaf, single acting, timber doorset in a glazed screen
Summary of test specimen:	Leaf: Overall Size : 2040 (h) x 926 (w) x 44mm (t) Stiles & Top Rail: Sapele (640kg/m3), 100 x 44mm thick Bottom Rail: Sapele (640kg/m3), 205 x 44mm thick Aperture E (leaf glazing): 1734mm (h) x 726mm (w) Screen Sizes: Aperture A: 873mm (h) x 954mm (w) Aperture B: 873mm (h) x 446mm (w) Aperture C: 873mm (h) x 1440mm (w) Aperture D: 2007mm (h) x 954mm (w) Aperture F: 2007mm (h) x 954mm (w) Intumescent: Leaf Edges: Therm-A-Seal 15 x 4mm in leaf edges Frame: Head & Jambs: Sapele (640kg/m3), 90 x 40mm thick, with 12mm thick stop Head and Jambs together with transoms and mullions of Sapele (640kg/m3), 90 x 40mm thick, form the screen. Frame Fixing: not detailed Hardware: Hinges: 3no. Royde & Tucker H105 lift of hinges Closer: Dorma TS71 overhead door closer
Summary of test specimen (continued):	Hardware Protection: Under Hinges: 1mm thk Interdens under hinge blades Leaf Glazing: Glass: ESG Pyrotech 630 6mm thk including aluminium foil at glass edges. Glass Size: 1711mm x 703mm Glazing System: Glazing Perimeter: 10mm (w) x 1mm thick interdens around perimeter Glass & Bead: Kerafix ceramic tape 15 x 3mm between glass and beads Bead: Sapele: 26mm (h) x 22mm (d) including a 5 x 5 bolection return and a 15^0 chamfer. Specific Feature Being Tested: Pyrotech glass Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS EN 1634-1:2000
Performance:	Integrity: 16 minutes
Reason for use (if test failed)	Supplementary evidence for the use of Essex Safety Glass Pyrotech in 44mm thick timber doors.
Mode of failure (if test failed)	Initial Failure: Cotton pad test on glass at 16 minutes, which has to be applied to uninsulated glasses, but this is not a failure mode for BS 476 Part 22. Further Failure: 34 minutes

Test Report CFR1909241

The referenced test report, summarised below is being used as supplementary evidence for Hygeno glazing units and Leaf 2.

Date of test:	24.Sep.2019
Identification of test body:	Cambridge Fire Research
Sponsor:	Halspan Ltd.
Tested Product:	Insulated, glazed double leaf, single acting, timber doorset – LSADD.
Summary of test specimen:	Leaf: Overall Size: 2135mm (h) x 915/915mm (w) x 54mm (t) Core: Halspan Prima 60, 54mm thick. Lipping: 6mm thick Sapele to all edges. Intumescent: Head & Jambs: 2no. 15x4 Halspan verified Sodium Silicate based seals. Fitted 7mm and 33mm from exposed face. Meeting Edges: 1no 10x4 Halspan verified Sodium Silicate based seals. Fitted centrally to one leaf edge. And 2no 15x4 fitted 8mm from both faces left leaf. Frame: Head & Jambs: Sapele, 45 x 96mm deep, with 15 x 30mm deep planted stop Hardware: Hinges: 4no Eurospec CEAM Art Stars 1131 concealed hinges. Closer: 1no concealed closer. The tested closer reference redacted from this summary, please see note below*. Latch/Lock: Halspan R60 lockset. Flushbolt: Halspan LCK-MSC-205. Handle: Halspan LCK-MSC-200. Euro Cylinder: Vier V5 35/10/35. Escutcheon: Zoo Hardware ZCS001SS. Hardware Protection: Under Hinges: 1mm thick Eurospec ES1131 Around Body of Closer 1: 1mm thick. The tested closer intumescent pack reference redacted from this summary, please see note below*. Forend Top of Closer 2: 1mm thick. The tested closer intumescent pack reference redacted from this summary, please see note below*. Around Body of Closer Track: 2mm thick. The tested closer intumescent pack reference redacted from this summary, please see note below*. Latch Body, Under Forend and Keep: 1mm Halspan SLS-PAD-109 Around Body of Flushbolt: 2mm thick FlexiFire Z1F0160G Glazing: Glazing Unit: Hygeno Intavista and Flushview units each 750mm high x 500mm wide. Glazing System: Glazing Perimeter: 50x3 BASF interdens Specific Feature Being Tested: Hygeno Intavista and Flushview units Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS EN 1634-1+A1:2018
Performance:	Integrity: 31 minutes Insulation: (Left Glazing) - 14 minutes, (Right Glazing) - 21 minutes, (Door) - 31 minutes

*The tested closer and the tested closer intumescent references are contained in the test report. The details of the tested closer and the tested closer intumescent has been redacted from this summary as requested by Halspan Ltd for commercial confidentiality.

Test Report BMT/FEP/F15097

The referenced test report, summarised below is being used as supplementary evidence for hardware, glazing and Leaf 1.

Date of test:	30.May.2015
Identification of test body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Sealed Tight Solutions Ltd.
Tested Product:	Insulated, glazed double leaf, single acting, timber doorset – ULSADD
Summary of test specimen:	Leaf: Overall Size: 2900mm (h) x 1050/1050mm (w) x 44mm (t) Core: Halspan 44mm thick particleboard (620kg/m3). Lipping: 6mm thick Sapele (640kg/m3) to all edges. Frame: Head & Jambs: European Redwood (510kg/m3), 70 x 32mm thick, with 20 x 12mm thick planted stop. Architrave: European Redwood (510kg/m3), 45 x 18mm thick Threshold: non-combustible. Frame Fixing: 4no. 80mm long steel wood screws per jamb. Intumescent: Frame Head & Jambs: 1no 15x4 STS ST1504FO. Fitted 15mm from exposed face in frame reveal. Fully interrupted by hinges. Fully interrupted by flushbolt keep in frame head. Meeting Edge: 2no. 10x4 STS ST1004FO. One fitted 7mm and the other fitted 27mm from exposed face in right leaf meeting edge. Both seals partially interrupted by latch forend with 4mm remaining continuous. Smoke/Acoustics Seal: 1no 10x9 STS ST1009. Fitted in upstand of stop. Hardware: Hinges: 4no. Intelligent UK butt hinges, Closer: Arrone AR1500 overhead closer, Lock/Latch: Union mortice latch (disengaged), Handle: Aluminium lever handles Flushbolt: 1no ZA13SS (609mm x 20mm) to top & bottom in left leaf (disengaged) Hardware Protection: Under Hinges, Latch Forend & Keep, Flushbolt Keep: 1mm thick ST100 graphite. Encasing Lockcase & Flushbolt: 1mm thick ST100 graphite. Glazing (Both Leaves): Glass: Pyrobelite, 7mm thick Aperture Size: 1150 x 600mm wide Beading (Left Leaf): 15 x 17.5mm deep, squared and bolected. Beading (Right Leaf): 20 x 22.5mm deep, chamfered and bolected. Glazing System: Glazing Perimeter: 1no 10x5 STS ST105GT between glass and beads Specific Feature Being Tested: STS intumescent seals Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	Integrity: 33 minutes Insulation: 33 minutes (In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation)

Test Report Chilt/RF13063

The referenced test report, summarised below is being used as supplementary evidence for glazing and Leaf 1.

Date of test:	09.May.2008
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd.
Tested Product:	Unlatched, double leaf, single acting, timber doorset with glazing, overpanel & side panel – ULSADD+OP
Summary of test specimen:	Leaf: Overall Size: 2135mm (h) x 915/915mm (w) x 44mm (t) Core: Halspan Optima 30 (620kg/m3), 44mm thick Lipping: Sapele (640kg/m3), 6mm thick to vertical edges and 12mm thick with 22 x 12mm deep rebate to leaf head. Overpanel: Overall Size: 600 (h) x 1830 (w) x 44mm (t) Core: same as leaf Lipping: Sapele (650kg/m3), 20mm thick with 22 x 12mm deep rebate. Sidepanel: Overall Size: 2741 (h) x 600 (w) x 44mm (t) Core: same as leaf Frame: Head & Jambs: European Redwood (450kg/m3), 70 x 32mm thick, with 20 x 12mm thick planted stop. Architrave: MDF, 50 x 18mm thick Threshold: non-combustible. Frame Fixing: 4no. 8 x 100mm long steel screws per jamb and 2no in head Intumescent: Head & Jambs: 1no 15x4 Halspan SLS Type seal. Fitted centrally in frame reveal and in leaf head. Meeting Edge: 1no 15x4 Halspan SLS Type seal. Fitted centrally in slave leaf. Smoke/Acoustics Seal: 1no 10.2x11 Halspan SLS-TRI-100/2. Fitted in upstand of stop and in overpanel rebate. Hardware: Hinges: 3no. Halspan 30 HIN-BSS-103 per leaf Closer: 1no Halspan 30 CLR-AGN-100 per leaf. Lock/Latch: Halpsan R30 LCK-BSS-100 (disengaged for test) Handle: Zoo Hardware Z1CF Shoot bolt: Surface mounted Straight Aluminium barrel bolts (engaged for test) Hardware Protection: Under Forend & Keep: 1mm thick SLS-PAD-107 Glazing (Both Leaves): Glass: CGI International, Pyroguard EI30, 23mm thick. Glass Size (Main Leaf): 690 x 550mm wide Glass Size (Slave Leaf): 308 x 308mm wide Beading: Sapele (650kg/m3), 21 x 18mm wide, chamfered and bolected. Glazing System: Glazing Perimeter: 10 x 2mm thick interdens between glass and bead Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS EN 1634-1: 2008 & BS EN 1363-1: 1999
Performance:	Integrity: 36 minutes Insulation: 36 minutes

Test Report WF 415117A

The referenced test report, summarised below is being used as supplementary evidence for hardware.

Date of Test:	01.Oct.2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd.
Sponsor:	Gianni Industries Inc.
Tested Product:	Latched, Single Acting, Single Leaf, Timber Doorset- LSASD
Tested Orientation:	Open in towards heating condition
Summary of Test Specimen:	Leaf: Overall Size: 2045 (h) x 924 (w) x 44mm (t) Core: Halspan Prima 60 Three-layer Particleboard (630kg/m3), 44mm thick Frame: Head & Jambs: Pine (510 - 550kg/m3), 70mm x 46mm with 46mm x 13mm deep rebate Frame Fixing: 4no. 4.8mm dia. x 100mm long steel screws per jamb 100mm above and 100mm below centre of each hinge position Intumescent: Frame Reveal/Leaf Edges: 1No 15x4 Pyroplex CF355 PVC encased graphite strip. Fitted centrally. Hardware: Hinges: Royde & Tucker H102 Lock/Latch: Securefast SEU777/2R steel latch Lock/Latch Size: Lockcase: 155mm long x 75mm wide x 15.5 Forend plate: 235 x 24 x 3mm Lock/Latch Status: Upper lockset engaged for test Handle: Smith and Locke Aluminium Milano lever on rose Cylinder: Union Assa Abloy J-U6PED4555SN Union 6 pin Euro Profile 100mm long x 45/55 (even split) Strike Plate- Fail Secure: Gianni Industries Inc. GK361M-ST-1224 201.6mm long x 43mm wide x 29.5mm deep Strike Plate- Fail Safe: Gianni Industries Inc. GK450M-ST-1224 123mm long x 1.8 – 43.5mm ide x 29.5mm deep Door Loop: Gianni Industries Inc. DL-500 steel 292.5mm x 25mm x 20mm Door Loop: Gianni Industries Inc. DL-417ST steel 290mm x 24.4mm x 20mm
Summary of test specimen (continued):	Hardware Protection: Under Hinges: 1mm thick interdens Under lock case Forend: 1mm thick interdens Strike Plates: wrapped in 1mm thick interdens Door loops: wrapped in 1mm thick Interdens Specific Feature Being Tested: Various hardware
Test Standard:	BS EN 1634-1:2014
Performance:	Integrity: 36 minutes Insulation: 36 minutes

Test Report Chilt/RF02110

The referenced test report summarised below is being used as supplementary evidence to support the Pyroswiss 'Classic' glass

Date of test	14.Nov.2002
Identification of test body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Vetrotech Saint-Gobain International AG
Tested Product:	2no. Insulated, glazed single leaf, single acting, timber doorsets
Summary of test specimen:	Door A & B Leaf: Overall Size: 2044mm (h) x 825mm (w) x 44mm (t) Core: European softwood vertical lamels (450 kg/m3), 22 x 27mm thick Rails (top & bottom): European softwood horizontal lamel (450 kg/m3), 22 x 27mm thick. Facing: 9mm thick chipboard (680 kg/m3) Lipping: 8mm thick Sapele (640 kg/m3) Intumescent: Head & Jambs: 1no 15x4 Lorient LP1504 Frame: Head & Jambs: Sapele (640 kg/m3), 90 x 40mm thick with 45 x 13mm deep planted stop. Architrave: Sapele (640kg/m3), 18mm thick. Frame Fixing: No.10 x 80mm long wood screws. Hardware: Hinges: 3no. Royde & Tucker H101 hinges. Closer: Dorma TS83 overhead closers. Lock/Latches: 63mm tubular latches Lock/Latch Status: Engaged Handle: Aluminium lever handles. Hardware Protection: Under Hinges: 2mm thick interdens Under Latch Forend & Keep: 2mm thick interdens Encasing Latch Body: 2mm thick interdens Glazing (Door A & B): Glass: Pyroswiss 'Classic' glass, 6mm thick. Aperture Size (Door A): 526 x 1640mm Aperture Size (Top) (Door B): 526 x 940mm Aperture Size (Bottom) (Door B): 526 x 490mm Beading: Sapele (640 kg/m3), 21 x 25mm high, 5x5mm bolection and 25° chamfer. Bead Fixing: 50mm long Steel screws. Fitted at 30° and 50mm from corners, 150mm centres vertical, and 130 centres horizontal. Expansion Allowance: 12mm on all edges. Glazing System: Perimeter: 15x3 Hodgsons sealant between beads and glass
Test Standard:	BS EN 1634-1: 2000 & BS EN 1363-1: 1999
Performance:	Integrity: Door A: 24 minutes; Door B: 23 minutes Insulation: Door A: 4 minutes; Door B: 4 minutes
Reason for use (if test failed)	for use as evidence for 6mm thick Pyroswiss glass and Hodgsons sealant
Mode of Failure (if test failed)	Initial Failure: Cotton pad failure of the glazing pane at 24 minutes (Door A). Cotton pad failure of the top glazing pane at 23 minutes (Door B). Further Failure: Continuous flaming around the top glazing at 32 minutes (Door B) Continuous flaming around the glazing at 38 minutes (Door A) This report is an evaluation of the potential fire resistance performance if the design were to be tested in accordance with BS 476: Part 22: 1987. If tested to BS 476: Part 22: 1987, a cotton pad test would not normally be applied to the glazing pane and therefore the initial failure times are not considered relevant when used for this purpose.

Test Report WARRES 135011

The referenced test report, the essential details of which are summarised below, has been included to support the use of PUR and hotmelt adhesives for the application of lipping materials.

Date of test	28.Oct.2003
Identification of test body:	Warringtonfire
Sponsor:	Halspan Ltd
Tested Product:	Insulated, unglazed double leaf, double acting, timber doorset with overpanel – DADD+OP
Summary of test specimen:	Leaf: Overall Size: 2040+622 (h) x 921/332 (w) x 44mm (t) Core: Halspan Lite (500kg/m3), 43mm thick. Lipping: Meranti hardwood, 10mm thick on vertical edges & 19mm thick on top and bottom edges. Facing: Gaboon hardwood veneer (700kg/m3), 0.6mm thick. Overpanel Core: Same construction as leaf core. Overpanel Lipping: Meranti hardwood, 6mm thick, along head & 19mm thick along base. Overpanel Facing: Gaboon hardwood veneer (700kg/m3), 0.6mm thick. Frame: Head: European Whitewood (450kg/m3), 95 x 38mm Jambs: European Whitewood (450kg/m3), 95 x 38 with 63mm radius x 3mm deep. Cill: European Whitewood (450kg/m3), 42 x 123mm lined with 11m calcium silicate board Frame Fixing: 100mm long x 5/4mm dia. woodscrews Intumescent: Jambs: 10x4 Lorient LP1004, fitted centrally. Overpanel: 15x4 Lorient LP1504 fitted centrally along base of overpanel. Meeting Edges: 10x4 Lorient LP1004, fitted centrally in both leaf edges. Hardware: Closer: Dorma BTS75V, floor spring closer. Hardware Protection: 2mm Therm-A-Flex shrouding the mortice for the unit Glazing: Glass: Pilkington Pyrodur Plus, 7.5mm thick. Aperture Size: 250 x 1150mm Beading: Meranti hardwood (500kg/m3), 21 x 23 chamfered. Glazing System: 18x2 Lorient graphite based intumescent gasket. Specific Feature Being Tested: Hot melt PUR adhesive for lippings and meranti glazing beads Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 36minutes Insulation: 36 minutes (In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation)

Test Report CFR2004171B

The referenced test report, the essential details of which are summarised below, for use as evidence for Leaf 2 with cable way.

Date of Test:	17.Apr.2020
Identification of Test Body:	Cambridge Fire Research Ltd.
Sponsor:	Halspan Ltd.
Tested Product:	Latched Single Acting, Double Leaf, Timber Doorset– LSADD
Tested Orientation:	Opening in towards heating condition
Summary of Test Specimen:	Leaf: Overall Size: 2440 (h) x 826/345 (w) x 54mm (t) Core: Halspan Prima 60 Particleboard (630kg/m3), 54mm thick Lipping: Sapele (640kg/m3), 6mm thick to all four edges Frame: Head & Jambs: Sapele (640kg/m3), 100 x 32mm thick, with 32 x 12mm thick planted stop. Frame Fixing: 5no. 6 x 100mm long steel screws equally spaced per jamb Intumescent: Frame Reveal/Leaf Edges: 1No 15x4 Halspan Plain seal & 1no. 15x4 Halspan Twin Fin seal Meeting Stiles: 1No 15x4 Halspan Plain seal & 1no. 15x4 Halspan Twin Fin seal Top Leaf Edge: 1No 15x4 Halspan Plain seal Bottom Leaf Edge: 1No 15x4 Halspan Plain seal Hardware: Hinges: 4No Halspan HIN-BSS-103 per jamb Closer: Halspan R900 Power Closer Lock/Latch: Dormakaba SVP 6268 Solenoid lock Lock/Latch Size: Lock body: 165 x 90 x 16mm, Forend: 235 x 24 x 3mm, Strike: 232 x 40 Lock/Latch Status: Engaged for test Shoot Bolt: Royde & Tucker Barza B151-200-220 top & bottom of slave leaf. Handle: Dormakaba CORE 90050063189 Cable way: Dormakaba KU 260 Hardware Protection: Under Hinges: 1mm graphite Halspan hinge pads Under Forend & Keep: 1mm Dormakaba Intumescent kit 40SVP6024 Around Lockcase: 1mm Dormakaba Intumescent kit 40SVP6024 Around cableway recess box: 1mm Halspan SLS-PAD-107 MAP to one side to all concealed faces of cableway recess box and to base of the inside Cableway: Sealed Tight Solutions Ltd SLS CablePro 1mm, graphite sleeve around all cables
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** 53 minutes **Insulation:** 53 minutes

Test Report Chilt/RF02048A

The referenced test report, summarised below is being used as supplementary evidence for edge protectors.

Date of test	10.May.2002
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Sureglaze Ltd.
Tested Product:	Insulated, unglazed leaf and a half, single acting, timber doorsets – ULSADD
Summary of test specimen:	Leaf: Overall Size: (Door A): 2040 (h) x 827/300 (w) x 44mm (t) Core: Flaxboard (450kg/m3), 36mm thick. Stiles: 2no Russian 5th Redwood (510kg/m3), 45 x 36mm. Rails (top & bottom): 2no Russian 5th Redwood (510kg/m3), 45 x 36mm. Lipping: Sureguard Type 3 & 1, and edge protectors, on vertical edges only. Facing: MDF (750kg/m3), 4mm thick. Frame: Head & Jambs: European Redwood (510kg/m3), 90 x 32 with 12 x 31 planted stop. Architrave: European Redwood (510kg/m3),16 x 60 Threshold: non combustible Frame Fixing: not detailed Intumescent: Leaf Head, Hanging Edge & Left Meeting Edge: 15x4 100P, fitted centrally. Hardware: Hinges: 3no. Royde & Tucker H101 lift off type. Closer: Dorma TS73V overhead door closer Latch: None fitted Handle: None fitted Hardware Protection: None fitted Glazing: None Specific Feature Being Tested: flax cores and Sureguard edge protectors Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 35 minutes Insulation: 35 minutes

Test Report Chilt/RF02048B

The referenced test report, summarised below is being used as supplementary evidence for edge protectors.

Date of test	10.May.2002
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Sureglaze Ltd.
Tested Product:	Insulated, unglazed leaf and a half, single acting, timber doorsets – ULSADD
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 830/295 (w) x 45mm (t) Core: Vertical hardwood lamel (499kg/m3), 34 x 24 Rails (top & middle): 2no hardwood horizontal lamel strips,34 x 24 Lipping: Sureguard Type 2 & 4, edge protectors, on vertical edges only. Facing: Hardwood ply (650kg/m3), 5.5mm thick. Frame: Head & Jambs: MDF clad with 2mm thick Sureguard, 130 x 32, with 19 x 50 glued stop. Architrave: European Redwood (510kg/m3),16 x 60 Threshold: non combustible Frame Fixing: not detailed Intumescent: Leaf Head: 25x4 100P, fitted centrally. Hanging Edge: 15x4 100P, fitted centrally. Hanging Edge (Both Leaves): 10x1 ISL Therm-A-Flex behind lipping, fitted centrally 10mm apart. Meeting Edge: 15x4 100P fitted centrally on left leaf. Hardware: Hinges: 3no. Cairney Hardware 4 Class 9 steel butt hinges, Closer: Dorma TS73V overhead closer Latch: None fitted Handle: None fitted Hardware Protection: None fitted Glazing: None Specific Feature Being Tested: Flax cores and Sureguard edge protectors Doorset Orientation: Opening toward heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance:	Integrity: 41 minutes Insulation: 41 minutes

Test Report Chilt/RF02083A

The referenced test report, summarised below is being used as supplementary evidence for edge protectors.

Date of test	06.Sep.2002
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Insulated, glazed Double doorset - ULSADD
Summary of test specimen:	Leaf: Overall Size: 2040 (h) x 828/300 (w) x 54mm (t) Core: Halspan 3no layer Particleboard (640kg/m3), 54mm thick. Lipping: Sureguard Type 3 (640kg/m3), (17mm thick, 6mm radii) to both hanging edges & Sureguard Type 1 (640Kkg/m3), (19mm thick, 6mm radii) to both meeting edges. Edge Protector: Sureguard Type 3, 2mm thick to hanging edges & Sureguard Type 1, 2mm thick to both meeting edges. Frame: Head & Jambs: Sapele (640kg/m3), 32x90mm deep with 12 deep planted stop. Architrave: Sapele (640kg/m3), 60x16 thick. Threshold: non combustible Intumescent: Leaf Head: 2no 15x4 ISL Therm-A-Seal, fitted centrally & 10mm apart Leaf Hanging Edge: 2no 15x4 ISL Therm-A-Seal, fitted centrally & 10mm apart Meeting Edge: 2no 15x4 ISL Therm-A-Seal, fitted centrally & 10mm apart in left leaf. Hardware: Hinges: 3no Royde & Tucker H105 lift off hinges per leaf Closer: 1no Dorma TS83V overhead closer per leaf Latch: none fitted Hardware Protection: Under Hinges: 2mm thick Therm-A-Strip. Glazing: Glass: Sureglaze wired, 6mm thick. Aperture Size: 511 x 511 Beading: Sapele (640kg/m3), 27 x 34, Chamfered & bolected, clad in 2mm thick Sureguard PVC. Glazing System: Around Glass Perimeter: 4mm thick Sealmaster Fireglaze 60, around glass perimeter. Inside Aperture: 54x2 ISL Therm-A-line liner around perimeter of aperture. Specific Feature Being Tested: Sureguard door edge protectors Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476 Part 22:1987
Performance:	Integrity: 60 minutes Insulation: 60 minutes (Glazing not evaluated for insulation)

Test Report WARRES 131998

The referenced test report, summarised below is being used as supplementary evidence for glazing.

Date of test	09.Jun.2003
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	Halspan Ltd.
Tested Product:	1no. Unlatched, uninsulated, glazed, unequal double leaf, single acting, timber doorset. 1no. Unlatched, uninsulated, glazed, unequal double leaf, single acting, timber doorset with overpanel.
Summary of test specimen:	Leaf: Overall Size (Door A): 2040mm (h) x 926/200mm (w) x 44mm (t) Overall Size (Door B): 2040mm (h) x 930mm/200 (w) x 44mm (t) Core: Halspan 'Lite' core (500kg/m3 density) with ash veneer. Lipping: Meranti (500kg/m3), 6mm thick on hanging edges and 19mm on rebated meeting edges. Overpanel (Door B): Overall Size: 660 (h) x 1135 (w) Core: same construction as the door leaves. Intumescent: Head & Jambs/Frame Reveal (Door A): Lorient LP1504 1no 15 x 4mm in leaf hanging edges and LP1004 10 x 4mm in meeting stiles (Door B): Lorient LP1004 1no 10 x 4mm in hanging edges of frame and meeting edges of leaf. Frame: Head & Jambs (Door A): Balcas Speedset Frame, MDF, 70 x 25mm with 25 x 12mm stop. (Door B): Premdor Hedingham, Whitewood, 95 x 35 with 12mm deep stop. Frame Fixing (Door A): Right angled Speedset frame fixing clips every 200mm (Door B): 4no. 120mm long by 5.8mm dia. woodscrews per jamb

Summary of test specimen (continued):	Hardware: (Door A): Hinges: Hingemaster Speedset hinge. Lock/Latch: Era tubular latch, Closer: Briton 2003E closers (Door B): Hinges: Phoenix 7590 hinge. Lock/Latch: Newman Tonks Legge 3" rebate latch (disengaged). Closer: Briton 2003E closers. Hardware Protection: Under Hinges: 2mm interdens Around Latch: 2mm interdens Glazing: Glass: Pyroshield 6mm wired Size (Door A): 595 x 995mm Size (Door B): 621 x 1028mm Beading: MDF (700kg/m^3), 21 high x 25 wide, 45 deg. chamfer and 4mm bolection. Glazing System: Glazing Perimeter: Lorient Flexible Figure 1 glazing system. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS 476: Part 22: 1987
Performance	Integrity: 27 minutes (Door A), 32 minutes (Door B) Insulation: N/A
Reason for Use (if test failed)	Speedset hinge, 6mm Pyroshield glazing, Lorient FF1 glazing system.
Failure Mode (if test failed)	Initial Failure: (Door A): cotton pad test ignition at the top-right corner at 27 minutes. This failure can be isolated in this instance for the specific items of interest (i.e. speedset hinge, Pyroshield and Lorient FF1 glazing system) as the failure is remote from the vicinity of the items. Door design tested was Halspan Lite in reduced thickness MDF frames, which are not covered in this assessment report. Further Failure: No further failure of Door A until the test was terminated at 33 minutes.

Test Report Chilt/RF02081

The referenced test report, summarised below is being used as supplementary evidence for Leaf 2 and glazing.

Date of test	04.Sep.2002
Identification of test body:	Chiltern International Fire Ltd (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Insulated, glazed timber double doorset with overpanel – ULDADD+OP
Summary of test specimen:	Leaf: Overall Size: 2700mm(h) x 824/824mm(w) x 54mm(t) Core: Optima 60 Lipping: 10mm thick radiused to 5mm Sapele (640kg/m3) lippings hanging door edges, 10mm thk to closing edge with radiused corners, bottom edge of O/P 10mm thick. Overpanel: Overall Size: 250 x 1661 x 54 Intumescent: Head & Jambs/Frame Reveal: ISL Therm-a-seal - 2nr 15x4 seals 10mm apart centrally in the frame & underside of O/P Meeting stiles: 2nr 15x4 Therm-a-seal to meeting stile of one leaf. Therm-a-flex 10x2 fitted to C/L of head of the door. ISL Therm-A-Line 35x2 glazing liner & Sealmaster Fireglaze mastic between glass and beads. Frame: Head & Jambs: MDF 700kg/m3 30x100 with small triangles of MDF forming a scalloped profile to hanging jambs – see drawing. Non-combustible threshold to mount floor spring into. Frame fixing: 5nr 100mm x 5mm fixings per jamb (not noted in test report). O/P back fixed with 80mm long screws at 100 c/c. Hardware: Floor Spring: 1nr Dorma BTS80 Floor spring per leaf Top Pivot: 1nr Dorma 8066/8064 top centre pivot per leaf Bottom Straps: 1nr Dorma top and bottom centre straps per leaf Hardware Protection: 2mm Therm-a-flex encasing top centre, top and bottom straps Glazing: Pyrobel 14mm thk L/H leaf 490mm diameter with Sapele Quirk beads & Sureglaze 6mm to R/H leaf 200x500 with Sapele Sq. beads, both fixed with 50mm steel screws @ 30 deg to glass & 10mm thk Sapele Lined apertures

Summary of test specimen (continued):	Specific Feature Being Tested: Large double swing double doorset with O/P – note glazing performance in L/H leaf made 60mins Doorset Orientation: Open towards heating conditions.
Test Standard:	BS 476 Part 22: 1987
Performance	Integrity: 49 minutes Insulation: 49 minutes

Test Report WF426991

The referenced test report, summarised below is being used as supplementary evidence to support decorative grooves.

Date of Test:	20.Mar.2020
Identification of Test Body:	Warringtonfire Testing and Certification Ltd.
Sponsor:	Halspan Ltd.
Tested Product:	Latched, Single Acting, Single Leaf, Timber Doorset with Decorative Grooves– LSASD.
Tested Orientation:	Opening in towards heating condition
Summary of Test Specimen:	<u>Leaf:</u> Overall Size: 2135 (h) x 926 (w) x 44mm (t) Core: Halspan Optima 30 three-layer Particleboard (620kg/m3), 44mm thick Lipping: Sapele (640kg/m3), 6mm thick to all four edges Grooves: 4no. 50 x 8mm with 38 x 4mm polar infill to each face <u>Frame:</u> Head & Jambs: e.g. Redwood (500kg/m3), 100 x 32mm thick, with 32 x 12mm thick planted stop. Frame Fixing: e.g. 4No 6 x 100mm long steel screws per jamb Threshold: N/A <u>Intumescent:</u> Frame Reveal/: 1No 15x4 Halspan twin fin fire and smoke seal. Fitted centrally <u>Hardware:</u> Hinges: 3No Halspan R30 hinges Closer: Halspan R30 power closer Lock/Latch: Halspan latch Lock/Latch Size: Lockcase: 21 x 76 x 15mm, Forend: 60 x 22 x 3mm, Keep: 80 x 40 x 2mm Latch Status: engaged for test Handle: Halspan aluminium lever handle <u>Hardware Protection:</u> Under Hinges: Halspan 1mm thick graphite hinge pads Under Forend & Keep: Halspan 1mm thick interdens Around Lockcase: Halspan 1mm thick interdens.
Test Standard:	BS EN 1634-1:2014
Performance:	Integrity: 37 minutes Insulation: 37 minutes

Test Report Chilt/RF99036

The referenced test report, summarised below is being used as supplementary evidence to support multi pane glazing.

Date of Test:	09.Apr.1999
Identification of Test Body:	Chiltern International Fire Ltd. (now trading as: Warringtonfire Testing & Certification Ltd)
Sponsor:	Halspan Ltd.
Tested Product:	Unlatched, Single Acting, Double Leaf, Timber Doorset with Glazed Apertures– ULSADD.
Tested Orientation:	Opening in towards heating condition
Summary of Test Specimen:	<u>Leaf:</u> Overall Size: 2126 (h) x 915 (w) x 45mm (t) Core: Halspan three-layer particleboard (650kg/m3), 38mm thick Lipping: Sapele (640kg/m3), 10mm thick to vertical edges, with 35 x 2mm deep groove on hanging edge and left leaf meeting edge Facing: 3.6mm thick WBP far eastern plywood Mullions & transom: sapele 45 x 20mm in right leaf glazed aperture <u>Frame:</u> Head & Jambs: Sapele (640kg/m3), 97 x 32mm thick, with 12mm deep integral stop. Architrave: 12.5mm thick plasterboard <u>Intumescent:</u> Frame Reveal: 1no. Aaron Fire Seals graphite 20 x 4mm fitted centrally Leaf Edges: 1no. Aaron Fire Seals 32 x 2 graphite seal in hanging edge Meeting Stiles: 1no. Aaron Fire Seals 32 x 2 graphite seal in left leaf only <u>Hardware:</u> Hinges: 3No Royde & Tucker H105 per jamb Closer: Dorma TS73V Lock/Latch: ES tubular latch Lock/Latch Size: Forend: 57 x 25mm. Lock/Latch Status: disengaged for test Handle: Aluminium lever handles

Summary of Test Specimen (continued):	<u>Glazing (Right Leaf):</u> Glass: Pyroshield, 6mm thick Aperture Size: 2no.945 x 670mm wide & 2no. 590 x 295mm wide Beading: Sapele (640kg/m3), 23 x 19mm high, chamfered & bolected. Bead Fixing: 50mm long steel pins around perimeter of aperture & 32mm long steel pins along mullions and transom, all at 100mm centres <u>Glazing (Left Leaf):</u> Glass: Pyroshield 6mm thick Aperture Size: e.g. 950 x 675mm wide Beading: Sapele (640kg/m3), 23 x 19mm high, chamfered & bolected. Bead Fixing: 50mm long steel pins at 100mm centres <u>Glazing System:</u> Glazing Perimeter- Left leaf: Aaron Fire Seals Exfoguard glazing channel IGC8 15mm high x 1mm deep x 2mm thick walls, between glass & bead. Glazing perimeter- Right leaf: Sealmaster Fireglaze mastic 2mm thick, between glass and beads
Test Standard:	BS 476 Part 22: 1987
Performance:	Integrity: 26 minutes Insulation: 0 minutes
Reason for Use (if test failed)	Supplementary evidence for multi-pane glazing detail
Failure Mode: (if test failed)	Initial Failure: Continuous flaming at bottom of meeting edges at 26 minutes. Failure remote from the glazing detail being included within this assessment. Perimeter intumescent specification detailed in this test report has not been included within the scope of this assessment. The test evidence has therefore been deemed appropriate to support the multi-pane glazing detail with the Halspan Optima design for 30 minutes fire resistance Further Failure: Continuous Flaming at top meeting edges at 44 minutes Further Failure: Continuous Flaming at glazing at 47 minutes

Test Report CFR1903181 Revision 1

The referenced test report, summarised below is being used as supplementary evidence to support the glazing type.

Date of Test:	18.MAR.2019
Identification of Test Body:	Cambridge Fire Research. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Latched Single Acting Double Doorset – LSADD
Tested Orientation:	Opening in towards heating condition
Sampling information:	None
Summary of Test Specimen:	LEAF: Overall Size: 2440 (h) x 1000/1000 (w) x 45mm (t) Core: Halspan Prima core(630kg/m3), 44mm thick Lipping: Sapele (640kg/m3), 6mm thick to vertical edges Facing: 0.5mm thick, Sapele FRAME: Head & Jambs: European Redwood (470kg/m3), 94 x 32mm thick, with 30 x 15mm thick planted stop. Frame Fixing: 5No 5 x 100mm long steel woodscrews per jamb, 2No 870 from each corner. Threshold: Non-combustible INTUMESCENT: Frame Jambs: 1No Halspan SLS-PLA-103, 15x4, 16mm from exposed face of the jambs. Frame Head: 1No Halspan SLS-MSC-404, 25x4, 10mm from the exposed face of the head. Meeting Stiles (Left hand Leaf): 1No. Halspan SLS-MSC-406, 10 x 4, Fitted centrally Meeting Stiles (Right hand Leaf): 2No. Halspan SLS-MSC-406, 10 x 4, Set 7.5mm and 27mm from the exposed face of the leaf. Bottom Leaf Edge: None HARDWARE: Hinges: 4No Halspan Limited 60 HIN-BSS-103 per leaf Closer: 1No R30 Series CLR-AGN-100 per leaf Lock/Latch: 1No. Halspan R30 Lockset LCK-BSS-100 Lock/Latch Size: Lockcase: 164 x 81 x 14mm, Forend: 238 x 22 x 2.8mm, Keep: 180 x 40 x 1.4mm. Lock/Latch Status: Engaged for test Flush Bolt: 2No. Zoo Architectural Hardware ZAS03RSS fixed to the top & bottom of slave leaf. Handle: 1No: Zoo Architectural Hardware Stanza ZCA030SA HARDWARE PROTECTION: Under Hinges: 1mm thick Halspan SLS-PAD-103 Under Forend & Keep: 1mm thick Halspan SLS-PAD-109 Around Lockcase: 1mm thick Halspan SLS-PAD109

Summary of test specimen (continued):	GLAZING (Main Leaf): Glass: Pilkington Pyrodur 30-105, 7mm thick Aperture Size: 992 x 392mm wide Beading: Sapele (640kg/m3*), 19.5 x 21mm high, chamfered & bolected. Bead Fixing: 1.6 x 50mm long pins, at 35* degrees, 150mm centres & 50mm from corners. GLAZING (Slave Leaf): Glass: Pilkington Pyrodur 30-105, 7mm thick Aperture Size: 992 x 392mm wide Beading: Sapele (640kg/m3*), 19.5 x 21mm high, chamfered & bolected. Bead Fixing: 1.6 x 50mm long pins, at 35* degrees, 150mm centres & 50mm from corners. GLAZING SYSTEM: Glazing Perimeter: 10mm wide x 2mm thick, Halspan SLS-MSC-210, fixed inside glazing bead around all sides Glazing Aperture Liner: None
Test Standard:	BS EN 1634-1:2014
Performance:	Integrity: Sustained flaming: 38 minutes Cotton pad test: 35 minutes Gap gauge: 39 minutes Insulation: Glazing: 9 minutes Doors: 35 minutes

* = information was supplied subsequently by the Sponsor

Test Report WF428611

The referenced test report summarised below is being used as supplementary evidence to support 3-point electronic lock and letterplate

Date of Test:	05.JUN.2020
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 0249
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Single Door – LSASD Insulated, timber doorset
Summary of Test Specimen:	Leaf: Overall Size: 2040 (h) x 926 (w) x 44mm (t) Core: Halspan XT30 FD30, 44mm thick Lipping: Sapele, 6mm thick to all four edges Frame: Head and Jambs: Softwood (450 kg/m^3), 75 x 30mm thick, plus 28 x 15mm thick integral stop. Frame Fixing: 5mm x 100mm steel wood screws, 150mm from top and bottom and maximum 600mm centres. Threshold: Exitex MDS 25/5/2 Intumescent: Frame Reveal: 1No 15x4, Halspan SLS-TWF, Graphite based. Weather seal: Schlegel Aquamac 21 fitted in groove in stop. Hardware: Hinges: 4No Halspan HIN-BSS-103 Closer: 1No Halspan 6100 (CLR-CAM-101) Lock/Latch: 1No 3 point lock. The tested closer reference redacted from this summary, please see note below*, (latched but not locked for the test), forend 1720 x 20 x 2.5mm, fitted with lock cylinder (Kinetica Double 3” Euro cylinder). Handle: UAP DH243-DUO-SSS-NANOCOAST, steel lever on backplate Letter plate: TS008 Aluminium letterplate. The tested letterplate reference redacted from this summary, please see note below*, positioned 500mm from foot of leaf Viewer: Zoo ZAB30, at 1500mm above foot of leaf Rain guard: Exitex Deflector 20 Drip moulding Door Chain: Zoo ZAB15

Summary of test specimen (continued):	Hardware Protection: Under Hinges: 1mm thick, Halspan SLS-PAD_103 hinge pads Bedding material for Lock: Halspan SLS-PAD-122 Letter plate: As supplied pre fitted to Letterplate Viewer: 1mm graphite Specific Feature Being Tested: 3 point lock, Letterplate Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS EN 1634-1:2014 + A1:2018
Performance:	**Integrity:** 34 minutes **Insulation:** 34 minutes

*The tested lock and letterplate references are contained in the test report. The details of the tested lock and letterplate has been redacted from this summary as requested by Halspan Ltd for commercial confidentiality. Halspan Ltd has stated that the brand name Halspan 3 point lock and Halspan TS008 Certified Letterplate are identical to the lock and letterplate originally tested and recorded in the test report.

Test Report WF 367904B

The referenced test report summarised below is being used as supplementary evidence to support the Vingcard electronic locks

Date of test	10.Jul.2016
Identification of test body:	Warringtonfire Testing & Certification Ltd
Sponsor:	ASSA ABLOY Hospitality Limited
Tested Product:	2no. Insulated, single acting single doorsets - LSASD
Summary of test specimen:	Doorset A & B are of the same construction Leaf: Overall Size: 2040 (h) x 932 (w) x 44mm (t) Core: Halspan Optima, 3no layer particle board, 44mm thick. Lipping: 8mm thick Sapele (640kg/m3), to vertical edges Frame: Head & Jambs: Softwood (510kg/m3), 72 x 43mm with 12mm deep rebated stop Frame Fixing: 4no 100 x 5.6mm diameter screws along closing jamb & 6no along hinged jamb Intumescent: Head & Jambs: 1no 15x4 Pyroplex CF355 graphite, fitted centrally in rebate.

Test **Report CFR2010021 Doorset A**

The referenced test report summarised below is being used as supplementary evidence to support electronic lock with card reader

Date of Test:	02.Oct.2020
Identification of Test Body:	Cambridge Fire Research Ltd
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Single Door – LSASD A: Left hand specimen, Insulated, unglazed timber doorset
Summary of Test Specimen:	Leaf: Overall Size: 2285 (h) x 855 (w) x 44mm (t) Core: Halspan Prima 30, 43mm thick Lipping: Sapele (618kg/m3), 8mm thick to all four edges Facing: 0.5mm thick, paper veneer Frame: Head & Jambs: Tulipwood (524 kg/m3), 75 x 34mm thick, plus 30 x 16mm thick integral stop. Frame Fixing: 5No 5 x 90mm steel fixing screws per jamb Intumescent: Head and Jambs: 1No 15x4, Halspan SLS-PLA-105 centrally Smoke/Acoustics Seal: 1no 11x11 Halspan SLS-TRI. Fitted up to the upstand of the stop in the frame reveal. Bottom Leaf Edge: None

Summary of test specimen (continued):	Hardware: Hinges: 4No JNF IN 05.020.100 CF SB butt hinges Closer: 1No Dorma ITS96 2-4 concealed closer Electric Lock with Card reader: 1No Salto Mortice Lock LE7Sxx with AElement Fusion, spindle height 865mm above the bottom of door (latch engaged for test) Cylinder with thumbturn: 1No Salto TE010H35PM with escutcheon Handle: Salto R1SWRIA080, brass lever on rose Eye Viewer: JNF IN.23.010.B Kick Plate: 290 (h) x 802 (w) x 1.2mm (t) brass kickplate face fixed with 25mm screws to both faces of door. Drop Seal: Halspan SIS-DRP-308 drop seal Hardware Protection: Under Hinges: None Around Latch body and card reader box, and under strike of Electronic Lock: 1mm thick BASF Interdens Closer: ITS 96 30 minute intumescent pack, 1mm MAP encasing track body, closer body and beneath forend. Specific Feature Being Tested: Electric Lock with Card Reader. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS EN 1634-1:2014 + A1:2018
Performance:	**Integrity:** 38 minutes **Insulation:** 38 minutes

Test **Report CFR2010021 Doorset B**

The referenced test report summarised below is being used as supplementary evidence to support Cableways, Cable loop, Electric Lock, Electric Escape Lock, Electric Strike, Magnetic door contact.

Date of Test:	02.Oct.2020
Identification of Test Body:	Cambridge Fire Research Ltd
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Double Door – LSADD B: Right hand specimen, Insulated, unglazed timber doorset
Summary of Test Specimen:	Leaf: Overall Size: 2440 (h) x 345/825 (w) x 44mm (t) Core: Halspan Prima 30, 44mm thick Lipping: Sapele (680kg/m3), 6mm thick to all four edges Cableway to left hand door: From cable loop, down hanging edge, across base and up meeting edge to strike. Set 29mm deep central to the door thickness with a sapele infill prior to lipping. Includes Cat 6 cable. Cableway to right hand door: From cable loop, horizontally through right hand door to latch at 847mm above base of door, central to door thickness, Prima 30 infill to unexposed face. Includes Cat 6 cable. Frame: Head: Redwood (510 kg/m3), 75 x 45mm thick, plus 30 x 12mm thk pinned stop. Jambs: Redwood (510 kg/m3), 75 x 32mm thick, plus 30 x 12mm thk pinned stop. Frame Fixing: 5No 5 x 90mm steel fixing screws per jamb Intumescent: Frame Reveal: 1No 10x4, Halspan SLS-PLA & 1No 10x4, Halspan SLS-TWF, 10mm apart centrally. Meeting edge: 1No 10x4, Halspan SLS-PLA & 1No 10x4, Halspan SLS-TWF, 10mm apart centrally. Door bottom edge: 2No 10x4, Halspan SLS-PLA 10mm apart centrally

Summary of test specimen (continued):	Hardware: Hinges: 4No Halspan HIN-BSS-104 per jamb Closer: 1No Halpsan CLR-BSS-101 to right hand door Electric Lock: 1No Assa Abloy EL560 Electronic lock case to right hand door, spindle 900mm above bottom of door, with lock cylinder (engaged for test) Handle: Assa Abloy INOXI 3-19/242, stainless steel lever on backplate Electric Escape Lock: Assa Abloy 351U80, concealed to frame head above the right hand door, strike to head of door at 100mm from closing edge of door. Mortice Latch: Assa Abloy 807-12, to right hand door at 1222mm up to bottom of forend (engaged for test) Electric Strike: Assa Abloy EffEff 332.328, electronic mortice strike to left hand door at 1202mm up to bottom of face plate. Magnetic Door Contact: Assa Abloy 1076D, fitted to head of left hand door at 117mm from hanging edge, with corresponding component to frame head. Cable loop: Assa Abloy EA280, fitted at 595mm above the bottom of the right hand jamb and at 1182mm above the bottom of the left hand jamb. Surface bolts: Halspan BLT-BZA-100 to top and bottom of the left hand door, 50mm from meeting edge of leaf (bolted for test) Hardware Protection: Under Hinges: 1 mm thick Graphite, Halspan SLS-PAD-103 Under Forend & Keep and around Lockcase, Electronic Lock: 1mm thick MAP, Halspan SLS-PAD-120 Under Forend & Keep and around Lockcase, Escape Lock: 1mm thick MAP, Halspan SLS-PAD-120 Under Forend and around case, Latch: 1mm thick MAP, Halspan SLS-PAD-120 Under Forend and around all concealed faces, Electronic Strike: 1mm thick MAP, Halspan SLS-PAD-120 Encasing inner body, both components, Door Contact, 1mm thick Graphite, Halspan SLS-PAD-107 Concealed faces, Cable loop recess box: 1mm thick MAP, Halspan SLS-PAD-120 Sleeve encasing Cable through door (not through cable loop): 2mm Graphite sleeve, Sealed Tight Solutions STS CablePro Specific Feature Being Tested: Cableways, Cable loop, Electric Lock, Electric Escape Lock, Electric Strike, Magnetic door contact. Doorset Orientation: Opening towards heating conditions.
Test Standard:	BS EN 1634-1:2014 + A1:2018
Performance:	**Integrity:** 30 minutes **Insulation:** 30 minutes

Test Report RF12065 Revision B

The referenced test report, the essential details of which are summarised below, is supplementary data for the use of the Vistamatic glazing system.

Date of test	10th July 2012	
Testing body	Chiltern International Fire, now trading as Warringtonfire Testing and Certification Ltd. UKAS No 1762	
Sponsor	Vistamatic Ltd	
Tested Product	2No Latched, single leaf, single acting, timber doorsets with vision panels.	
Tested Orientation	Opening into the furnace	
Summary of test specimen (mm)	Both specimens LEAF: Leaf dimensions: 2100 (h) x 1140 (w) x 44 (t) Halspan Prima 44 (t), incorporating 8 (t) Sapele Lippings on vertical edges only. FRAME: Frame: 70 (d) x 32 (w) European Redwood with a 25 (w) x 12 (t) stop. Both Specimens: Intumescent: 1No. 20 x 4 Lorient Polyproducts Ltd Type 617 centrally in the frame reveals to the head and jambs. Specimen A: Glazing Both vision panels utilised a Norseal acrylic mastic (Fire Wizard) as glazing liner nominally 3 (t) and Mann McGowan Pyroglaze30 10x 3 (t) fitted between glass and timber beads. Both apertures included Pyro-EX toughened glass 10 (t) fitted to exposed face, 4 (t) annealed glass as a central pane with 6 (t) Pyro-Ex toughened glass fitted on unexposed face & a stainless steel spacer bar 5.5 (t) fitted between the outer glass layers. Left vision panel: sight size 485 (w) x 985 (h), right panel size: 384 (w) x 1485 (h), expansion allowance 3 all round. Both panels utilised profiled 20 (h) x 17 (d) Sapele beads with 9 x 9 bolection returns and a 15O chamfer fitted to both faces, fixed with 40 (l) steel pins fitted 50 from corners at 150 centres. Specimen B: Glazing Both vision panels utilised a Norseal glazing liner 44 x 1.8 ref: 1.8-408 53/SA and Norseal graphite ref: 2.5-390 x 10/SA fitted between glass and steel beads. Both apertures included Pyro-EX toughened glass 10 (t) fitted to exposed face, 4 (t) annealed glass as a central pane with 6 (t) Pyro-Ex toughened glass fitted on unexposed face & a stainless steel spacer bar 5.5 (t) fitted between the outer glass layers. Left vision panel: sight size 375 (w) x 1473 (h), right panel size: 476 (w) x 976 (h), expansion allowance 3 all round. Both panels utilised profiled 50 x 20 x 2 stainless steel beads fitted on the unexposed face & 50 x 2 stainless steel beading fitted around the glazing aperture on the exposed face. All were fixed with threaded studs welded to unexposed face bead and 40 (l) machine security screws fitted 20 from corners at 170 centres.	
Test Standard	BS EN 1634-1: 2008	
Performance	Doorset A	Doorset B
	Integrity: 30 minutes Insulation: 10 minutes- standard set & glass	Integrity: 34 minutes Insulation: 10 minutes- glass

Test WF403484 (Doorset B)

The referenced test report, the essential details of which are summarised below, is supplementary data for the use of the BetweenGlassBlinds glazing unit with integral blind.

Date of test	14th August 2018
Testing body	Warringtonfire Testing and Certification Ltd. UKAS No 1762
Sponsor	Vistamatic Ltd
Tested Product	1 No Latched, single leaf, single acting, timber doorset with vision panel.
Tested Orientation	Opening into the furnace
Summary of test specimen (mm)	LEAF: Leaf dimensions: 2100 (h) x 1140 (w) x 45 (t) Halspan Prima graduated density particleboard core 44 (t), incorporating 8 (t) Sapele Lippings on vertical edges only (640kg/m³). Lippings applied with Titebond Polyurethane Liquid adhesive. FRAME: Frame: 70 (d) x 32 (w) European Redwood with a 20 (w) x 12 (t) stop. (510kg/m³). Intumescent: 1No. 15 x 4 Lorient Polyproducts Ltd Type 617 centrally in the frame reveals to the head and jambs. Glazing The vision panel utilised a Norseal acrylic mastic (Fire Wizard) as glazing liner nominally 3 (t) and Mann McGowan Pyroglaze30 10x 3 (t) fitted between glass and timber beads. The glazing unit included Pilkington Pyrodur glass 7 (t) fitted to exposed face, 6 (t) Pilkington Optiwhite toughened glass fitted on unexposed face & a stainless steel spacer bar 20 (t) fitted between the outer glass layers. A BGB magnetically operated blind was fitted in 20mm glazing space. This consisted of an aluminium frame and shutter assembly operated with a string pulley system. Vision panel size: 1500 (h) x 600 (w), expansion allowance 3mm all round. Glazing Bead: Profiled 20 (h) x 17 (d) Sapele beads with 9 x 9 bolection returns and a 15° chamfer fitted to both faces, fixed with 60 (l) steel pins fitted 50 from corners at 150 centres and at 35° to the face of the glass.
Test Standard	BS 476 Part 22:1987
Performance	Integrity: 40 minutes Insulation: Not evaluated

Test DMT-DO-50-582-R1

The referenced test report, the essential details of which are summarised below, is supplementary data for the use of DormaKabba RFID equipped lockcases.

Date of test	12th February 2019
Testing body	DMT GmbH & Co. KG
Sponsor	Dormakaba Canada Inc.
Tested Product	4 No Latched, single leaf, single acting, timber doorsets.
Tested Orientation	Doors 1 & 3 opens away from the furnace Doors 2 & 4 opens into the furnace
Summary of test specimen (mm)	LEAF (All Doorsets): Leaf dimensions: 2067 (h) x 904 (w) x 44 (t) Halspan Prima graduated density particleboard core 44 (t), incorporating 10 (t), timber Lippings on all edges. Leaf faced with high pressure laminate. FRAME (All Doorsets): Frame: 70 (d) x 40 (w) hardwood with a 22 (w) x 16 (t) hardwood stop. 50x15mm cover strips at each side of the frame abutting the supporting construction. Intumescent (All Doorsets): 1No. 10 x 4 PVC encapsulated Palusol 100 fitted centrally within frame rebate in the frame jambs and head. Hardware (All Doorsets): Hinges: 3No ASSA Abloy 3228 lift off hinges – 110mm in length. Drop Seal: Planet HS **Lock: Doorsets 1 & 2** DormaKabba 79/RT – mortice lock consisting of ASM mortice, part no. M7X-AXXX1-XXX Lock Dims; 99.7x147x22mm Faceplate: 203.2x25.4. Strike Part No. 50413X-XX / STRIKE ASA Strike Dims: 124x32mmHardware Protection Lockcase wrapped and forend bedded on in 1mm interdens Lever Handles / Backplates: U - Shaped lever handle with backplate housing. Outside (Corridor side) Part No. 069-510983 (no key override) with housing assembly Part No. F79x-10x03xx-xxxresp. Inside (room) Part No. B76-xxxxxx-xxx. The outside housing contained 3 no. AA Alkaline batteries. Lever position: 970mm to spindle height from bottom of door leaf. **Lock: Doorsets 3 & 4** DormaKabba “Quantum Pixel LH” – mortice lock consisting of Mortice Assy - Part No. A70270-HAND, Assy Controller – part No. IS-KP21XXXXXXXX and Assy Reader part No. OS-KP1XXXXX Lock Dims; 69.8mm Controller: 57.9mm Faceplate: 203.2x27.7x1.5mm. Strike Part No. 30320_H-COLOR / ASSY, STRIKE, BUTTONS Strike Dims: 124x32x2.4mm Hardware Protection Lockcase wrapped and forend bedded on in 1mm interdens Lever Handles / Backplates:

	L - Shaped lever handle with rose Outside (Corridor Side), Consierge, Part No. OS-CL1XXXXXXX with lever set Inside (room), Consierge. Part No. IS-CL1XXXXXXX. Thumbturn – Townsteel Part No. MXAS99823-COLOR Lever position: 970mm to spindle height from bottom of door leaf. **Closer:** Door 1 - Dorma TS83BCD EN 2-5 Door 2 - No Closer Door 1 - Dorma TS83BCD EN 3-6 Door 4 – No Closer
Test Standard	BS EN 1634-1: 2014+A1:2018
Performance	Integrity: / Insulation (EI_2) Doorset 1: 46 minutes / 46 minutes Doorset 2: 45 minutes / 45 minutes Doorset 3: 43 Minutes / 43 minutes Doorset 4: 46 Minutes / 46 minutes

Test DMT-DO-50-583-R1

The referenced test report, the essential details of which are summarised below, is supplementary data for the use of DormaKabba Saffire LX Series & Quantum RFID equipped lockcases.

Date of test	14th February 2019
Testing body	DMT GmbH & Co. KG
Sponsor	Dormakaba Canada Inc.
Tested Product	4 No Latched, single leaf, single acting, timber doorsets.
Tested Orientation	Doors 1 & 3 opens away from the furnace Doors 2 & 4 opens into the furnace
Summary of test specimen (mm)	LEAF (All Doorsets): Leaf dimensions: 2067 (h) x 904 (w) x 44 (t) Halspan Prima graduated density particleboard core 44 (t), incorporating 10 (t), timber Lippings on all edges. Leaf faced with high pressure laminate. FRAME (All Doorsets): Frame: 70 (d) x 40 (w) hardwood with a 22 (w) x 16 (t) hardwood stop. 50x15mm cover strips at each side of the frame abutting the supporting construction. Intumescent (All Doorsets): 1No. 10 x 4 PVC encapsulated Palusol 100 fitted centrally within frame rebate in the frame jambs and head. Hardware (All Doorsets): Hinges: 3No ASSA Abloy 3228 lift off hinges – 110mm in length. Drop Seal: Planet HS **Lock: Doorsets 1 & 2** DormaKabba Saffire LX Series – mortice lock consisting of ASM mortice, part no. MSX-AXXX1-XXX and faceplate Lock Dims; 99.7x147x22mm Faceplate: 203.2x25.4. Strike Part No. 50413X-XX / STRIKE ASA Strike Dims: 124x32mm Hardware Protection Lockcase wrapped and forend bedded on in 1mm interdens Lever Handles / Backplates: L - Shaped lever handle with backplate housing. Outside (Corridor side) Part No. FSXXXAKXXXAX-XX with lever 069-515541. Inside (room) Part No. BS-XXXXXX-XX with lever on Part No. 069-515488-1XXX The trim houses 3 no. AA Alkaline batteries. Door gasket housing, Part No. 033-515996 between door and front lock housing assembly. Lever position: 970mm to spindle height from bottom of door leaf. **Lock: Doorsets 3 & 4** DormaKabba "Quantum RFID" – mortice lock consisting of Mortice Assy - Part No. A70000-HAND, and Assy Reader part No. A30940-E-COLOR Lock Dims; 69.8mm Faceplate: 203.2x31.8x1.5mm. Strike Part No. 30320_H-COLOR / ASSY, STRIKE, BUTTONS Strike Dims: 124x32x2.4mm Hardware Protection

	Lockcase wrapped and forend bedded on in 1mm interdens Lever Handles / Backplates: U - Shaped lever handle with rose Outside (Corridor Side),, Part No. OS-LS1XXXXXXX with lever set Inside (room). Inner Trim, Quantum MT, STD, MT4 Part No. IS-QM11XXXXXXXXXX. Mounted using QTM Lever set, Part No. A27850 between door and outside trim & lever set. Lever position: 970mm to spindle height from bottom of door leaf. **Closer:** Door 1 - Dorma TS83BCD EN 2-5 Door 2 - No Closer Door 1 - Dorma TS83BCD EN 3-6 Door 4 – No Closer
Test Standard	BS EN 1634-1: 2014+A1:2018
Performance	Integrity: / Insulation (EI_2) Doorset 1: 43 minutes / 43 minutes Doorset 2: 43 minutes / 43 minutes Doorset 3: 43 Minutes / 43 minutes Doorset 4: 39 Minutes / 43 minutes