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

## Title

Field of Application for:

Halspan® 120 Fire Resisting Doorsets

For 120 minutes Fire Resistance

## Report No.:

BMT/CNA/F15082 Revision H

## Issue Date:

10th February 2025

## Valid Until:

31st March 2027

## Job Reference:

WF542700

## Prepared for:

Halspan Ltd.
Regent House,
Regent Centre,
West Lothian,
EH49 7HU
United Kingdom

**Written permission must be obtained from Halspan Limited in order to manufacture doorsets within the scope of this assessment.**



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.

Registered Office:
Warringtonfire Testing and Certification Limited, 3rd Floor, Davidson Building, 5 Southampton Street, London, WC2E 7HA, United Kingdom Co. Reg. No. 11371436

# Contents

Page No.

# 1 Foreword

This Field of Application report has been commissioned by Halspan Limited and relates to the fire resistance of 120 minute fire resisting doorset designs.

The report is for national application and has been written in accordance with the general principles outlined in BS EN 15725.

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.

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.

[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 Halspan® 120 doorset designs, for 120 minutes fire resistance integrity performance (and where appropriate insulation performance), if the doorset designs were to be tested to the requirements of BS 476-22: 1987, *Methods for determination of the fire resistance of non-loadbearing 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.

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 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.
- All dimensions detailed herein may be varied by ±2% except where minimum, maximum or a range of dimensions are given.
- Where morticed items of hardware are used (within the leaf or frame) it is assumed that the preparation for such items are tight to the item (and where applicable intumescent protection) as tested with no excessive gaps, unless stated otherwise within a particular section of this report.

# 3 Test Data

The test evidence summarised below has been generated to support the fire resistance performance of the door designs that are the subject of this field of application. The summary details are considered to be the key aspects of the design tested. These test summaries are not intended to be a definitive guide to constructing a doorset. The details for the construction of a doorset must be taken from other sections within this Field of Application.

**Note:**

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

The test evidence has been generated across a number of different doorset configurations, including single leaf and double leaf, latched doorsets.

Some of the test evidence used in the evaluation is over 5 years old. In accordance with industry guidance, the evidence has been reviewed to consider its suitability. Warringtonfire are satisfied that there have been no significant revisions to the relevant test standards which would render the evidence irrelevant.

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.

It is therefore the opinion of Warringtonfire that the evidence citied in the following section, tested to both named standards referenced above can be utilised in this assessment which will conclude in terms of the fire resistance performance of the Halspan® 120 doorset designs if tested in accordance with BS 476: Part 22: 1987.

## 3.1 Primary Test Evidence

The following summaries are provided to give the key details relevant to the tested specimen. Throughout this assessment report, relevant sections will reference the tests where it they have been used to provide the scope of application.

### 3.1.1 Test Report CFR1502171 Revision 1

The referenced test report, the essential details of which are summarised below, is the primary data for the single & double leaf door designs being considered for assessment in this report.

| | | | |
|---|---|---|---|
| Date of test | 17.02.2015 | | |
| Identification of test body: | Cambridge Fire Research Ltd (UKAS No. 4319) | | |
| Sponsor: | Halspan Ltd. | | |
| Tested Product: | Doorset A:<br>latched, unglazed double leaf, single acting, timber doorset - LSADD<br>Doorset B:<br>latched, unglazed single leaf, single acting, timber doorset - LSASD | | |
| Tested Orientation: | Doorset orientated to open toward heating conditions. | | |
| Sampling Information: | None detailed | | |
| Summary of test specimen: | Leaf:<br>Dimensions of leaf (Doorset A): 2395 (h) x 915/300 (w) x 62 (t)<br>Dimensions of leaf (Doorset B): 2395mm (h) x 915mm (w) x 62mm (t)<br>Core / lipping: Halspan Prima particleboard core 30 (t) with 12 (t) MgO board inner facing, 3 (t) MDF outer facing and 0.8 (t) high pressure laminate veneer, lipped vertical edges 3 (t) Sapele<br>Intumescent:<br>Halspan 120 seal kit used as perimeter seals. 2No 20 x 4 seals in frame, 30 x 2 graphite seal in all leaf edges (concealed under lipping on verticals), 20 x 4 in meeting edges of double leaf (two in secondary leaf and one in leaf containing the latch), 10 x 2 phosphate seal fitted to the face of the stops in contact with the leaf.<br>Frame:<br>Sapele 44 (t) x 120 (d) with 18 (t) stop.<br>Frame fixing: 120 (l) steel frame fixings, 5No per jamb<br>Hardware:<br>Hinges: Halspan 120 hinges (4no. per leaf),<br>Lock: Halspan 120 lock,<br>Closer: Halspan 120 power closer,<br>Handle: Aluminium handles,<br>Bolt (Doorset A): Barza surface mounted bolts on secondary leaf<br>Hardware protection:<br>Halspan 2 (t) hinge pads and lock protection | | |
| Test Standard: | BS 476: Part 22: 1987 | | |
| Performance | | Integrity (minutes): | Insulation (minutes): |
| | Doorset A | 142 | 142 |
| | Doorset B | 142 | 142 |

### 3.1.2 Test Report WF151387

The referenced test report, the essential details of which are summarised below, is the primary data for the door design with HALSPAN® R120 glazing system, being considered for assessment in this report.

| | | | |
|---|---|---|---|
| Date of test | 31.01.2006 | | |
| Identification of test body: | Warringtonfire Testing and Certification (UKAS No 0249) | | |
| Sponsor: | Halspan Ltd. | | |
| Tested Product: | Doorset B:<br>Latched, glazed single leaf, single acting, timber doorset – LSASD | | |
| Tested Orientation: | Doorset orientated to open toward heating conditions. | | |
| Sampling Information: | None detailed | | |
| Summary of test specimen: | Leaf:<br>Dimensions of leaf : 2075 (h) x 915 (w) x 64 (t)<br>Core / lipping: Halspan 3No layers of particleboard 38 (t), 10 (t) Glasroc GRG multiboard inner facing, 3 (t) Fibreboard outer facing with Sapele vertical lipping 10 (t) inner lipping and 3 (t) outer lipping.<br>Intumescent:<br>Halspan 120 seal kit used as perimeter seals. 2No 20 x 4 seals fitted in frame head and jambs, 15 x 2 graphite seal fitted under the outer lipping on the vertical edges and top of the door leaf, 38 x 2 graphite seal in bottom of door<br>Frame:<br>Sapele 44 (t) x 110 (d) with 18 (d) stop<br>Frame fixing: 5no. 90mm long no.10 screws per jamb<br>Hardware:<br>Hinges: Royde & Tucker 207 hinges (3no. per leaf),<br>Latch/Lock: Legge latch<br>Closer: Dorma TS83 closer<br>Hardware protection:<br>Hinges: 2mm Therm-A-Strip under hinge blades<br>Glazing:<br>5mm Firelite 389 (w) x 689 (h) with HALSPAN® R120 glazing kit | | |
| Test Standard: | BS 476: Part 22: 1987 | | |
| Performance | | Integrity (minutes): | Insulation (minutes): |
| | Doorset B | 129 | 129 |

### 3.1.3 Test Report CFR1911291 Doorset A

The referenced test report, the essential details of which are summarised below, is the primary data for the door design with Fire & Acoustic Foam + Sealant used in the supporting construction to frame gap, being considered for assessment in this report.

| | | | |
|---|---|---|---|
| Date of test | 29.11.2019 | | |
| Identification of test body: | Cambridge Fire Research Ltd (UKAS No. 4319) | | |
| Sponsor: | Halspan Ltd. | | |
| Tested Product: | Doorset A:<br>Latched, unglazed single leaf, single acting, timber doorset - LSASD | | |
| Tested Orientation: | Doorset orientated to open toward heating conditions. | | |
| Sampling Information: | BM Trada, PS191002, 21st and 22nd October 2019 | | |
| Summary of test specimen: | Leaf:<br>Dimensions of leaf: 2350 (h) x 1000 (w) x 62 (t)<br>Core / lipping: Halspan 3 layer particleboard 32 (t), 12 (t) MgO board inner facing, 3 (t) MDF outer facing, Lipped vertical edges only with 3 (t) Sapele<br>Intumescent:<br>Halspan 120 seal kit used as perimeter seals. 2No 20 x 4 seals fitted in frame, 30 x 2 graphite seal fitted in leaf edge concealed under vertical lipping and to top and bottom of leaf 10 x 2 phosphate seal fitted to the stop edge in contact with the leaf.<br>Frame:<br>Sapele 132 (d) x 44 (t) with 17 (t) stop<br>Frame fixing: 5.8 dia. x 100 (l) steel screws 150mm up, 150mm down and 3no. equispaced<br>Hardware:<br>Hinges: 4no. Vier s/s butt hinges,<br>Closer: Halspan R9000 (120 power) closer,<br>Latch/Lock: Halspan R60 lock, forend size: 233 x 22<br>Cylinder: Vier euro cylinder,<br>Handle: Aluminium lever handles<br>Hardware protection:<br>Hinges: 2mm Halspan hinge pads,<br>Latch/Lock: 2mm Halspan lock protection<br>Supporting construction to door frame fire stopping element: Fire & Acoustic Seals Ltd foam and capped with 10mm deep Fire & Acoustic Intumescent Acrylic Sealant firestopping detail with plastic packers with no architrave. | | |
| Test Standard: | BS EN 1634-1 | | |
| Performance | | Integrity (minutes)[1]: | Insulation (minutes): |
| | Doorset A | 103 | 103 |

[1] The doorset failed at 103 minutes at the top closing corner, resulting in integrity failure. No failures occurred at the fire stopping element between the supporting construction and door frame gap, with the test terminating at 120 minutes. This test was conducted to BS EN 1634-1, which for the reasons explained in section 3 results in more onerous test conditions for tested doorsets when compared with the BS 476: Part 22: 1987, it is therefore the opinion of Warringtonfire that the failure of the doorset in the above test does not undermine the conclusions of this assessment.

### 3.1.4 Test Report SJ038

The referenced test report, the essential details of which are summarised below, is the primary data for the door design with steel frame backfilled with cement, being considered for assessment in this report.

| | | |
|---|---|---|
| Date of test | 02.04.2019 | |
| Identification of test body: | Thomas Bell-Wright International Consultants (UKAS No. 4439) | |
| Sponsor: | Halspan Ltd. | |
| Tested Product: | Latched, glazed double leaf, single acting, timber leaf in steel frame - LSADD | |
| Tested Orientation: | Doorset orientated to open toward heating conditions. | |
| Sampling Information: | None detailed | |
| Summary of test specimen: | Leaf:<br>Dimensions of leaf : 2350 (h) x 1150/1150 (w) x 60 (t) 61.2 (t) with veneer<br>Core / lipping: Halspan 3 layer particleboard core 30 thk, 12 thk MgO board inner facing, 3 (t) MDF outer facing, 0.6 (t) Maple veneer with 4 (t) Sapele lipping to vertical edges and 0.6 (t) maple veneer<br>Intumescent:<br>Halspan 60 x 1 seal in frame, 30 x 2 seals concealed under lippings at vertical edges and in leaf head and bottom of leaf, 20 x 4 in meeting stiles (2no. fitted centrally 10 apart in secondary leaf and one fitted centrally in the leaf containing the latch)<br>Frame:<br>Proprietary cold rolled galvanised steel frame 1.5 (t), 122 (d) x 67 (w) including 16 (d) stop backfilled with mortar grout<br>Frame fixing: M10 x 112mm long anchor bolts – 6No per jamb<br>Hardware:<br>Hinges: Halspan BOM-HIN-300 hinge- 4 per leaf,<br>Handle: Aluminium lever handles,<br>Latch/Lock: Halspan BOM-LCK-103 lock,<br>Cylinder: EUROART cylinder,<br>Closer: Halspan CLR-BSS-103 closer,<br>Bolt: Barza surface mounted bolts on inactive leaf<br>Hardware protection:<br>Hinges: 2mm Halspan hinge pads,<br>Latch/Lock: 2mm Halspan lock protection<br>Glazing:<br>5mm Firelite glass in 1.5 (t) steel beads with Halspan SLS-GLZ-108 glazing kit | |
| Test Standard: | BS 476: Part 22: 1987 | |
| Performance | Integrity (minutes) | Insulation (minutes) |
| | 130 | 130 |

### 3.1.5 Test Report BMT/FEP/F15069A

The referenced test report, the essential details of which are summarised below, is the primary data for the door design incorporating a Norsound drop seal being considered for assessment in this report.

| | | |
|---|---|---|
| Date of test | 15.04.2015 | |
| Identification of test body: | BM Trada, now trading as Warringtonfire Testing and Certification (UKAS No 1726) | |
| Sponsor: | Halspan Ltd. | |
| Tested Product: | Latched, unglazed single leaf, single acting, timber doorset - LSASD | |
| Tested Orientation: | Doorset orientated to open toward heating conditions. | |
| Sampling Information: | None detailed | |
| Summary of test specimen: | Leaf:<br>Dimensions of leaf : 2395mm (h) x 915mm (w) x 62mm (t)<br>Core / lipping: Halspan 3 layers of particleboard Prima plus 30 (t), 12 (t) MgO board inner facing, 3 (t) MDF outer facing and HPL laminated veneer with 3 (t) Sapele lipping to vertical edges<br>Intumescent:<br>Halspan 120 seal kit used as perimeter seals. 2No 20 x 4 seals fitted in frame and a 30 x 2 fitted to all leaf edges (beneath lipping on vertical edges).<br>NOR810dB+ drop seal in leaf threshold<br>Frame:<br>Sapele 45 (t) x 120 (d) with 18 (t) stop<br>Architrave: 45 (w) x 18 (t) MDF architrave<br>Frame fixing: 8 dia. x 100 (l) screws - 4no. per jamb<br>Hardware:<br>Hinges: 4no. Royde & Tucker H107 lift off hinges,<br>Closer: Halspan R120 power closer,<br>Latch/Lock: Halspan R120 lock,<br>Handle: Aluminium lever handles<br>Hardware protection:<br>Hinges: 2mm Halspan hinge pads,<br>Latch/Lock: 2mm Halspan lock protection | |
| Test Standard: | BS 476: Part 22: 1987 | |
| Performance | Integrity (minutes): | Insulation (minutes): |
| | 122 | 122 |

### 3.1.6 Test Report CFR1406171 Revision 1

The referenced test report, the essential details of which are summarised below, is the primary data for the door design incorporating Firelite SF glass being considered for assessment in this report.

4No specimens were tested, only specimens 3 and 4 are relevant to this assessment.

| | | | |
|---|---|---|---|
| Date of Test: | 17.June.2014 | | |
| Identification of Test Body: | Cambridge Fire Research Ltd (UKAS No. 4319) | | |
| Sponsor: | Southern Ceramic Supplies Ltd | | |
| Tested Product: | Specimen 3 & 4:<br>Firelite SF glazing assembly | | |
| Tested Orientation: | Specimen 3 – Tested with the film towards the heating conditions.<br>Specimen 4 – Tested with the film away from the heating conditions. | | |
| Sampling information: | No sampling report included in test report | | |
| Summary of Test Specimen: | Glazing (Specimen 3 & 4):<br>Glass Type: Southern Ceramic Supplies, FireLite Glass-SF<br>Glass Size: 630 (h) x 630 (w) x 5 (t)<br>Setting Blocks: 5 (h) x 80 (w) x 10 (d)<br>Frame: Profile Glazing Systems Limited, Forster Presto 32.851, 70 (h) x 50 (d).<br>Beading: Profile Glazing Systems Limited, Beading comprises an ERW rectangular hollow steel section, 20 (h) x 30 (d) x 2 (t)<br>Glazing Seal: Profile Glazing Systems Limited, Ceramic Fibre Tape, 15 (w) x 4 (t) uncompressed. | | |
| Test Standard: | BS EN 1634-1:1999 | | |
| Performance: | | Integrity (minutes): | Insulation (minutes): |
| | Specimen 3 | Sustained flaming: 260*<br>Cotton pad test: 15<br>Gap gauge: 260* | Not measured |
| | Specimen 4 | Sustained flaming: 260*<br>Cotton pad test: 16<br>Gap gauge: 260* | Not measured |
| | * no failure, the test having been discontinued. | | |

### 3.1.7 Test Report CFR2103301

The referenced test report, the essential details of which are summarised below, is the primary data for the door design with extended leaf width for single doorsets being considered for assessment in this report.

| | | | |
|---|---|---|---|
| Date of Test: | 30.March.2021 | | |
| Identification of Test Body: | Cambridge Fire Research Ltd (UKAS No. 4319) | | |
| Sponsor: | Halspan Ltd | | |
| Tested Product: | Right hand doorset:<br>LSASD - Latched Single Acting Single Doorset | | |
| Tested Orientation: | Opening inwards towards the heating condition | | |
| Sampling information: | None detailed | | |
| Summary of Test Specimen: | Leaf:<br>Overall Size: 2390 (h) x 1050 (w) x 61(t)<br>Core: Halspan Ltd, Prima (630kg/m3), 31 (t)<br>Sub-facings: MgO, 12 (t)<br>Facings: MDF (700kg/m3), 3 (t)<br>Lipping: Sapele hardwood (640kg/m3), 3 (t) to vertical edges<br>Frame:<br>Head & Jambs: Sapele hardwood (640kg/m3), 140 (d) x 44 (t) excluding stop.<br>Stop: 18 (h) x 32 (d) planted.<br>Frame Fixing: 5.9 (dia) x 99 (l) steel screws, 5No per jamb.<br>Fire Stopping:<br>Gaps between the frame and the supporting construction were filled with ST99 FR Foam and capped with Sealed Tight Solutions ST88 Intumescent Acrylic Sealant.<br>Intumescent:<br>Frame Reveal: Halspan Ltd (part of SLS-KIT-152), 2No 20x4 PVC encased intumescent strips (1No with twin fin). Fitted centrally 10mm apart in the frame reveal.<br>Stop: Halspan Ltd (part of SLS-KIT-152), 10x2 intumescent strip. Fitted to exposed face of stop, against the face of the leaf.<br>Leaf Edges (Horizontal edges): Halspan Ltd (part of SLS-KIT-152), 30x2 intumescent strip. Fitted centrally to top and bottom edges of the leaf.<br>Leaf Edges (Vertical edges): Halspan Ltd (part of SLS-KIT-152), 30x2 intumescent strip. Fitted centrally concealed behind the lippings in the vertical edges of the leaf.<br>Hardware:<br>Hinges: Halspan Ltd HIN-BSS-108 (part of BOM-HIN-104), 4No butt hinges.<br>Closer: Halspan Ltd 9000 series Power Closer CLR-BSS-100.<br>Latch/Lock: Halspan Ltd LCK-BSS-101(part of BOM-LCK103), mortice sash lock<br>Handle: Halspan Ltd LCK-MSC-200<br>Euro Cylinder: Vier Precision Design V5EP80CTSC<br>Escutcheon: Halspan Ltd LCK-MSC-209<br>Hardware Protection:<br>Hinges: Halspan Ltd SLS-PAD-123 (part of BOM-HIN-104), 2 (t) beneath all hinge blades<br>Latch/Lock: Halspan Ltd SLS-PAD-105 kit (part of BOM-LCK-103), 2 (t) to all faces of latch body and beneath strike and forend.<br>Escutcheon: Halspan Ltd SLS-PAD 120, 1 (t) to inside of escutcheon cover.<br>Glazing:<br>None | | |
| Test Standard: | BS 476: Part 22: 1987 | | |
| Performance: | | Integrity (minutes): | Insulation (minutes): |
| | Doorset B | 140** | 130 |
| | ** no failure, the test having been discontinued | | |

### 3.1.8 Test Report CFR2103091 Revision 1

The referenced test report, the essential details of which are summarised below, is the primary data for the door design incorporating Halspan sash lock LCK-BSS-104 and HDF facings being considered for assessment in this report.

| | |
|---|---|
| Date of Test: | 09.March.2021 |
| Identification of Test Body: | Cambridge Fire Research Ltd (UKAS No. 4319) |
| Sponsor: | Halspan Ltd |
| Tested Product: | Doorset A, B & C:<br>LSASD - Latched Single Acting Single Doorset |
| Tested Orientation: | Opening inwards towards the heating condition |
| Sampling information: | BM Trada, SC21011, 2nd and 4th March 2021 |
| Summary of Test Specimen: | Leaf (Doorset A, B & C):<br>Overall Size: 2041 (h) x 619 (w) x 62(t)<br>Core: Halspan Ltd, Prima (630kg/m3), 30 (t)<br>Sub-facings: MgO board, 12 (t)<br>Facings (Doorset A only): HDF (920kg/m3), 3 (t)<br>Facings (Doorset B & C only): MDF (740kg/m3), 3 (t)<br>Lipping: Sapele hardwood (640kg/m3), 3 (t) to vertical edges<br>Frame (Doorset A, B & C):<br>Head & Jambs: Sapele hardwood (640kg/m3), 120 (d) x 44 (t) excluding stop.<br>Stop: 18 (h) x 32 (d) planted.<br>Frame Fixing: 5.9 (dia) x 99 (l) steel screws, 5No per jamb.<br>Fire Stopping (Doorset A, B & C):<br>Gaps between the frame and the supporting construction were filled with ST99 B1 FR Foam Fire rated Expanding Foam and capped with Sealed Tight Solutions ST88 Intumescent Acrylic Sealant.<br>Intumescent (Doorset A, B & C):<br>Frame Reveal: Halspan Ltd (part of SLS-KIT-152), 2No 20x4 PVC encased intumescent strips (1No fire only & 1No fire & smoke seals). Fitted centrally 10mm apart in the frame reveal.<br>Stop: Halspan Ltd (part of SLS-KIT-152), 10x2 intumescent strip. Fitted to exposed face of stop, against the face of the leaf.<br>Leaf Edges (Horizontal edges): Halspan Ltd (part of SLS-KIT-152), 30x2 intumescent strip. Fitted centrally to top and bottom edges of the leaf.<br>Leaf Edges (Vertical edges): Halspan Ltd (part of SLS-KIT-152), 30x2 intumescent strip. Fitted centrally concealed behind the lippings in the vertical edges of the leaf.<br>Hardware (Doorset A, B & C):<br>Hinges: Halspan Ltd HIN-BSS-108 (part of BOM-HIN-104), 3No butt hinges.<br>Closer: Halspan Ltd 9000 series Power Closer CLR-BSS-100.<br>Latch/Lock: Halspan Ltd LCK-BSS-104, mortice sash lock.<br>Handle: Halspan Ltd LCK-MSC-200<br>Euro Cylinder: Vier Precision Design V5EP80CTSCE<br>Escutcheon: Halspan Ltd LCK-MSC-209<br>Hardware Protection (Doorset A, B & C):<br>Hinges: Halspan Ltd SLS-PAD-123 (part of BOM-HIN-104), 2 (t) beneath all hinge blades<br>Latch/Lock: Halspan Ltd SLS-PAD-105 kit (part of BOM-LCK-103), 2 (t) to all faces of latch body and beneath strike and forend.<br>Escutcheon: Halspan Ltd SLS-PAD 120, 1 (t) to inside of escutcheon cover.<br>Glazing (Doorset A, B & C):<br>None |

| Test Standard: | BS EN 1634-1:2014 + A1:2018 | | |
|---|---|---|---|
| Performance: | | Integrity (minutes): | Insulation (minutes): |
| | Doorset A | Sustained flaming: 121<br>Cotton pad test: 122**<br>Gap gauge: 122** | Maximum set: 118<br>Average set: 118 |
| | Doorset B | Sustained flaming: 130<br>Cotton pad test: 131**<br>Gap gauge: 131** | Maximum set: 116<br>Average set: 116 |
| | Doorset C | Sustained flaming: 128<br>Cotton pad test: 131**<br>Gap gauge: 131** | Maximum set: 128<br>Average set: 128 |
| | ** no failure, the test having been discontinued | | |

# 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

### 4.3.1 Leaf Option 1 – Halspan® 120

The construction for door leaves of this design comprises a 3 layer particleboard core with a layer of MgO and MDF or HDF facings and lipped on the vertical edges only, refer to section 5.1 of this report for further constructional details.

The minimum door core thickness is 30mm.

The minimum door leaf (3 layer particleboard core + MgO and MDF facings) thickness without permitted decorative facings/finishes is 60mm.

The minimum door leaf (3 layer particleboard core + MgO and MDF facings) thickness with decorative facing/finishes is 61mm

The door designs can include:

1. Glazing
2. Decorative facings
3. Decorative mouldings

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

Section 5 gives the description of leaf type in terms of composition and density etc.

## 4.4 Door Frames

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

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

### 4.4.1 Frame Option 1 – Timber

The construction of the door frame includes the following material. For further information on the specification and construction of the door frames see section 7.1.

1. Hardwood timber frame (excluding Beech, Fagus sylvatica and other related species).

### 4.4.2 Frame Option 2 – Galvanised steel backfilled with cement

The construction of the door frame includes the following materials. For further information on the specification and construction of the door frames see section 7.2.

1. Galvanised Steel.

## 4.5 Doorset Configurations & Maximum Leaf Sizes

### 4.5.1 General

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

1. The margin of over performance above 120 minutes integrity for the design
2. The characteristics exhibited during test and
3. The doorset configuration tested

The evaluation of the permitted configurations included in this field of application is based on the configuration(s) tested. The principle is that the more components included in testing, for example, the meeting edge of double leaf doorset – the harder it becomes to pass a test. In this specific example it is because the junction between two door leaves introduces a discontinuity into the doorset which can be a means of failure. This approach leads to the following statements:

1. A test on a double doorset is more onerous than a test on a single doorset

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

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

### 4.5.2 Configuration

The table below shows the permitted configurations for the (Halspan® 120) doorset design, with the abbreviation and full description of each configuration.

The following sections details the assessed maximum leaf size envelopes for each permitted configuration based on the intumescent specification and door frame tested.

| **Doorset Configurations** | | |
|---|---|---|
| Depiction | Abbreviation | Description |
|  | LSASD | Latched Single Acting Single Doorset |
|  | LSADD | Latched Single Acting Double Doorset |

### 4.5.3 Orientation

The 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. In all instances double doorsets must be fitted with surface-mounted bolts on the non-fire risk side of the inactive leaf, as tested.

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.

### 4.5.4 Envelopes for each Configurations

The following sections detail the door leaf envelopes which indicate the permitted leaf sizes for the listed configurations based on the perimeter intumescent, door leaf option and door frame.

Unequal leaf double doorsets are covered by this assessment provided that all the following criteria are met:

- The relevant door leaf envelopes are not exceeded.
- Door leaf widths are no smaller than 300mm.

For equal double doorsets both leaves must comply with the door leaf envelope size limitations.

Single acting double doorsets are only considered acceptable when the leaves are hung to open in the same direction.

A table of essential hardware is given in section 10.2 for each doorset configuration, as a minimum requirement for the doorset described. Changes to hardware can affect the intumescent specification and frame details which are subsequently considered for each specific hardware component, where required.

#### 4.5.4.1 General Note on Intumescent Seals

- Intumescent seals are to be fitted centrally to the thickness of the leaf unless stated otherwise.
- Intumescent seals are fully interrupted at hardware locations unless stated otherwise.
- Intumescent seals must run the full length of the leaf edge or frame reveals, with tightly formed abutting corner joints, unless stated otherwise.
- Vertical perimeter intumescent seals may include one tight butt joint in their length if needed.
    - Where two seals are fitted, the joints must be offset by a minimum of 100mm and may not be coincident.
    - Where one seal is fitted the joint must be in the lower half of the doorset.
- Intumescent seals are not to be concealed below lippings, unless specifically stated.

#### 4.5.4.2 Explanation for following sections

The performance of a doorset in terms of configuration and size is dependent on the leaf type, perimeter intumescent used and frame type. These elements are not automatically interchangeable. The following sections present the envelopes for the one leaf type and two frame types. Each envelope is linked to a specific perimeter 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 LSADD.
- 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.

#### 4.5.4.3 Summary of Permitted Configurations for (Halspan® 120) Leaf & Frame 1-2

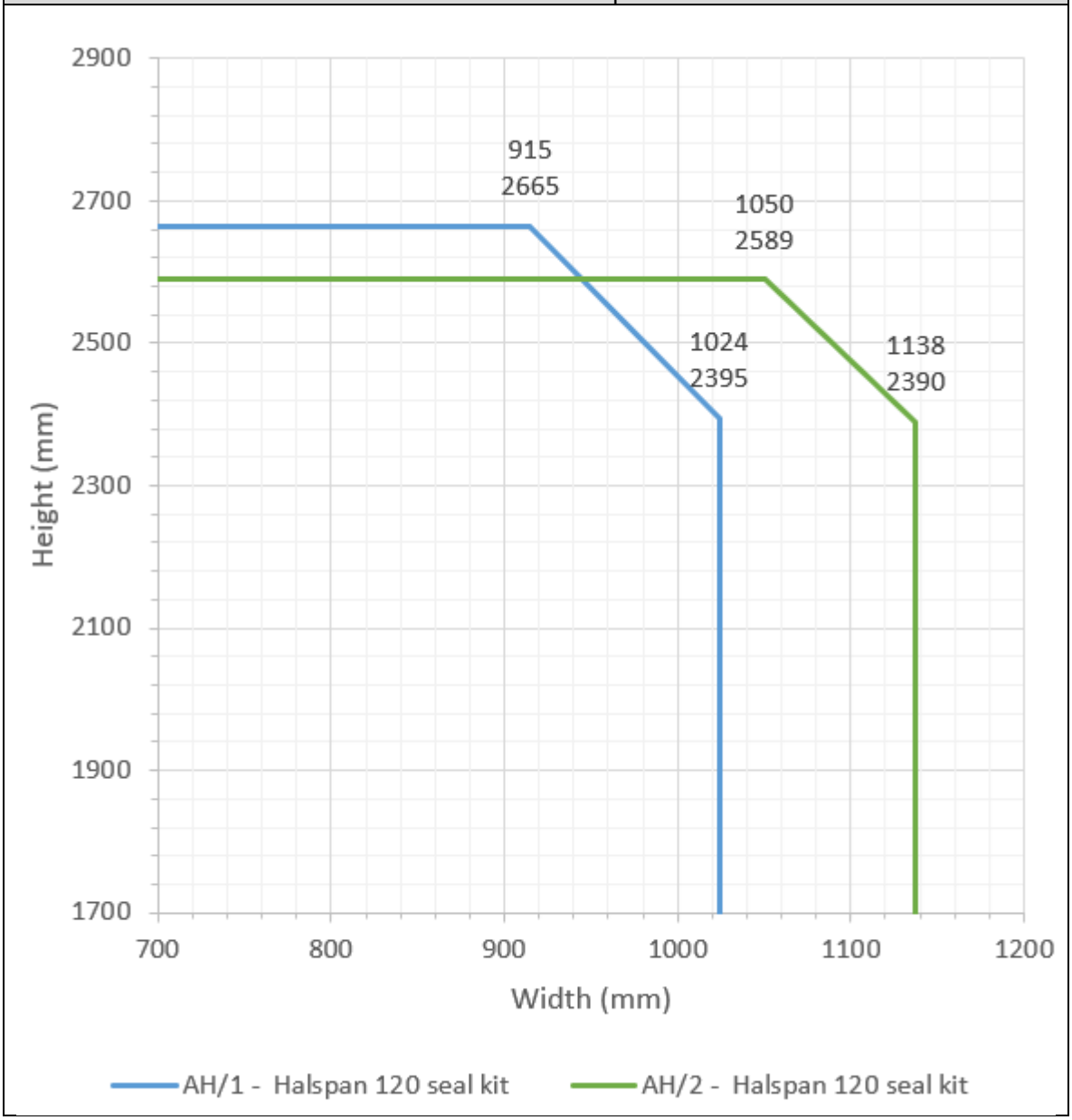
| Permitted Configurations with frame types 1-2 with leaf type 1 (Halspan® 120) | | | |
|---|---|---|---|
| Frame | | Configuration | |
| | | LSASD | LSADD |
| 1 | Hardwood frame* | Yes | Yes |
| 2 | Steel frame* | Yes | Yes |

* See Section 7 for specific limitations with respect to the framing types

### 4.5.5 LSASD – Leaf Sizes & Intumescent Seals

#### 4.5.5.1 Leaf 1 Frame 1 (Timber frame)

Leaf Size Envelope

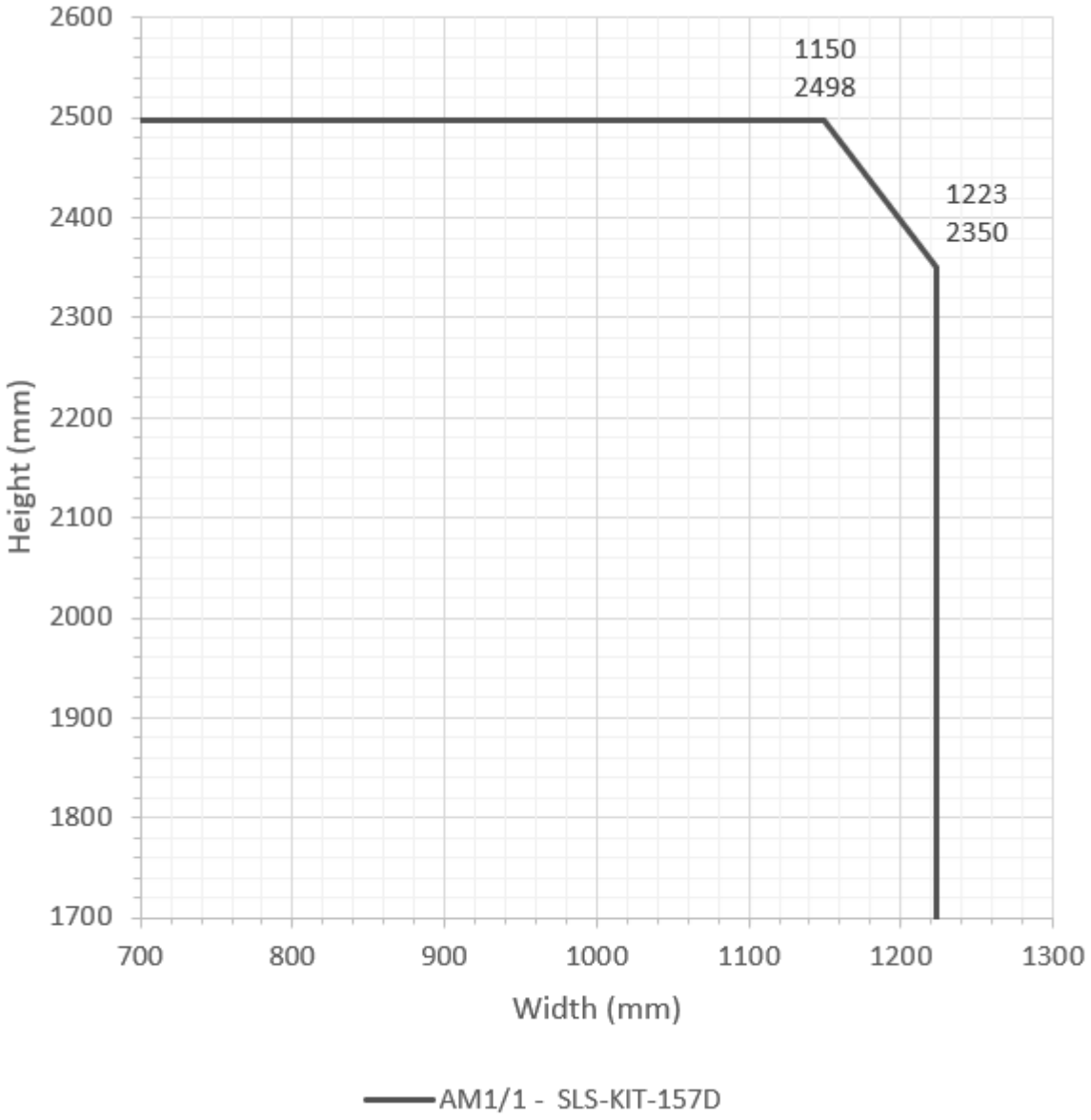



| Intumescent Seal Specification | | | | |
|---|---|---|---|---|
| Ref. | Make / Type | Manufacturer / Supplier | Quantity, Size & Location | Test evidence |
| AH/1 | Halspan Timber frame 120 seal kit (Single doorsets) | Halspan Ltd | Head & Jambs:<br>2No 20 x 4mm graphite seal fitted 10mm apart in the frame reveal.<br>Leaf edges:<br>1No 30 x 2mm graphite seal in all leaf edges (concealed under the lippings on vertical edges only).<br>Stop:<br>1No 10 x 2mm phosphate seal fitted to the face of the stops in contact with the leaf. | CFR1502171 Rev 1 |

| | | | | |
|---|---|---|---|---|
| AH/2 | Halspan Timber frame 120 seal kit (Single doorsets) | Halspan Ltd | Head & Jambs:<br>2No 20 x 4mm graphite seal fitted 10mm apart in the frame reveal.<br>Leaf edges:<br>1No 30 x 2mm graphite seal in all leaf edges (concealed under the lippings on vertical edges only).<br>Stop:<br>1No 10 x 2mm phosphate seal fitted to the face of the stops in contact with the leaf. | CFR2103301 |

### 4.5.5.2 Leaf 1 Frame 2 (Steel frame)

Leaf Size Envelope

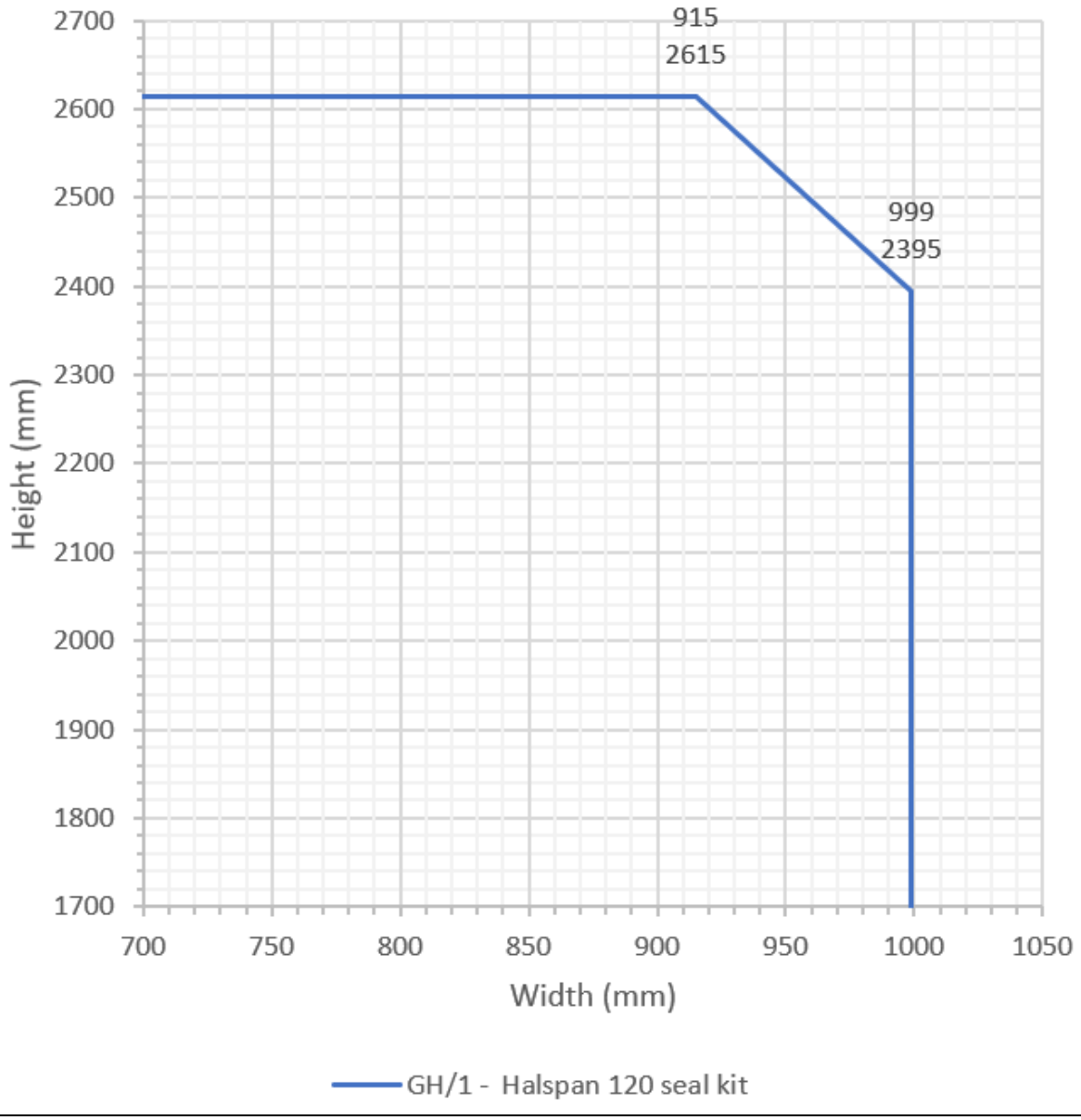



| Intumescent Seal Specification | | | | |
|---|---|---|---|---|
| Ref. | Make / Type | Manufacturer / Supplier | Quantity, Size & Location | Test evidence |
| AM1/1 | Halspan Steel frame 120 seal kit (Single doorsets) | Halspan Ltd | Head & Jambs:<br>1No 60 x 1mm seal in the frame reveals.<br>Leaf edges:<br>1No 30 x 2mm graphite seal in all leaf edges (concealed under the lippings on vertical edges only) | SJ038 |

### 4.5.6 LSADD – Leaf sizes & Intumescent Seals

#### 4.5.6.1 Leaf 1 Frame 1 (Timber frame)

Leaf Size Envelope

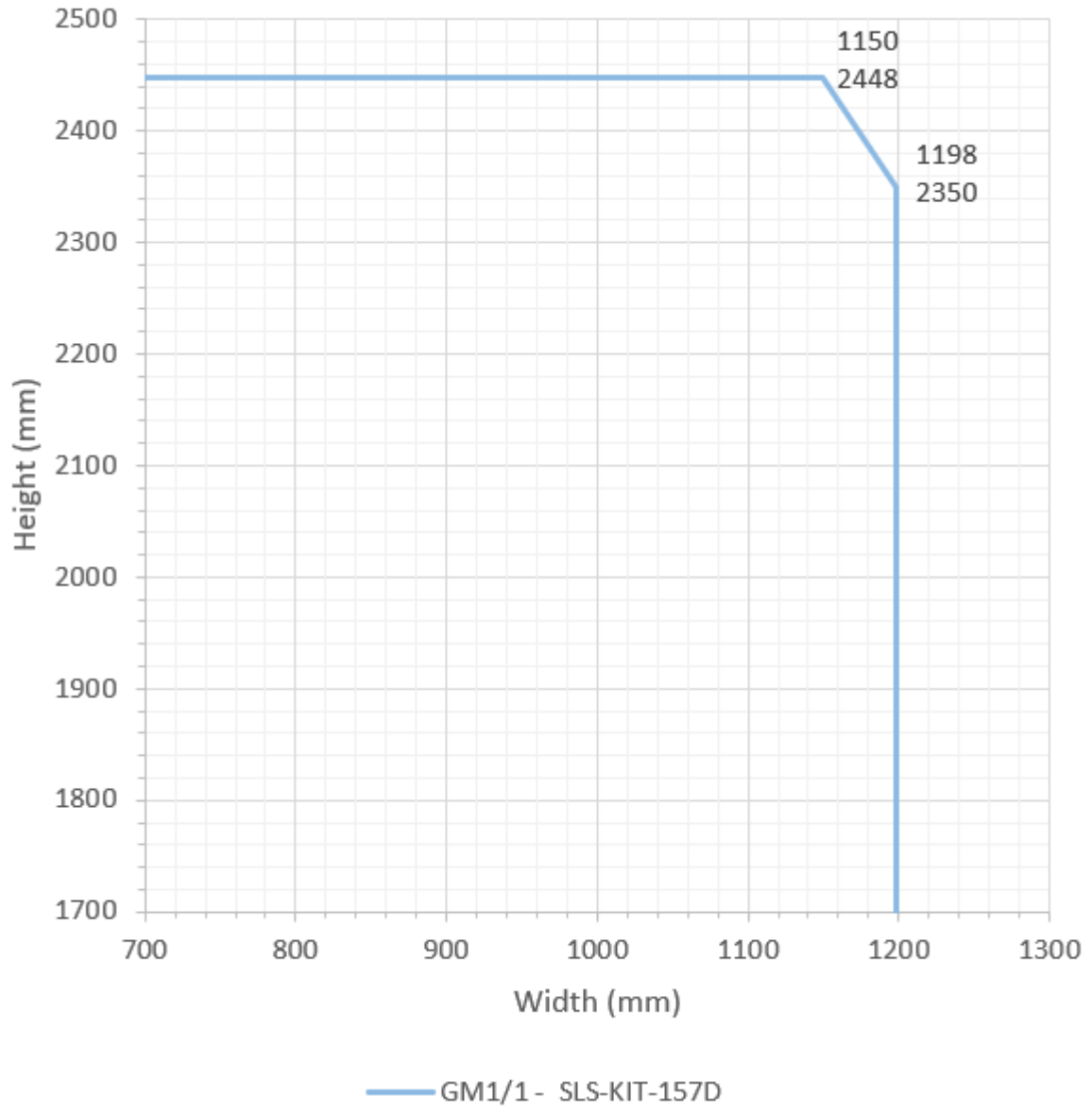



| Intumescent Seal Specification | | | | |
|---|---|---|---|---|
| Ref. | Make / Type | Manufacturer / Supplier | Quantity, Size & Location | Test evidence |
| GH/1 | Halspan Timber frame 120 seal kit (Double doorsets) | Halspan Ltd | Head & Jambs:<br>2No 20 x 4mm graphite seal fitted 10mm apart in the frame reveal.<br>Leaf edges (top, bottom & hanging edges only):<br>1No 30 x 2mm graphite seal in leaf edges (concealed under the lippings on hanging edges only).<br>Meeting edge: | CFR1502171 Rev 1 |

| | | | | |
|---|---|---|---|---|
| | | | 2No 20 x 4mm in meeting edge of secondary leaf, fitted centrally 10mm apart, and 1No 20 x 4mm fitted in the meeting edge of leaf containing the latch<br><u>Stop:</u><br>1No 10 x 2mm phosphate seal fitted to the face of the stops in contact with the leaf. | |

### 4.5.6.2 Leaf 1 Frame 2 (Steel frame)

Leaf Size Envelope




| Intumescent Seal Specification | | | | |
|---|---|---|---|---|
| Ref. | Make / Type | Manufacturer / Supplier | Quantity, Size & Location | Test evidence |
| GM1/1 | Halspan Steel frame 120 seal kit (Double doorsets) | Halspan Ltd | Head & Jambs:<br>1No 60 x 1mm seal in the frame reveals.<br>Leaf edges (top, bottom & hanging edges only):<br>1No 30 x 2mm graphite seal in leaf edges (concealed under the lippings on hanging edges only).<br>Meeting edge:<br>2No 20 x 4mm in meeting edge of secondary leaf, fitted centrally 10mm apart, and 1No 20 x 4mm fitted in the meeting edge of leaf containing the latch | SJ038 |

# 5 General Description of Leaf Construction

## 5.1 Leaf Core Construction

The one door leaf option detailed below is approved by this assessment.

## 5.2 Leaf Option 1 – Halspan® 120

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

| Halspan® 120 Door Leaf Construction Details | | | | | |
|---|---|---|---|---|---|
| Element | | Material | | Dimensions (mm) | Minimum Density (kg/m$^3$) |
| Core | | Halspan® Prima Particleboard | | 30-31 thick | 630 ±10% |
| Facings | Inner | Magnesium Oxide (MgO) Board | | 12 thick | 950-1100 |
| | Middle | MDF | | 3 thick | 740 |
| | | HDF (see note) | | | 900 |
| | Outer | Decorative facing (see section 5.3) | | (see section 5.3) | |
| Adhesive | Facings | Inner | Water-based inorganic | - | - |
| | | Outer | PU or PVA | - | - |
| | Lippings | PU | | - | - |
| | Veneer | PVA | | - | - |
| Lippings – vertical edges only | | Hardwood | | 3 or 4 thick (see section 5.2) | 640 |

The overall minimum leaf thickness (without decorative finishes) is 60mm thick.
The overall minimum leaf thickness (with decorative finishes) is 61mm thick.

Note:

HDF facings have been successfully tested and detailed in test report CFR2103091 Revision 1.

## 5.3 Leaf Size Adjustment During Manufacturing

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 5.4 and the concealed intumescent refitted as stated in section 9. |
| Lipping | It is permitted to apply thicker lippings during production to aide the lipping process providing the lippings are subsequently reduced to the dimensions detailed in section 5.4 before production is completed. For example, 6mm lippings applied but then reduced to 3mm. |

## 5.4 Timber Lipping – Leaf type 1

On the basis of the testing documented in section 3, Halspan® 120 doorsets must be lipped on the vertical edges only, in accordance with the following specification.

| Halspan® 120 Doorset Lipping Specification | | |
|---|---|---|
| Material | Size (mm) | Min Density ($kg/m^3$) |
| Hardwood (not Beech *fagus species*) | 1). Flat used with Timber Frame = 3 thick | 640 |
| | 2). Flat used with Steel Frame = 4 thick | |
| | 3) Rounded = Not permitted | |
| | 4) Rebated = Not permitted | |

**Notes:**

1. All lippings are to be the same thickness as the door leaf.
2. For lipping adhesives see section 8

## 5.5 Decorative & Protective Facings

The Halspan® 120 door design has been tested with 0.8 thick HPL decorative facings and also without decorative 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 therefore permitted to the leaf (as specified in section 5.2) for this door design since they would have limited influence under fire resistance test conditions.

| **Decorative & Protective Facing Specification** | |
|---|---|
| Facing Material | Maximum Permitted Thickness (mm) |
| Paint[5] | 0.2 |
| Timber veneers[3] | 2 |
| Plastic laminates[3] | 2 |
| PVC[3] | 2 |
| Cellulosic and non-metallic foils[3] | 0.4 |

**Notes:**

1. Metallic facings are not permitted except for push plates and kick plates
2. The door leaf thickness may be reduced on both sides by a maximum of 0.5mm for calibration purposes in order to accommodate the chosen finish. See section 5.1 for minimum overall leaf thickness requirements.
3. Materials may over sail lippings but must not return around leaf edges.
4. For all options, materials must not conceal intumescent strips.
5. Intumescent paints are not permitted.

Decorative finishes listed above may be painted within the limits for paint finish, above.

## 5.6 Decorative Planted on Timber Mouldings

Decorative mouldings can be applied to Halspan® 120 door leaves 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 with no mechanical fixings
7. Are bonded using any glue which is suitable for bonding the lipping of the door.

# 6 Glazing within the Leaf

## 6.1 General

The testing conducted on Halspan® 120 in test WF151387 and SJ038 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 is 0.5m² per leaf.
- Glazed openings must not be less than 175mm from any door edge.
- Multiple apertures are acceptable within the permitted glazed area, with a minimum dimension of 160mm of door core separating the apertures.

This door design has not been tested with multiple apertures but in the opinion of Warringtonfire when a distance of 160mm is used to separate the apertures along with the MgO board which forms part of the leaf design, sufficient structural integrity will remain between the apertures during the fire test and any charring around the glazed aperture will not be affected by the adjacent aperture.

## 6.2 Glass & Glazing Systems

At this level of performance, the glazing system is a bespoke design and must remain as tested. A sectional drawing detailing the tested system is shown below.

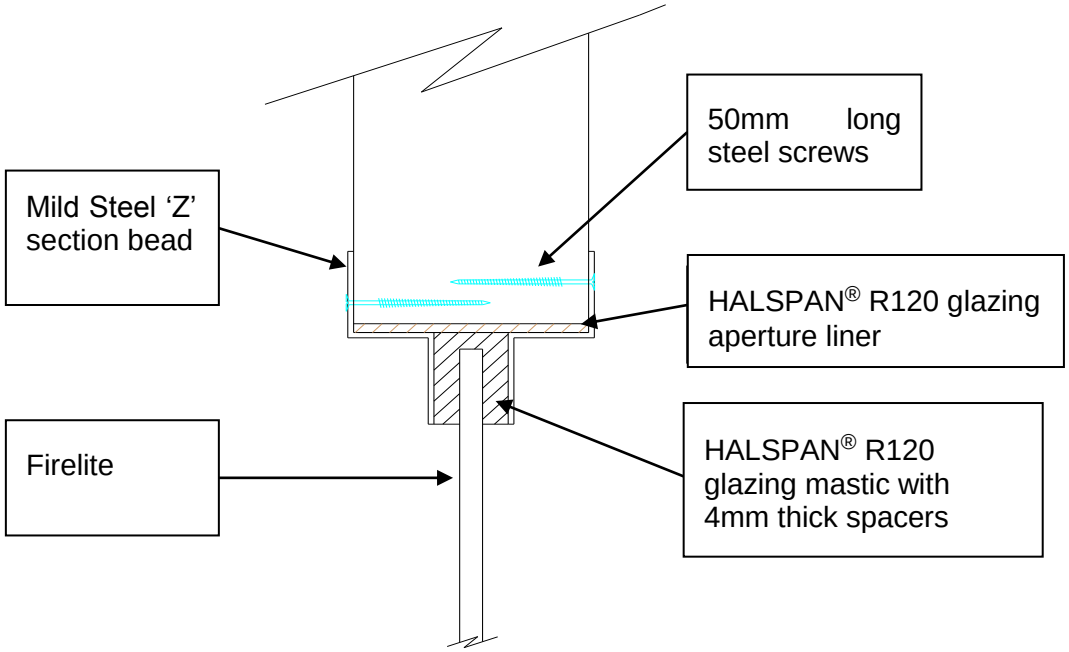
| Glazing Option 1 – Halspan SLS-GLZ-100 Glazing System | |
|---|---|
| **Component** | **Product** |
| Glass | 5mm thick Firelite or Firelite SF |
| Glazing beads | 25mm high x 25mm deep x 1.5mm thick Z profiled mild steel with a 20mm bolection return. |
| Fixings | 50mm x 4.1mm diameter steel woodscrews and brass cups @ 150mm centres horizontally through the face. |
| Glazing System | HALSPAN® R120 glazing kit; comprising mastic, aperture liner and spacers ref: SLS-GLZ-100 |

| Glazing Option 2 – Halspan SLS-GLZ-108 Glazing System | |
|---|---|
| **Component** | **Product** |
| Glass | 5mm thick Firelite or Firelite SF |
| Glazing beads | 23.5mm high x 23mm deep x 1.5mm thick Z profiled mild steel with a 25mm bolection return. |
| Fixings | Ø6mm bolts appropriate to the door leaf thickness fixed 40mm from the edges and @ 150 centres horizontally through the face. Silicon Sealant applied to hole prior to fixing. |
| Glazing System | HALSPAN® R120 glazing kit; comprising 25 x 5mm Ceramic Tape, 60 x 2mm aperture liner and 5mm thick setting blocks ref: SLS-GLZ-108 |

Note:

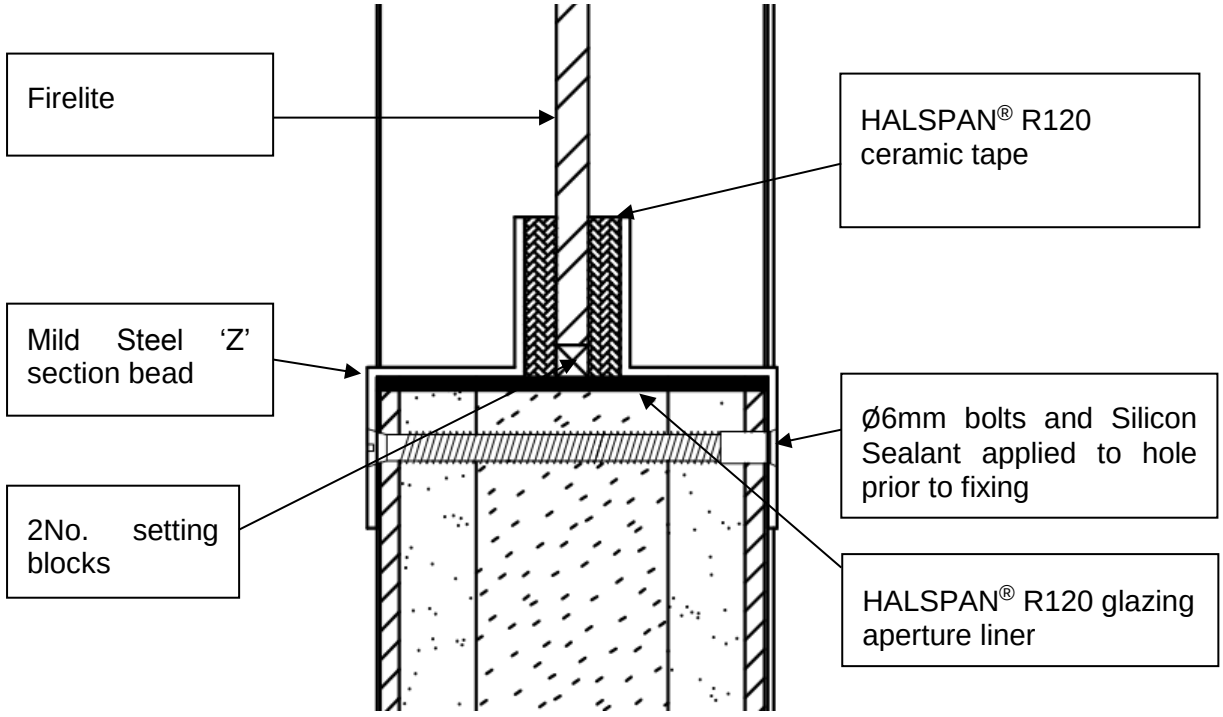
1. HALSPAN® R120 glazing kit details are held in confidence by Warringtonfire in file number WF428270, as tested in reports WF151387 and SJ038.
2. Aperture shapes considered herein are rectilinear and as such are permitted unless alternative shapes are detailed within this document for specific glass or glazing systems.
3. Apertures cannot be rotated (e.g. a square to be rotated to create a diamond effect) unless explicitly stated within this document for specific glass or glazing systems.
4. False timber beads must not be applied across the glass face.
5. Firelite SF glass has been successfully tested and detailed in test report CFR1406171 Revision 1 with the safety film on both the exposed and unexposed faces.

The figures below are example illustration of the tested glazing assembly




**(A): Glazing option 1 – HALSPAN® R120 Glazing kit - SLS-GLZ-100**

**Comprising: mastic, aperture liner and spacers**




**(B): Glazing option 2 – HALSPAN® R120 Glazing kit – SLS-GLZ-108**

**Comprising: ceramic tape, aperture liner and spacers**

# 7 Door Frame Construction

## 7.1 Details for Frame 1 (Timber)

The door frame listed below is the minimum size and density which have been successfully tested and assessed by this report. The frame must be constructed to meet the following specification:

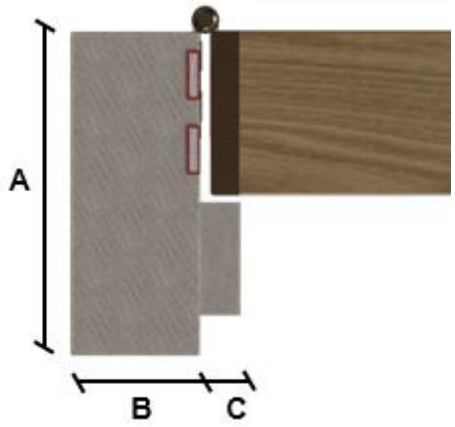
| Frame specification | | | | |
|---|---|---|---|---|
| Frame type | Material | Minimum section size (mm) | Minimum density ($kg/m^3$) | Acceptable leaf type |
| 1 | Hardwood:<br>The use of Beech (*Fagus species*) is NOT permitted. | Frame: 70 (d) x 44 (w)<br>(excluding stop)<br>Stop: 18 (w)<br>(integral or planted on) | 640 | Leaf 1 |

**Note:**

1. Rounded or rebated quirk edges to door frames are not permitted
2. Frame joints must be as detailed in section 7.1.2.

### 7.1.1 Standard frame detail

The diagram below shows detail of the standard frame construction.




A: Frame depth = 70mm minimum

B: Frame width = 44mm minimum

C: Stop width = 18mm minimum

### 7.1.2 Door Frame Joints – Frame 1

Frame joints must be mortice and tenoned, and require mechanical fixing with the appropriate size screws. Please note that the drawing depicted below is provided as a general illustration; actual construction in terms of intumescent seal location and material, etc. must be as the text within this document specifies.

The door frame joints are required to be tight, with no gaps, and require mechanical fixing with the appropriate size ring shank nails or screws. Frame joints may additionally be reinforced with any of the adhesives approved for the application of lippings, on the basis that the approved lipping adhesive has been proven to contribute to the positive fire resistance performance of the timber to timber junction at the door leaf edge.

### 7.1.3 Decorative Facings – Frame 1

Relatively thin 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.

The following additional facing materials are therefore permitted to the Frame 1 for this doorset design, including frame reveal, since they would have limited influence under fire resistance test conditions.

| Decorative & Protective Facing Specification | |
|---|---|
| Facing Material | Maximum Permitted Thickness (mm) |
| Paint[3] | 0.2 |
| Timber veneers | 0.7 |

**Notes:**

1. Facing materials not listed above are not permitted.
2. For all options, materials must not conceal intumescent strips.
3. Intumescent paints are not permitted.

Decorative finishes listed above may be painted within the limits for paint finish, above.

## 7.2 Details for Frame 2 (Steel)

Door frame option 2 for Halspan® 120 doorsets is based on test reference SJ038 and must be steel and constructed as follows.

| Door Frame Option 2 Specification for Halspan® 120 Doorsets | | |
|---|---|---|
| Material | Section Size (mm) | Backfilled |
| Steel (see note 1) | 120 minimum x 67 1.5 - 1.88 thick | Cement[3] |

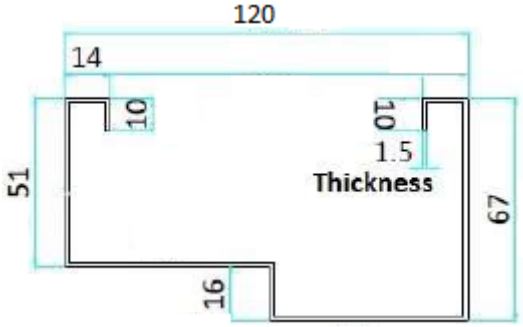
Note:

1. Proprietary cold rolled Galvanised Steel.
2. Integral stop measuring 16mm deep (see diagram below).
3. The frame must be backfilled with cement based mortar.
4. Hollow frames are not permitted.
5. The steel frame must be installed in a blockwork construction as shown in the diagram in section 11.2.2.
6. Steel anchor plates measuring 119 x 50 x 3mm must be spot welded to the rear of the frame at the frame fixing points. If the frame depth is increased, then the 119mm dimension of the anchor plate must be increased by the same amount.
7. Steel hinge mortar guards measuring 180 x 50 x 3.2mm must be spot welded over the hinge reinforcement.
8. Steel hinge reinforcements measuring 150 x 32 x 3.8mm must be spot welded onto the backside of the frame rebate at the hinge positions specified in section 10.4.2.

On the basis of the principles specified in BS EN15269-3: 2022 *Extended application of test results for fire resistance* section B.2.11 and B.2.12, the steel frame material thickness can be increased by a maximum of 25% and may not be decreased. This is factored into the thickness specified in the table above.

On the basis of the principles specified in BS EN15269-3: 2022 *Extended application of test results for fire resistance* section B.2.1 and B.2.3, the frame depth may not be reduced; and it may be increased without limit to allow for different wall thickness as long as the frame reveal (where the leaf is received into the frame) dimensions are maintained. The frame width must remain as tested. This is factored into the frame section size specified in the table above.

The following diagram depicts the assessed frame profiles and dimensions:




**Example illustration of steel frame (Frame Option 2)**

# 8 Adhesives

The following adhesives must be used in the construction of the doorsets. These may be hand applied or may be applied using mechanical means such as edgebanders for lippings and glue rollers for facings. With either method it must be ensured that sufficient glue is applied across the entire surface area between the 2No substrates being adhered to guarantee a robust bond. Other guidance provided by the adhesive manufacturer should be followed, for either installation application used.

| Adhesive Specification for Leaf Construction | | |
|---|---|---|
| Element | | Product |
| Facings | Inner (MgO board to core) | Water-based inorganic |
| | Outer (MDF or HDF board to MgO board) | PU |
| Lippings | | PU or PUR |
| Decorative Facings | | PU or PVA or Contact adhesive |

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.

Note:
Halspan 120 cores are supplied as pre-bonded cores. The only adhesives relevant to the doorset manufacture are those for the lippings and the decorative facings. The adhesives for the bonding of the core to facings are given in the table above for reference only.

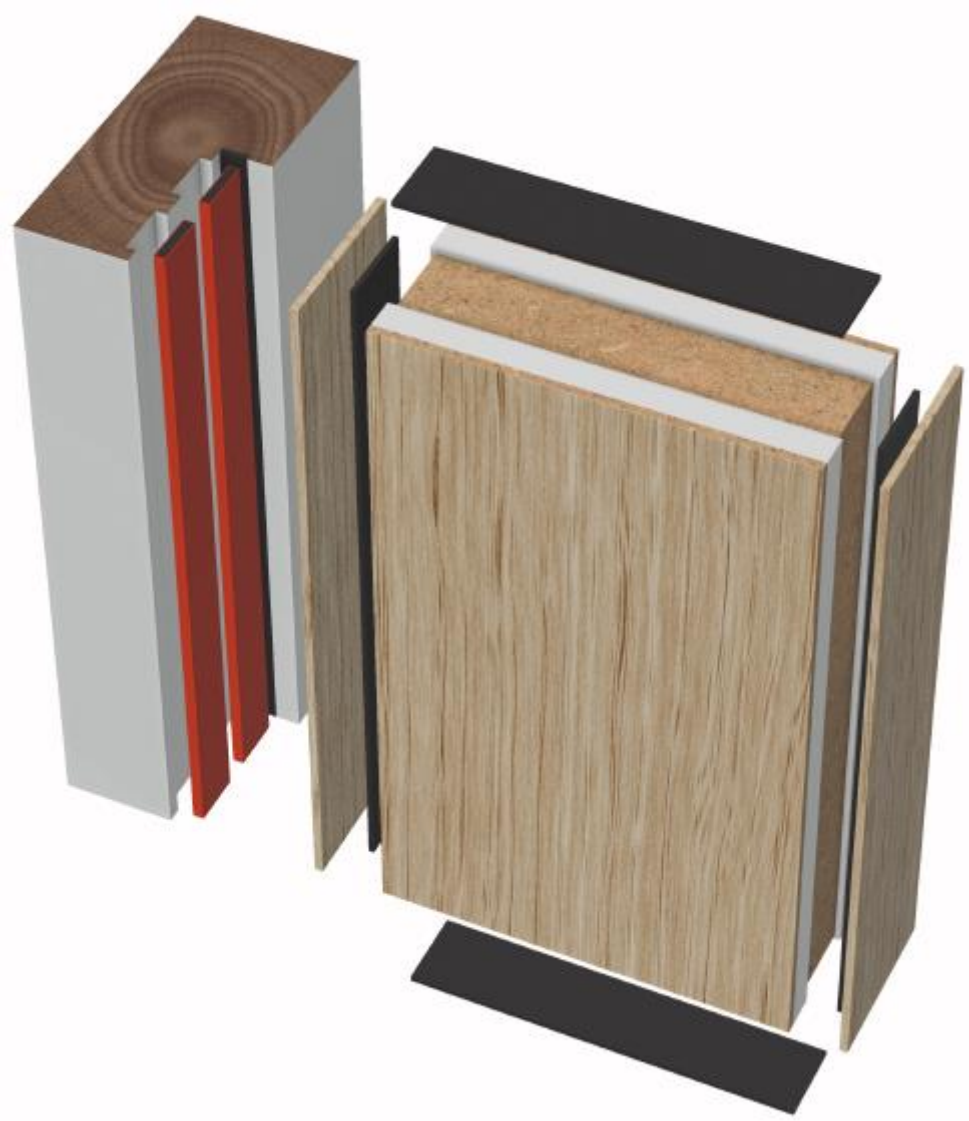
# 9 Intumescent

The intumescent materials tested and assessed for this doorset design are split into the 2 frame options and are as follows;

All seals are supplied by Halspan.

## 9.1 Door Edge Intumescent Seal – Timber Frames

| Intumescent Specification Timber frame | | | |
|---|---|---|---|
| Application | | Location | Dimensions |
| Perimeter seals | Timber Frame (Single Doorset) | Frame Head & Jambs | 2No 20x4mm intumescent seals fitted 5mm either side of the centreline. 1No seal may incorporate smoke sealing. Fitted in the frame reveal. |
| | | Leaf Head and Threshold | 1No. 30x2mm graphite seal fitted centrally in leaf edge. |
| | | Leaf Vertical Edges | 1No. 30x2mm graphite seal fitted centrally under the lippings (Concealed). |
| | | Door stop | 1No. 10x2mm phosphate based seal fitted to the face of the stop in contact with the leaf. |
| | Timber Frame (Double Doorsets) | Frame Head & Jambs | 2No 20x4mm intumescent seals fitted 5mm either side of the centreline. 1No seal may incorporate smoke sealing. Fitted in the frame reveal. |
| | | Leaf Head and Threshold | 1No. 30x2mm graphite seal fitted centrally in leaf edge. |
| | | Leaf Hanging Edge | 1No. 30x2mm graphite seal fitted centrally under the lippings (Concealed). |
| | | Meeting Edges | 1No. 20x4mm intumescent seal fitted centrally in the leaf edge with latch. 2No. 20x4mm intumescent seals fitted 5mm either side of the centreline in leaf edge with surface mounted bolts. |
| | | Door stop | 1No. 10x2mm phosphate based seal fitted to the face of the stop in contact with the leaf. |

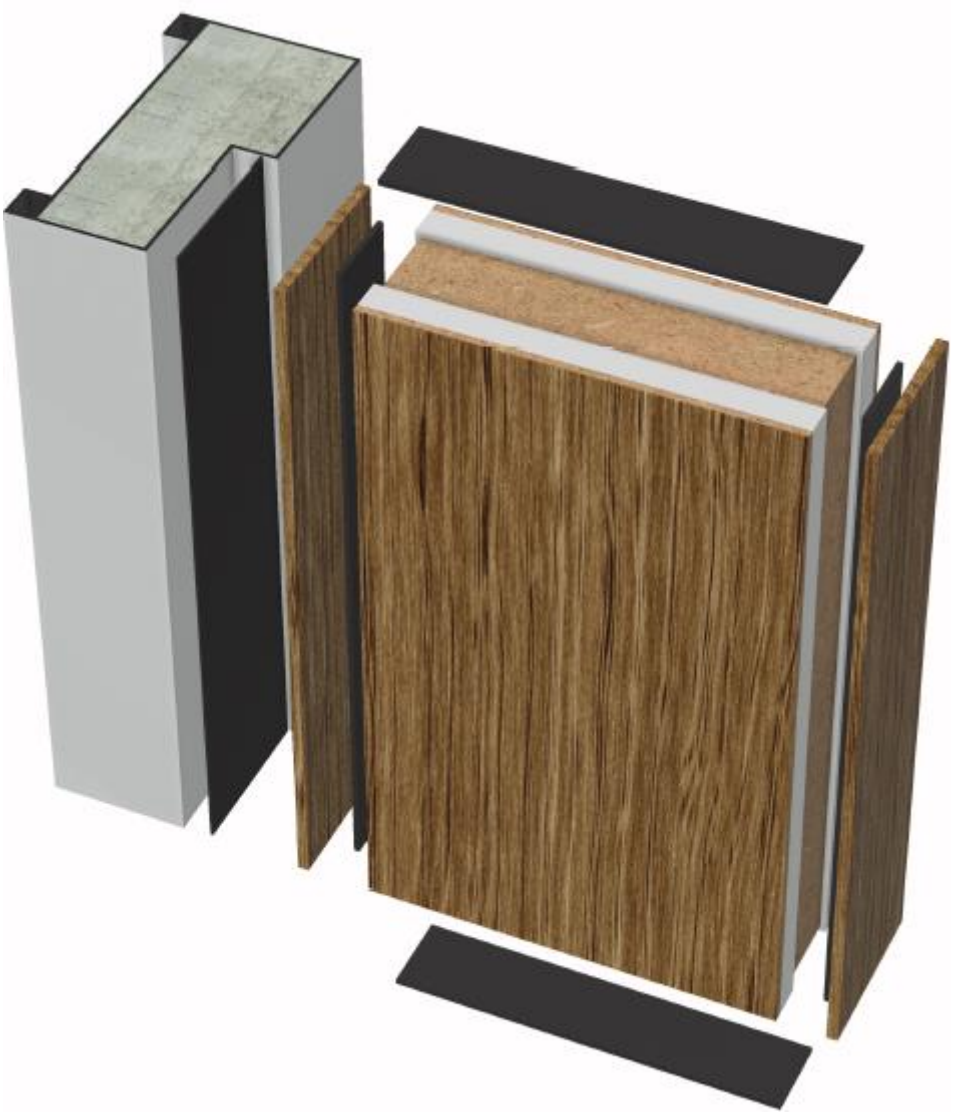


(A): Timber framed single door intumescent seal arrangement

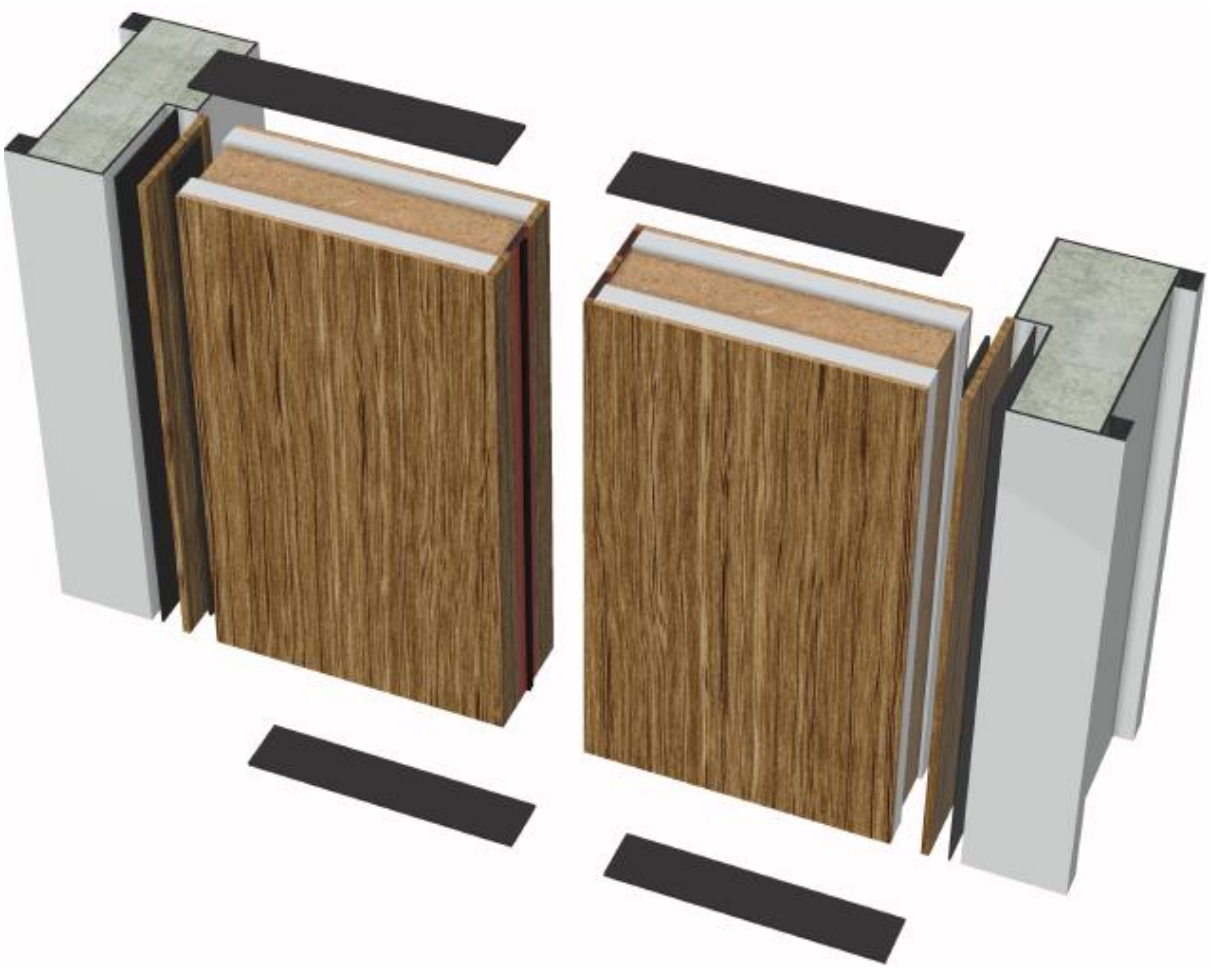
(B): Timber framed double door intumescent seal arrangement

## 9.2 Door Edge Intumescent Seal – Steel Frames

| Intumescent Specification steel frames | | | |
|---|---|---|---|
| Application | | Location | Dimensions |
| Perimeter seals | Steel Frame (Single Doorset) | Frame Head & Jambs | 1No. 60x1mm graphite strip fitted centrally in the frame reveals |
| | | Leaf Head and Threshold | 1No. 30x2mm graphite seal fitted centrally in leaf edge. |
| | | Leaf Vertical Edges | 1No. 30x2mm graphite seal fitted centrally under the lippings (Concealed). |
| | Steel Frame (Double Doorsets) | Frame Head & Jambs | 1No. 60x1mm graphite strip fitted centrally in the frame reveals |
| | | Leaf Head and Threshold | 1No. 30x2mm graphite seal fitted centrally in leaf edge. |
| | | Leaf Hanging Edge | 1No. 30x2mm graphite seal fitted centrally under the lippings (Concealed). |
| | | Meeting Edges | 1No. 20x4mm intumescent seal fitted centrally in the leaf edge with latch. 2No. 20x4mm intumescent seals fitted 12mm either side of the centreline in leaf edge with surface mounted bolts. |



(A): Steel framed single door intumescent seal arrangement



(B): Steel framed double door intumescent seal arrangement

## 9.3 Hardware Intumescent Protection

The intumescent materials used to protect hardware that have been tested and assessed for this doorset design are detailed below.

Note that any one of the product/manufacturer options listed in the table may be used in the specific application noted. However, only one manufacturer should be considered per doorset application.

| Application | Location | Dimensions<br>Product / Manufacturer |
|---|---|---|
| Hinges | Under both hinge blades | 1). Halspan Ltd SLS-PAD-123 (part of BOM-HIN-104). 2mm thick, 120 minute hinge protection |
| Locks/Latches | Under latch forend, strike & encasing latch body | 1). Halspan Ltd SLS-PAD-105 kit (part of BOM-LCK-103). 2mm thick, 120 minute lock protection.<br>2). Halspan DIN lock kit. Reference SLS-PAD-116 (contains 2mm protection to lock body, forend, keep and escutcheons). |

# 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 UKCA or CE 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
- Electrically powered hold-open devices: Test Standard EN 1155
- Door co-ordinators: Test Standard EN 1158
- Emergency exit hardware: Test Standard EN 179
- Panic exit hardware: Test Standard EN 1125.

The following sections consider what tested and assessed alternative items of essential and non-essential hardware can be used on the doorset range.

Items of hardware have been considered and approved via the following means:

- Have been successfully tested to BS 476: Part 22: 1987 or BS EN 1634-1 for 120 minutes in a Halspan 120 doorset
- The Halspan 120 minute design is a bespoke design developed by Halspan. If alternative hardware is to be used which has not tested by Halspan, then is must have been tested in a doorset consisting of a timber frame, and a 60 to 62mm thick leaf with a 5 layer construction, where the non-combustible board element represents the same percentage of the leaf as the Halspan design.

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 configuration requirements

No item of hardware should be within 200mm of another item of hardware unless there is test evidence to demonstrated they can be in closer proximity.

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.**

## 10.2 Essential Hardware

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

The 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 | Essential hardware | | | |
|---|---|---|---|---|
| | Hinges | Latch | Closer (overhead surface mounted) | Bolts (face mounted)[1] |
| LSASD | ✓ | ✓ | ✓ | - |
| LSADD | ✓ | ✓ | ✓ | ✓ |

**Note:**

1) The inactive leaf of all double doorsets must be fitted with surface-mounted bolts on the non-fire risk side, as tested, which must be engaged top and bottom when not in active use. Where the fire risk direction cannot be identified then surface-mounted bolts must be fitted and engaged to both faces of the secondary leaf.

## 10.3 Tested Hardware

### 10.3.1 Halspan Hardware

Halspan have thoroughly tested their own range of essential hardware specifically for use with Halspan 120 doorsets.

The table below shows each item alongside the relevant intumescent product, to be fitted as specified in section 9.3.

All hinges and locks come complete with the tested intumescent as part of a "BOM" which should be ordered from Halspan by using the BOM code.

| Product type | Product Code | Product Description | BOM Code |
|---|---|---|---|
| Hinge | HIN-BSS-102 | Halspan 120 square corner grade 14 butt hinge | BOM-HIN-300 |
| Hinge Intumescent | SLS-PAD-102 | Halspan 120 2mm square corner hinge pad | |
| Hinge | HIN-BSS-108 | Halspan 120 radius corner grade 14 butt hinge | BOM-HIN-104 |
| Hinge Intumescent | SLS-PAD-123 | Halspan 120 2mm radius corner hinge pad | |
| Sashlock/Deadlock | LCK-BSS-101 | Halspan 120 sashlock/deadlock | BOM-LCK-103 |
| Lock Intumescent | SLS-PAD-105 | Halspan 120 2mm lock protection kit | |
| DIN Sashlock | LCK-BSS-104 | Halspan 120 DIN standard radius sashlock | BOM-LCK-112 |
| Lock Intumescent | SLS-PAD-116 | Halspan 120 2mm DIN lock protection kit | |
| DIN Escape Sashlock | LCK-BSS-106 | Halspan 120 DIN standard radius escape sashlock | BOM-LCK-113 |
| Lock Intumescent | SLS-PAD-116 | Halspan 120 2mm DIN lock protection kit | |
| DIN Mortice Nightlatch | LCK-BSS-105 | Halspan 120 DIN standard radius mortice nightlatch | BOM-LCK-114 |
| Lock Intumescent | SLS-PAD-116 | Halspan 120 2mm DIN lock protection kit | |
| DIN Mortice Latch | LCK-BSS-107 | Halspan 120 DIN standard radius mortice latch | BOM-LCK-115 |
| Lock Intumescent | SLS-PAD-116 | Halspan 120 2mm DIN lock protection kit | |
| DIN Deadlock | LCK-BSS-102 | Halspan 120 DIN standard radius deadlock | BOM-LCK-116 |
| Lock Intumescent | SLS-PAD-116 | Halspan 120 2mm DIN lock protection kit | |
| Overhead Door Closer | CLR-BSS-100 | Halspan 9000 series 2-5 Power Closer | N/A |
| Overhead Door Closer | CLR-CAM-103 | Halspan 9100 series size 2-5 cam action door closer | N/A |

The Halspan DIN standard sashlock has been successfully tested in CFR2103091 Revision 1. The escape sashlock, mortice nightlatch, mortice latch and the deadlock have the same dimensions and materials as the tested sashlock but are considered to be less onerous and therefore can be positively assessed for use on the Halspan 120 doorset design on the following basis:

- The Halspan 120 DIN escape sashlock only requires a single cylinder with lever handles and therefore needs less penetrations through the face of the door leaf than the sashlock. The escape sashlock keep is the same size as the sashlock keep
- The Halspan 120 DIN mortice nightlatch is operated on both sides by a double cylinder and turn only with no lever handles and therefore needs less penetrations through the face of the door leaf than the sashlock. The nightlatch keep is smaller than the sashlock keep
- The Halspan 120 DIN mortice latch is operated on both sides by the lever only with no cylinder and therefore needs less penetrations through the face of the door leaf than the sashlock. The mortice latch keep is smaller than the sashlock keep
- The Halspan 120 DIN deadlock is operated by either on one side only by a single cylinder or on both sides by a double cylinder with no lever handles and therefore needs less penetrations through the face of the door leaf than the sashlock. The deadlock keep is smaller than the sashlock keep

The Halspan DIN mortice nightlatch and the Halspan DIN deadlock can also be fitted with a steel cylinder pull provided it is screw fixed only not bolted through the door leaf.

Halspan hinges come with the tested screws as standard which meet the requirements laid out in section 10.4.2.

All Halspan hardware also bears the CE Mark and/or the UKCA Mark as required in section 10.1.

### 10.3.2 Other Hardware Tested by Halspan

The following hardware has been successfully incorporated in the tests on the Halspan® 120 doorset design:

| Tested Hardware Specification | | |
|---|---|---|
| Element | Product | Reference |
| Hinges | 4No. Royde & Tucker stainless steel lift off type hinges | H107 |
| Furniture | 1). Carlisle Design Group aluminium lever type handle | SAA22/BP |
| | 2). Halspan Ltd aluminium and steel door lever handle | ZooZCA030SA LCK-MSC-200 |
| Bolts | Royde & Tucker Barza 2005 stainless steel surface mounted bolts | B151-300-220L-BSS |

Note:

Intumescent protection must be fitted to all items of hardware, as specified in section 9.3.

## 10.4 Latches & Locks – Single Point Engagement

Unless explicitly detailed within the sections below only 1No. lock or latch shall be applied within any individual doorset. When fitted the lock or latch body shall be installed within the vertical edge of the door leaf in all cases, at a height as detailed within the relevant section below.

Latches and locks must have been tested to the requirements of section 10.1 and must comply with the following specification.

| Alternative Latch & Lock Specification | |
|---|---|
| Element | Specification |
| Maximum forend and strike plate dimensions | 166mm high by 25mm wide by 4mm thick |
| Maximum body dimensions | 120mm high by 80mm wide by 16mm thick |
| Intumescent protection | see section 9.3 |
| Materials | All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel or stainless steel. |
| Location of handle | 850 – 1200mm from the threshold |

Note:

Halspan DIN standard locks (see section 10.3.1) are approved for use with the Halspan 120 doorset design, positioned with the handle height in the above table. All other latches and locks must comply with the alternative latch and lock specification above.

## 10.5 Handles and Escutcheons

The table below details the tested handles that are approved.

| Element | Manufacturer & Product Reference |
|---|---|
| Handles | • Halspan Ltd LVR-200-BSS (CFR2103091 Revision 1) |
| Escutcheons | • Halspan Ltd ESC-528-BSS, fitted with Halspan Ltd, 2 (t) (as supplied as part of SLS-PAD-116) to inside of escutcheon cover (CFR2103091 Revision 1) |

Alternative 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 handle on rose or handle on back plate up to the following maximum sizes:

- Handle on rose with a rose diameter up to 54mm
- Handle on back plate with a back plate size up to 150mm high x 40mm 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.

Alternative escutcheons 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 escutcheon may be up to Ø54mm overall and up to 8mm thick.
- Alternative escutcheons must be fitted with Halspan Ltd 2 (t) (as supplied as part of SLS-PAD-116) to inside of escutcheon cover, or alternatively as protected when tested in conjunction with a lock in accordance with the requirements of section 10.1.

Europrofile cylinder pulls are permitted as an alternative to an escutcheon, providing they meet the following specification:

- Steel, stainless steel, and brass are permitted.
- Surface fixings are permitted.
- The cylinder pull may be up to 43mm wide x 88mm high x 2.5mm thick.
- When fitted, the footprint of the cylinder pull must be bedded on 2 (t) monoammonium phosphate intumescent.

## 10.6 Butt Hinges

Halspan® 120 leaves must be hung on a minimum of 4 hinges. Alternate hinges are to comply with the requirements of section 10.1 or as detailed herein. The requirements for hinge location and hinge fixings are detailed below.

| Alternative Hinge Specification | | |
|---|---|---|
| Element | | Specification |
| Fixings | Frame blade (timber frame) | Minimum 4No. 31mm long x 5mmØ steel wood screws per leaf blade |
| | Frame blade (steel frame) | Minimum 4No. 12mm long x M5 stainless steel machine screws per leaf blade |
| | Leaf blade | Minimum 4No. 50mm long x 5mmØ steel wood screws per leaf blade |
| Materials | | Steel or stainless steel |
| Hinge positions (to top of blade except for bottom hinge) | Timber frame option 1 | Top: 100 – 180mm from the head of the leaf<br>2nd hinge 400 - 450mm from the head of the leaf<br>3rd: Equispaced between 2nd & bottom hinge.<br>Bottom: 200 – 250mm from the foot of the leaf to bottom of hinge |
| | Steel frame option 2 | Top: 100 – 150mm from the head of the leaf<br>2nd hinge 450 - 500mm from the head of the leaf<br>3rd: Equispaced between 2nd & bottom hinge.<br>Bottom: 200 – 250mm from the foot of the leaf to bottom of hinge |
| Intumescent protection | | See section 9.3 |

## 10.7 Doorset Self Closing

Doorset automatic self-closing can be provided by:

- Overhead face fixed closers

Automatic doorset self-closing devices such as transom mounted, concealed jamb mpounted closers, concealed overhead closers and offset pivots used with floor springs are not considered acceptable for use with the Halspan® 120 doorset range.

### 10.7.1 Overhead Face Fixed Closer

Alternative overhead face fixed closers not listed in section 10.3 must have been tested in accordance with the requirements of section 10.1.

**Note:**

It must be ensured that the closer is of sufficient strength and power to ensure the door leaf/leaves fully engage into the frame reveal

## 10.8 Bolts - Surface Mounted Face Fixed Bolts

Surface mounted face fixed bolts constructed from steel, stainless steel, or bronze may be fitted to the top and bottom of one leaf within a double doorset design, providing the following maximum dimensions given below are not exceeded and the components are fitted at least 100mm from the meeting edge:

- 320mm long x 25mm wide (footprint).

Intumescent protection is not required.

Internal flush bolts are not permitted with this doorset design either recessed into the leaf faces or in the leaf edges.

## 10.9 Non-Essential Hardware

Only the following items of non-essential hardware are permitted in addition to the prescribed essential hardware as detailed within section 10.2.

### 10.9.1 Pull Handles

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

The above scope of application is provided as in the opinion of Warringtonfire they will not significantly affect the fire resistance performance of the doorset being considered. This is on the basis of the items being surface mounted away from the edge of the door leaf, therefore unlikely to influence the junction between door leaf and frame. Furthermore, they are generally of lightweight construction, meaning that they are unlikely to destabilise the doorset and therefore cause adverse deflection under test conditions. Lastly, the surface mounted arrangement of the features means no material is removed in terms of the overall thickness of the door leaf beyond the footprint of the item, therefore burn through of the leaf would not be expected.

### 10.9.2 Push Plates & Kick Plates

Components with the following specification are deemed acceptable as in the opinion of Warringtonfire they will not significantly affect the fire resistance performance of the doorset being considered. This is on the basis of the items being surface mounted away from the edge of the door leaf, therefore unlikely to influence the junction between door leaf and frame. Furthermore, they are generally of lightweight construction, meaning that they are unlikely to destabilise the doorset and therefore cause adverse deflection under test conditions. Lastly, the surface mounted arrangement of the features means no material is removed in terms of the overall thickness of the door leaf beyond the footprint of the item, therefore burn through of the leaf would not be expected.

Approved specification:

- Steel or stainless steel face-fixed hardware such as push plates and kick plates up to 2mm thick may be surface fitted to the doorset. 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.
- In all cases plates meeting the above specification shall not be applied under glazing beads or door stops.

### 10.9.3 Panic Hardware

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

The fitting of panic hardware is not considered to change the latching arrangement of the doorset, therefore a morticed lock or latch as detailed above must be fitted.

### 10.9.4 Environmental Seals

Silicone or PVC based flame retardant acoustic, weather and dust seals may be fitted to this doorset design without compromising the performance, providing their fitting does not interfere with the activation of the intumescent seals or hinder the self-closing function of the leaves.

### 10.9.5 Threshold drop Seals

On the basis of the testing in report BMT/FEP/F15069A, the following types of automatic threshold drop seal may be recessed into the bottom edge of leaves to this design without compromising the performance. The drop down seal must be centrally fitted in the leaf threshold, partially interrupting the required leaf threshold intumescent seal specified in section 9.

| Manufacturer | Product |
|---|---|
| Norsound Ltd. | NOR810 |
| Halspan Ltd | SLS-DRP |

The above detailed drop down seals do not require intumescent protection as demonstrated within BMT/FEP/F15069A

### 10.9.6 Fire Door Identification Plates

Plastic or metal fire door identification plates may be glued or screwed to the face of the door leaves providing they are fitted no closer than 35mm from the leaf edge, other elements of building hardware or to any glazing. The dimension of any applied plate must be no greater than 100mm high x 100mm wide x 3mm thick.

These may be required to identify the following:

a) To be kept closed when not in use (Fire Door Keep Shut)

b) To be kept locked shut when not in use (Fire Door Keep Locked Shut)

c) Held open by an automatic release mechanism or free swing device (Automatic Fire Door Keep Clear).

When applied to a door leaf the plate shall be surface mounted to the face without removing material from the leaf.

# 11 Installation

## 11.1 General

This section considers the installation of doorsets. This section considers:

- the door frame and architrave installation position relative to the wall
- the fire stopping between the frame and the wall
- the fixing requirement including packers
- the requirements for door edge gaps
- the trimming of door edges

## 11.2 Wall Types & Structural Opening

### 11.2.1 Frame Option 1 (Timber) – Rigid & Flexible Wall Types

May be used within rigid and flexible supporting constructions.

For walls that remain rigid during fire exposure (brickwork or blockwork, for example) the opening should be square, plumb and provide a flat surface for installation of the doorset.

For flexible wall types such as steel and timber stud partitions the structural opening must be prepared in line with the test evidence provided by the wall manufacturer. Flexible wall types must have supporting fire resistance test evidence which demonstrates that it is capable of staying in place and intact for a minimum of 120 minutes supporting a doorset design.

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

It must therefore be capable of staying in place and intact for a minimum of 120 minutes.

### 11.2.2 Frame Option 2 (Steel) – Rigid Wall Types Only

Must be use within rigid supporting constructions only.

For walls that remain rigid during fire exposure (brickwork or blockwork, for example) the opening should be square, plumb and provide a flat surface for installation of the doorset.

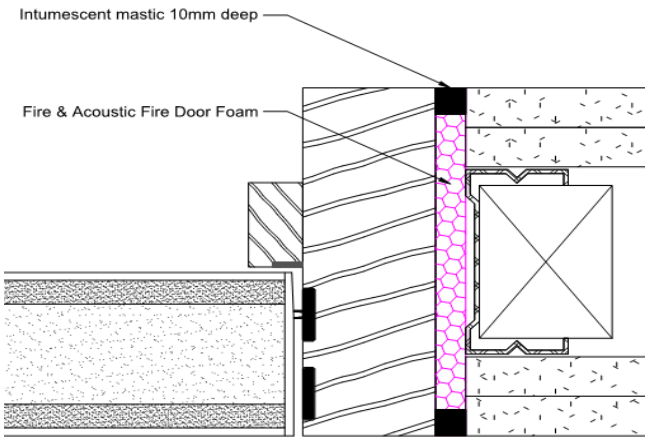
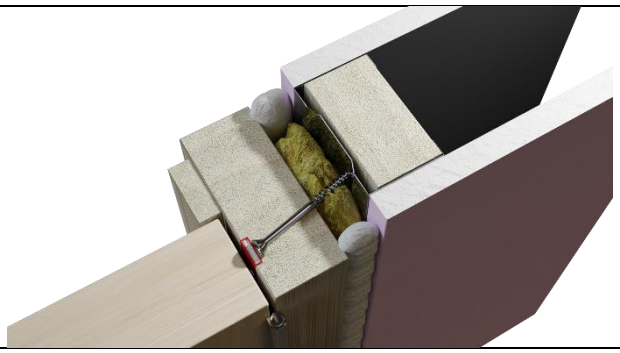
The supporting construction must provide at least the required level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

It must therefore be capable of staying in place and intact for a minimum of 120 minutes.

## 11.3 Sealing to Structural Opening

### 11.3.1 Frame Option 1 (Timber)

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

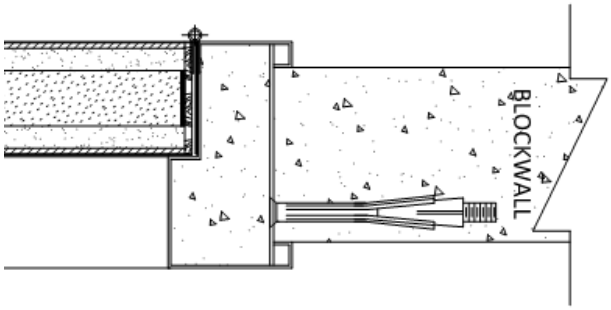
| | |
|---|---|
| Method 1 Fire Foam<br>Gaps up to 20mm may be filled with tested fire rated foam such as<br>Fire & Acoustic Fire Door Foam or STS ST99 foam successfully tested for 120 minutes, and once set, 10mm deep scraped out of the foam to allow 10mm depth capping of Fire & Acoustic Intumescent Acrylic Sealant or ST88 mastic both successfully tested for 120 minutes applied over the foam on both faces. Architraves are not required.<br>This design was tested in report CFR1911291 with a timber frame and plastic packers. This fire stopping detail has been successfully tested for 120 minutes in fire resistance integrity in report CFR1911291. |  |
| Method 2 Mineral Fibre<br>Gaps up to 15mm may be tightly packed with mineral fibre, capped on both sides with a 15mm depth of acrylic intumescent mastic. Products must be tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. An MDF architrave measuring 45 wide x 18mm thick must be used. This fire stopping detail has been successfully tested for 120 minutes in fire resistance integrity in report BMT/FEP/F15069A. |  |

#### 11.3.1.1 Packers – Frame Option 1 (Timber)

Packers can be timber of equal density to the frame, or, plywood or plastic packers if fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1.

Packers must be present local to each fixing position.

### 11.3.2 Frame Option 2 (Steel)

| | |
|---|---|
| The door frame to structural opening gap must be protected using the following method:<br>The anchor plate at the rear of the frame must be fixed against the supporting construction. The integral 14 x 10mm bolections wrapping round the supporting construction. The frame must be back filled with cement mortar as described in the frame section 7.2. |  |

## 11.4 Fixings

In all instances the fixing position must be such that it provides adequate restraint to the element of construction throughout the exposure to fire. This may therefore sometimes necessitate a twin line of fixings.

### 11.4.1 Frame Option 1 (Timber)

The frame jambs are to be fixed to the supporting construction using 5mm x 100mm long steel screws, spaced at a maximum 600mm centres and 150mm from the top and bottom. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm. It is not necessary to fix the frame head, although packers must be inserted.

### 11.4.2 Frame Option 2 (Steel)

The frame jambs must be fixed to the supporting construction using M10 x 112mm long anchor bolts through the steel anchor plates and supporting construction. The anchor bolts must be spaced at a maximum of 421mm centres and 150mm from the top and bottom. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 100mm. It is not necessary to fix the frame head, although packers must be inserted.

## 11.5 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 / Bottom edge of the leaf<br>This is the maximum tolerance for fire resistance only. | 10mm between bottom of leaf and top of floor covering. |

## 11.6 Post Production (Onsite) Leaf Size Adjustment

The Halspan ® 120 range of doorsets may be altered as follows:

| **Leaf Size Adjustment Specification** | |
|---|---|
| Element | Reduction |
| Lipping | A closing bevel can be applied to the leaf edge to assist with onsite fitting of the leaf, provided no more than 1mm of the lipping is removed from the first 50% of the leaf thickness. On double doors this bevel can be applied to both leaves and on both faces provided the gap between the seals and the opposing leaf edge does not exceed the maximum of 4mm |

# 12 Insulation Performance

Insulation performance may be claimed for a doorset to this design in line with the following table:

| Insulation Performance Criteria | | |
|---|---|---|
| Type | | Details |
| Non-insulating | | Doorsets incorporating greater than 20% of non-insulating glazing |
| Partially insulating | | Doorsets incorporating up to 20% of non-insulating glazing |
| Fully insulating | Timber frames | Unglazed doorsets |
| | Steel frames back filled with mortar/concrete | Unglazed doorsets |

# 13 Conclusion

If Halspan® 120 doorsets constructed in accordance with the specification documented in this field of application were to be tested in accordance with BS 476: Part 22: 1987, it is our opinion that they would provide a minimum of 120 minutes integrity and insulation (subject to section 12).

# 14 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: Signed by: A. Davies 8295EF8349144CB...

Name: Andy Davies

Position: Technical Manager

Date: 12-Feb-2025

For and on behalf of: Halspan Limited

# 15 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.

# 16 Validity

1) The assessment is initially valid until the date shown on the front page 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 14 duly signed by the applicant.

| Position: | Assessor | Reviewer |
|---|---|---|
| Signature: | Signed by: E399772B03874B1... | Signed by: 43935C1A192A419... |
| Name: | *** E L Wilson** | *** N Whitelock** |
| Title: | Senior Product Assessor | Technical Manager, Doors & Smoke Leakage |

* For and on behalf of Warringtonfire

# Appendix A: Revisions

| Rev. | WF Ref. | Date | Description |
|---|---|---|---|
| A | CNA/F15144 | 16.06.15 | Addition of new test data from WF151387, update to include revised core specification based on test report FEP/F15069B |
| B | WF428270 | 11.05.20 | Updated into the new Warringtonfire format apart from the leaf extension graphs in Appendix C. Included the following test evidence;<br>• CFR1911291 to allow the use of Fire and Acoustic Seals fire foam fire stopping system with timber frames.<br>• SJ038 to allow a backfilled steel frame option.<br>• BMT/FEP/F15069A to replace BMT/FEP/F15069B as additional information on the Halspan 120 door blank.<br>Assessment FEA/F96103 Revision L has been omitted as evidence from the assessment. |
| C | WF431899 | 6.08.20 | Correction to glazing system in section 6.2. |
| D | WF432340 | 21.08.20 | Amendment to perimeter intumescent table for double doorset configurations. |
| E | WF438659 | 19.2.2021 | Amendments as follows:-<br>• HDF added to table 5.1 as a facing alternative with a justification at a density of 900 kg/m3.<br>• Lacquers and varnishes added to Paints in table in section 5.3<br>Section 12 on smoke revised |
| F | WF511087 | 14.07.2022 | Revision & revalidation of report.<br>Summary of change:<br>1). The inclusion of the Firelite SF glass based on the test CFR1406171 Rev 1.<br>2). increase single leaf size envelope based on test report CFR2103301.<br>3). The addition of the Halspan DIN standard lock case based on tested report. CFR2103091. No alternative brand of DIN standard lock is to be permitted within the FoA.<br>4). To add Halspan seal kit references SLS-KIT-157S (for single doors) and SLS-KIT-157D (for double doors), used with steel frames.<br>5). Update of Norseal drop seal reference 'NOR810dB+' which is an old product reference, to 'NOR810' which is the new product reference.<br>6). The addition of Halspan 120 Nightlatch and Halspan 120 deadlock, and are based on the Halspan sash lock referenced LCK-BSS-104 which was successfully tested in CFR2103091.<br>7). Update leaf size envelopes and other sections, as required, into the new Warringtonfire format.<br>8). HDF facing now based on test evidence CFR2103091.<br>9). Miscellaneous updates to various sections as applicable. |
| G | WF529118 | 31.01.2023 | Correction to |

| | | | |
|---|---|---|---|
| | | | Sections 3.1 and 3.4 -Test reports CFR1502171 and SJ038 to detail location of intumescent at meeting stile – 1 nos in Latch leaf and 2nos in secondary leaf<br>Sections 4.8.3.1 and 4.8.3.2 to correctly detail location of intumescent at meeting stile – 1 nos in Latch leaf and 2nos in secondary leaf<br><br>Section 10.4.2 to correctly detail bottom hinge location of 200 to 250mm from bottom of hinge to foot of leaf. |
| H | WF542700 | 10.02.2025 | Revision of report including:<br>1) Introduction of Assumptions (section 2.1)<br>2) Amendment/correction to some details in test report summaries<br>2) Amendment to scope of Frame 2 design.<br>3) Update references of CFR2103091 to CFR2103091 Revision 1.<br>4) Alignment of perimeter intumescent, sections 4 and 9.<br>5) Addition of decorative facings to Frame 1.<br>6) Change to permitted glazed aperture shape.<br>7) Additional of Handles and Escutcheons section.<br>8) Further details in Surface Face Fixed Bolts section.<br>9) Small Amendments and editorial updates to Non-essential Hardware sections.<br>10) Addition of Fire Door Identification Plates section<br>11) Update to Insulation section |