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:

The Halspan® Prima 60 Range of Doorsets.

Part 2: Steel Based Door Frames

For 60 minutes Fire Resistance

Report No.:

FEA/F96103 Part 2 Revision P

Issue Date:

23rd May 2024

Valid Until:

23rd May 2029

Job Reference:

WF530851

Prepared for:

Halspan Limited
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.

This field of application report FEA/F96103 Part 2 Revision P is one part of the suite of (Prima 60) assessments, other parts of the suite address other doorset designs.

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

Page No.

Contents

1 Foreword

This Field of Application report has been commissioned by Halspan Limited and relates to the fire resistance of 60 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 Prima 60 doorset designs with steel based frames, for 60 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.

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, double leaf, latched and unlatched doorsets.

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

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 Prima 60 doorset designs with steel based frames if tested in accordance with BS 476: Part 22: 1987.

Originally, the Halspan product range was called Halspan 60. Thereafter, this product was sub-divided into 2 product ranges Prima and Optima. The physical properties and respective average densities of these production options differed slightly, however, the technical attributes of Prima 60 and Optima 60 over the years has demonstrated, by testing, that the products performance in fire test conditions is positively comparable.

Therefore, in regard to base line data and generic performance, coupled with laboratory test results it is possible to transfer product characteristics between Halspan 60, Prima 60 and

Optima 60. All the evidence contained herein has been deemed appropriate and relevant to this assessment.

The test evidence developed by Halspan is the primary evidence to support the leaf type being evaluated in this assessment namely:

- Prima 54mm thick

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

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 they have been used to provide the scope of application.

3.1.1 Test Report WF509420

Date of Test:	06.DEC.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Limited
Tested Product:	Double Acting, Double Leaf Doorset with Glazed Apertures – DADD.
Tested Orientation:	Doorset opens in both directions, towards and away from the test conditions.
Sampling information:	Warringtonfire, FM511241, 30th Nov 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 71 minutes Cotton pad test: 74 minutes Gap gauge: 74 minutes **Insulation:** Insulation I_2: 53 minutes
Reason for Use	For use as primary evidence for: • Hygeno Intavista & Flushview glazing units • HTM 58 identification tags • Tracker tags

3.1.2 Test Report LP-636.7/09

Date of Test:	22.JUN.2010
Identification of Test Body:	Instytut Techniki Budowlanej (ITB) ILAC (PCA – Polskie Centrum Akredytacji): AB 023
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Double Leaf, Doorset with Glazed Apertures – LSADD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	PN-EN 1634-1: 2009
Performance:	**Integrity:** 62 minutes **Insulation:** 62 minutes
Reason for Use	For use as primary evidence for: • Glazing systems

3.1.3 Test Report WF384748 B

Date of Test:	29.JUN.2017
Identification of Test Body:	Exova Ltd UKAS No. 1762 (Now trading as: Warringtonfire Testing and Certification Limited)
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Leaf Doorset – LSASD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** 63 minutes **Insulation:** 63 minutes
Reason for Use	For use as primary evidence for: • Single point lock

3.1.4 Test Report WF380349 AR1 B

Date of Test:	12.APR.2017
Identification of Test Body:	Exova Ltd UKAS No. 1762 (Now trading as: Warringtonfire Testing and Certification)
Sponsor:	Halspan Ltd
Tested Product:	Doorset B: Latched, Single Acting, Single Leaf, Doorset – LSASD.
Tested Orientation:	Doorset B: Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** 76 minutes (Doorset B) **Insulation:** 76 minutes (Doorset B)
Reason for Use	For use as primary evidence for: • Single point locks • Steel Bead glazing systems

3.1.5 Test Report CFR1802131_2

Date of Test:	13.FEB.2018
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Doorset: Unlatched, Single Acting, Single Leaf Doorset with Flush Overpanel – ULSASD+OP
Tested Orientation:	Doorset: Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 63 minutes **Insulation:** 63 minutes
Reason for Use	For use as primary evidence for: • Timber lippings
Failure Mode:	Test discontinued, no failure at 63 minutes

3.1.6 Test Report Chilt/RF13167

Date of Test:	29.JUL.2013
Identification of Test Body:	Chiltern International Fire Ltd. UKAS No. 1762 (Now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Leaf Doorset with glazing apertures – ULSADD.
Tested Orientation:	Doorset: Opening in towards the furnace
Sampling information:	BM Trada, 'Halspan order 7743881 & 7653401', 21st March 2013
Test Standard:	BSEN 1634-1:2008
Performance:	**Integrity:** Sustained flaming: 60 minutes Cotton pad test: 62 minutes Gap gauge: 62 minutes **Insulation:** Insulation I_1: 56 minutes Insulation I_2: 60 minutes
Reason for Use	For use as primary evidence for: • Hardware intumescent • Flushbolts • Glazing systems

3.1.7 Test Report RF98051

Date of Test:	20.JUL.1998
Identification of Test Body:	Chiltern International Fire NAMAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited, UKAS No. 1762)
Sponsor:	Timber & Door Products (now trading as: Halspan Ltd)
Tested Product:	Unlatched, Single Acting, Double Leaf Doorset with Flush Overpanel and glazing apertures – ULSADD+OP.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** Integrity: 59 minutes **Insulation:** Insulation: 59 minutes In accordance with Section 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation
Reason for Use	For use as primary evidence for: • Timber lipping The 59-minute integrity failure at the glazing has been ignored as the glass and glazing system used within the test has not been included within this assessment.
Failure Mode:	Initial Failure: Continuous flaming at right hand leaf glazing perimeter at 59 minutes. No further failure until in excess of 62 minutes of elapsed test duration.

3.1.8 Test Report WF504390

Date of Test:	11.JUN.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Limited
Tested Product:	Double Acting, Double Leaf Doorset with Glazed Apertures – DADD.
Tested Orientation:	Doorset opens in both directions, towards and away from the test conditions.
Sampling information:	BM Trada, SC21045, 11th and 12th May 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 61 minutes Cotton pad test: 63 minutes Gap gauge: 63 minutes **Insulation:** Insulation I_2: 43 minutes
Reason for Use	For use as primary evidence for: • Timber lipping • Hardware • Glazing systems

3.1.9 Test Report WF512409

Date of Test:	27.JAN.2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Limited
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset with a Glazed Aperture – LSASD. Doorset B: Latched, Single Acting, Single Leaf Doorset with a Glazed Aperture – LSASD
Tested Orientation:	Doorset A: Opening away from the furnace Doorset B: Opening towards the furnace
Sampling information:	BM Trada, SC22001, 20th and 21th January 2022
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset A: Sustained flaming: 58 minutes Cotton pad test: 24 minutes Gap gauge: 69 minutes Doorset B: Sustained flaming: 63 minutes Cotton pad test: 62 minutes Gap gauge: 69 minutes **Insulation:** Doorset A: Insulation I_2: 24 minutes Doorset B: Insulation I_2: 49 minutes
Reason for Use	For use as primary evidence for: • Glazing Systems • Hardware
Failure Mode:	The doorset tested is of a differing design to the one assessed herein, this evidence though failures have been observed has been used to support elements which have been determined not to have influenced or caused the failure on the tested element.

3.1.10 Test Report WF509421

Date of Test:	30.NOV.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Limited
Tested Product:	Double Acting, Double Leaf Doorset with, Glazed Apertures – DADD.
Tested Orientation:	Doorset opens in both directions, towards and away from the test conditions.
Sampling information:	Warringtonfire, FM510818, 25th November 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 69 minutes Cotton pad test: 71 minutes Gap gauge: 71 minutes **Insulation:** Insulation I_2: 61 minutes
Reason for Use	For use as primary evidence for: • Hygeno Intavista & Flushview glazing Units • Tracker Tags

3.1.11 Test Report Chilt/RF01056 B

Date of Test:	9.JUL.2001
Identification of Test Body:	Chiltern International Fire UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Leaf Doorset with Glazed aperture – ULSASD.
Tested Orientation:	Doorset B: Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 61 minutes **Insulation:** 6 minutes
Reason for Use	For use as primary evidence for: • Glazing systems • Feature Grooves

3.1.12 Test Report RF02018 Rev A

Date of Test:	26.FEB.2002
Identification of Test Body:	Chiltern International Fire UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	Pyroplex Ltd
Tested Product:	Double Acting, Double Leaf Doorset – DADD.
Tested Orientation:	Doorset opens in both directions, towards and away from the test conditions.
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 73 minutes **Insulation:** 73 minutes
Reason for Use	For use as primary evidence for: • Timber lippings

3.1.13 Test Report CFR2103161

Date of Test:	16.MARCH.2021
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Unlatched, Single Acting, Double Leaf Doorset with Flush Overpanel – ULSADD+OP.
Tested Orientation:	Opening in towards heating condition
Sampling information:	BM Trada, SC21010, 10th March 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 65 minutes Cotton pad test: 64 minutes Gap gauge: 65 minutes **Insulation:** Insulation I_2: 64 minutes
Reason for Use	For use as primary evidence for: • Hardware • Overhead face fixed closers • Face mounted threshold drop seals

3.1.14 Test Report BMT/FEP/F15012B

Date of Test:	06.FEB.2015
Identification of Test Body:	BM TRADA UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Leaf Doorset – ULSASD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Sustained flaming: 64 minutes Cotton pad test: 64 minutes Gap gauge: 72 minutes **Insulation:** Insulation I_2: 64 minutes
Reason for Use	For use as primary evidence for: • Hardware

3.1.15 Test Report CFR2211141 LH

Date of Test:	14.NOV.2022
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Leaf Doorset – ULSADD.
Tested Orientation:	Opening towards the furnace
Sampling information:	BM Trada, SC22141 & SC22143, 8th November 2022
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 78 minutes Cotton pad test: 81 minutes Gap gauge: 81 minutes **Insulation:** Insulation I_2: 78 minutes
Reason for Use	For use as primary evidence for: • Hardware • Surface mounted face fixed bolts

3.1.16 Test Report CFR2211141 RH

Date of Test:	14.NOV.2022
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Leaf Doorset – LSADD.
Tested Orientation:	Opening towards the furnace
Sampling information:	BM Trada, SC22141 & SC22143, 8th November 2022
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 76 minutes Cotton pad test: 81 minutes Gap gauge: 81 minutes **Insulation:** Insulation I_2: 76 minutes
Reason for Use	For use as primary evidence for: • Hardware • Surface mounted face fixed bolts

3.1.17 Test Report CFR1809241

Date of Test:	24.SEP.2018
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Leaf Doorset – ULSADD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 61 minutes **Insulation:** 61 minutes
Reason for Use	For use as primary evidence for: • Hardware

3.1.18 Test Report FRR-2010/2942

Date of Test:	04.OCT.2020
Identification of Test Body:	Material Lab Testing Services L.L.C., Dubai ILAC (EIAC – Emirates International Accreditation Centre): 008-LB-TEST
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Double Leaf Doorset with glazed aperture – LSADD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987/Amd: 2014
Performance:	**Integrity:** 70 minutes **Insulation:** 70 minutes In accordance with clause 8.7.5.2 of BS 476: part 22: 1987 the specimen has not been evaluated for insulation
Reason for Use	For use as primary evidence for: • Steel Bead glazing systems • Hardware Intumescent • Hardware • Rebated threshold drop seals

3.1.19 Test Report FRR-2009/2351

Date of Test:	09.SEP.2020
Identification of Test Body:	Material Lab Testing Services L.L.C., Dubai ILAC (EIAC – Emirates International Accreditation Centre): 008-LB-TEST
Sponsor:	Halspan Limited
Tested Product:	Double Acting, Double Leaf, Flush timber Doorset – DADD.
Tested Orientation:	Doorset opens in both directions, towards and away from the test conditions.
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987/Amd: 2014
Performance:	**Integrity:** 71 minutes **Insulation:** 71 minutes
Reason for Use	For use as primary evidence for: • Feature Grooves

3.1.20 Test Report FRR-2009/1221 (SP1)

Date of Test:	09.SEP.2020
Identification of Test Body:	Material Lab Testing Services L.L.C., Dubai ILAC (EIAC – Emirates International Accreditation Centre): 008-LB-TEST
Sponsor:	Halspan Limited
Tested Product:	Specimen 1 (SP1): Latched, Single Acting, Single Leaf Doorset – LSASD.
Tested Orientation:	Specimen 1 (SP1): Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987/Amd: 2014
Performance:	**Integrity:** 75 minutes **Insulation:** 75 minutes
Reason for Use	For use as primary evidence for: • Security viewers • Feature Grooves

3.1.21 Test Report FRR-2110/1497

Date of Test:	13.OCT.2021
Identification of Test Body:	Material Lab Testing Services L.L.C., Dubai ILAC (EIAC – Emirates International Accreditation Centre): 008-LB-TEST
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Single Leaf Doorset with glazing aperture – LSASD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987/Amd: 2014
Performance:	**Integrity:** 70 minutes **Insulation:** 70 minutes In accordance with clause 7.6 of BS 476: part 22: 1987 the glass has not been evaluated for insulation
Reason for Use	For use as primary evidence for: • Steel Bead glazing Systems • Hardware Intumescent • Hardware

3.1.22 Test Report FRR-2110/1498

Date of Test:	11.OCT.2021
Identification of Test Body:	Material Lab Testing Services L.L.C., Dubai ILAC (EIAC – Emirates International Accreditation Centre): 008-LB-TEST
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Double Leaf Doorset with glazing apertures – LSADD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987/Amd: 2014
Performance:	**Integrity:** 66 minutes **Insulation:** 66 minutes In accordance with clause 7.6 of BS 476: part 22: 1987 the glass has not been evaluated for insulation
Reason for Use	For use as primary evidence for • Steel Bead glazing systems • Hardware Intumescent • Flush bolts

3.1.23 Test Report FRR-2102/4628A

Date of Test:	30.JAN.2021
Identification of Test Body:	Material Lab Testing Services L.L.C., Dubai ILAC (EIAC – Emirates International Accreditation Centre): 008-LB-TEST
Sponsor:	Halspan Limited
Tested Product:	Double Acting, Double Leaf Doorset with Glazed Apertures – DADD. (roller latch engaged)
Tested Orientation:	Doorset opens in both directions, towards and away from the test conditions.
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987/Amd: 2014
Performance:	**Integrity:** 73 minutes **Insulation:** 73 minutes In accordance with clause 7.6 of BS 476: part 22: 1987 the glass has not been evaluated for insulation
Reason for Use	For use as primary evidence for • Feature Grooves • Steel Bead glazing systems • Hardware intumescent • Flush bolts • Push plates and kick plates

3.1.24 Test Report WF193473/A

Date of Test:	01.JUN.2010
Identification of Test Body:	Exova Ltd UKAS No: 0249 (Now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Hoppe (UK) Ltd
Tested Product:	Double Acting, Double Leaf Doorset – DADD.
Tested Orientation:	Doorset opens in both directions, towards and away from the test conditions
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2008
Performance:	**Integrity:** Sustained flaming: 50 minutes Cotton pad test: 50 minutes Gap gauge: 51 minutes **Insulation:** Insulation I_2: 50 minutes
Reason for Use	For use as primary evidence for • Hardware
Failure Mode:	Initial Failure: Continuous Flaming and Cotton Pad Failure at top of meeting edge at 50 minutes, with area sealed at 51 minutes While failures were observed at the leaf perimeter of the test specimen, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the leaf sizes or intumescent specification given herein, though they have not been used to enhance these elements within this assessment.

3.1.25 Test Report BMT/FEP/F14102 A

Date of Test:	08.JUL.2014
Identification of Test Body:	Chiltern International Fire Ltd. UKAS No. 1762 (now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	James Latham
Tested Product:	Doorset A: Unlatched, Single Acting, Double Leaf, Flush timber Doorset with glazing aperture – ULSADD.
Tested Orientation:	Doorset A: Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** 42 minutes (Doorset A) **Insulation:** 42 minutes (Doorset A)
Reason for Use	For use as primary evidence for • Hardware The failure has been disregarded with respect to this assessment as the failure was not contributed to the hardware used within this assessment.
Failure Mode:	Initial Failure: Cotton Pad Test at latch position of Doorset A at 42 minutes No further failure was observed until in excess of 64 minutes of test duration.

3.1.26 Test Report BMT/FEP/F16037

Date of Test:	01.FEB.2016
Identification of Test Body:	Exova Ltd. UKAS No. 1762 (Now trading as: Warringtonfire Testing and Certification Limited)
Sponsor:	James Latham
Tested Product:	Doorset A: Unlatched, Single Acting, Double Leaf Doorset with glazing aperture – ULSADD. Doorset B: Unlatched, Single Acting, Single Leaf Doorset with glazing aperture – ULSASD
Tested Orientation:	Doorset: Opening in towards the furnace Doorset: Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** Doorset A: 63 minutes Doorset B: 52 minutes **Insulation:** Doorset A: 63 minutes Doorset B: 52 minutes In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation
Reason for Use	For use as primary evidence for • Hardware • Flushbolts • Glazing systems The failure has been disregarded with respect to this assessment as the failure was not contributed to the frame material or hardware used within this assessment.
Failure Mode:	Initial Failure: Continuous flaming at the top closing corner at 52 minutes (Doorset B) No further failures were observed until test termination at 63 minutes.

3.1.27 Test Report RF0006A

Date of Test:	14.JAN.2000
Identification of Test Body:	Chiltern International Fire UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Single Leaf Doorset – ULSASD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 60 minutes **Insulation:** 60 minutes
Reason for Use	For use as primary evidence for: • Glazing systems

3.1.28 Test Report WF508668

Date of Test:	14.OCT.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Limited
Tested Product:	Doorset A and B: Latched, Single Acting, Single Leaf Doorsets with glazing apertures – LSASD
Tested Orientation:	Doorset A: Opening away from the furnace Doorset B: Opening in towards the furnace
Sampling information:	BM Trada, SC21165, 12th October 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset A: Sustained flaming: 74 minutes Cotton pad test: 74 minutes Gap gauge: 74 minutes Doorset B: Sustained flaming: 62 minutes Cotton pad test: 74 minutes Gap gauge: 74 minutes **Insulation:** Doorset A: Insulation I_2: 74 minutes Doorset B: Insulation I_2: 62 minutes
Reason for Use	For use as primary evidence for • Glazing systems • Hardware Intumescent • Hardware

3.1.29 Test Report WF507673

Date of Test:	11.NOV.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Double Leaf Doorset – LSADD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	BM Trada, SC21138, 10th September 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 49 minutes Cotton pad test: 61 minutes Gap gauge: 61 minutes **Insulation:** Insulation I_2: 49 minutes
Reason for Use	For use as primary evidence for • Hardware intumescent • Hardware The failures at the leaf perimeter have been considered to be due to bending of the partition and assessment is made to reducing the height above the floor and limiting the permitted leaf height.
Failure Mode:	Initial Failure: Continuous Flaming at meeting edge latch position at 49 minutes Further Failure: Continuous flaming at top hanging corner of primary leaf at 52 minutes Further Failure: Continuous flaming at top hanging corner of secondary leaf at 58 minutes Further Failure: Continuous flaming at top meeting edge at 59 minutes

3.1.30 Test Report WF508198

Date of Test:	15.SEP.2021
Identification of Test Body:	Warringtonfire testing and certification Ltd. UKAS No. 1762
Sponsor:	Woodmarque Ltd
Tested Product:	Latched, Single Acting, Double Leaf Doorset with glazing apertures – LSADD
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 56 minutes Cotton pad test: 65 minutes Gap gauge: 65 minutes **Insulation:** Insulation I_2: 56 minutes
Reason for Use	For use as primary evidence for • Hardware The 56-minute integrity failure at the glazing has been ignored as the glass and glazing system used within the test has not been included within this assessment.
Failure Mode:	Initial Failure: Continuous Flaming at right leaf glazing at 56 minutes Further Failure: Glazing fracture on left leaf at 57 minutes. Right leaf glazing boarded up at 57 minutes, left leaf glazing boarded up at 58 minutes. No further failure was observed until in excess of 64 minutes of test duration.

3.1.31 Test Report WF331430 Issue 3 B

Date of Test:	22.JUL.2013
Identification of Test Body:	Exova Ltd UKAS No: 0249 (Now trading as Warringtonfire Testing and Certification Ltd)
Sponsor:	Hoppe (UK) Ltd
Tested Product:	Doorset B: Unlatched, Single Acting, Single Leaf, Flush timber Doorset – ULSASD
Tested Orientation:	Opening away from the furnace
Sampling information:	The hardware was independently sample selected from the manufacturer's premises by a representative of Warrington Certification Ltd. No sampling report included.
Test Standard:	BS EN 1634-1:2008
Performance:	**Integrity:** Sustained flaming: 66 minutes Cotton pad test: 66 minutes Gap gauge: 66 minutes **Insulation:** Insulation I_2: 66 minutes
Reason for Use	For use as primary evidence for • Hardware

3.1.32 Test Report CFR2203091

Date of Test:	10.MAR.2022
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Unlatched, Single Acting, Double Leaf Doorset with glazing apertures, fanlights and sidelights – ULSADD
Tested Orientation:	Opening towards the furnace
Sampling information:	BM Trada, SC22016, 1st and 4th March 2022
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 60 minutes Cotton pad test: 67 minutes Gap gauge: 67 minutes **Insulation:** Insulation I_2: 36 minutes
Reason for Use	For use as primary evidence for • Halspan SLS Glazing Systems • Glazing systems

3.1.33 Test Report CFR1909241 Revision 1

Date of Test:	24.SEP.2019
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Double Leaf Doorset with glazing apertures – LSADD
Tested Orientation:	Opening in towards the furnace
Sampling information:	BM Trada, PS181201, 17th December 2018
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 63 minutes Cotton pad test: 31 minutes Gap gauge: 68 minutes **Insulation:** Insulation I_2: 14 minutes
Reason for Use	For use as primary evidence for • Glass and glazing systems • Hardware Intumescent • Hardware • Flushbolt • Hygeno Intavista & Flushview glazing units This report is an evaluation of the potential fire resistance performance if the design were to be tested in accordance with BS 476: Part 22: 1987. If tested to BS 476: Part 22: 1987, a cotton pad test would not normally be applied to the non-insulating elements of a doorset design and therefore the initial failure times are not considered relevant when used for this purpose.
Failure Mode:	Initial Failure: Cotton Pad Failure at left-hand glazing at 31 minutes Further Failure: Cotton Pad Failure at right-hand glazing at 43 minutes No further failure was observed until in excess of 62 minutes of test duration.

3.1.34 Test Report WF385622 AR1

Date of Test:	28.JUL.2017
Identification of Test Body:	Exova Ltd UKAS No. 1762 (Now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Leaf Doorset with glazed apertures – ULSADD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** 64 minutes **Insulation:** 64 minutes In accordance with the note to clause 7.6.1.1 of BS 476: part 22: 1987, the glazing has not been evaluated for insulation
Reason for Use	For use as primary evidence for • Hardware • Glazing systems

3.1.35 Test Report WF520064

Date of Test:	13.OCT.2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No 1762
Sponsor:	Halspan Ltd
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset with glazed aperture – LSASD Doorset B: Latched, Single Acting, Single Leaf Doorset with glazed aperture – LSASD
Tested Orientation:	Doorset A: Opening away from the furnace Doorset B: Opening in towards the furnace
Sampling information:	BM Trada, SC22149, 26th & 27th September & 3rd October 2022
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset A: Sustained flaming: 72 minutes Cotton pad test: 72 minutes Gap gauge: 72 minutes Doorset B: Sustained flaming: 70 minutes Cotton pad test: 71 minutes Gap gauge: 72 minutes **Insulation:** Doorset A: Insulation: 42 minutes Doorset B: Insulation: 37 minutes
Reason for Use	For use as primary evidence for • Hardware • Tracker tags • Glazing systems

3.1.36 Test Report CFR1509291

Date of Test:	29.SEP.2015
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Unlatched, Single Acting, Single Leaf Doorset with glazed apertures – ULSASD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** Integrity: 68 minutes **Insulation:** Insulation: 65 minutes
Reason for Use	For use as primary evidence for • Glazing systems • Hardware intumescent • Hardware

3.1.37 Test Report WF507664

Date of Test:	08.SEP.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Limited
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset with, glazing apertures – LSASD. Doorset B: Latched, Single Acting, Single Leaf Doorset with glazing apertures – LSASD
Tested Orientation:	Doorset A: Opens away from the furnace Doorset B: Opens in towards the furnace
Sampling information:	BM Trada, SC21146, 31st August 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset A: Sustained flaming: 60 minutes Cotton pad test: 55 minutes Gap gauge: 61 minutes Doorset B: Sustained flaming: 49 minutes Cotton pad test: 49 minutes Gap gauge: 61 minutes **Insulation:** Doorset A: Insulation I_2: 53 minutes Doorset B: Insulation I_2: 45 minutes
Reason for Use	For use as primary evidence for • Hardware • Glazing systems
Failure Mode:	While failures were observed at the leaf perimeter of both test specimens, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the leaf sizes or intumescent specification given herein, though they have not been used to enhance these elements within this assessment. There were no failures associated with the glazing apertures at the test termination at 61 minutes therefore, these items have been included.

3.1.38 Test Report WF523824/R

Date of Test:	24.OCT.2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No 0249
Sponsor:	Halspan Limited
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset with glazed aperture – LSASD Doorset B: Latched, Single Acting, Single Leaf Doorset with glazed aperture – LSASD
Tested Orientation:	Doorset A: Opening towards the furnace Doorset B: Opening away from the furnace
Sampling information:	BM Trada, SC22212, 20th October 2022
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset A: Sustained flaming: 63 minutes Cotton pad test: 63 minutes Gap gauge: 63 minutes Doorset B: Sustained flaming: 63 minutes Cotton pad test: 63 minutes Gap gauge: 63 minutes **Insulation:** Doorset A: Insulation I_2: 19 minutes Doorset B: Insulation I_2: 19 minutes
Reason for Use	For use as primary evidence for • Hardware • Tracker tags

3.1.39 Test Report WF515598/LR

Date of Test:	01.JUL.2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd.
Sponsor:	Pyroguard UK Ltd
Tested Product:	Single glazing in a timber door blank
Tested Orientation:	Not applicable
Sampling information:	Warringtonfire, FM517023-3, 4th April 2022
Test Standard:	General principals of BS 476-20 1987
Performance:	**Integrity:** 65 minutes **Insulation:** Not evaluated
Reason for Use	For use as primary evidence for • Glazing systems

3.1.40 Test Report WF517609/LR

Date of Test:	05.MAY.2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd.
Sponsor:	Pyroguard UK Ltd
Tested Product:	Single glazing in a timber door blank
Tested Orientation:	Not applicable
Sampling information:	Warringtonfire, FM516511-5, 30th March 2022
Test Standard:	General principals of BS 476-20 1987
Performance:	**Integrity:** 90 minutes **Insulation:** Not evaluated
Reason for Use	For use as primary evidence for • Glazing systems

3.1.41 Test Report WF515592/LR

Date of Test:	06.MAY.2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd.
Sponsor:	Pyroguard UK Ltd
Tested Product:	Single glazing in a timber door blank
Tested Orientation:	Not applicable
Sampling information:	Warringtonfire, FM517023-2, 4th April 2022
Test Standard:	General principals of BS 476-20 1987
Performance:	**Integrity:** 66 minutes **Insulation:** Not evaluated
Reason for Use	For use as primary evidence for • Glazing systems

3.1.42 Test Report WF512028/LR Issue 2

Date of Test:	16.DEC.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd.
Sponsor:	Pyroguard UK Ltd
Tested Product:	Single glazing in a timber door blank
Tested Orientation:	Not applicable
Sampling information:	Warringtonfire, FM507754-1, 20th August 2021
Test Standard:	General principals of BS 476-20 1987
Performance:	**Integrity:** 90 minutes **Insulation:** Not evaluated
Reason for Use	For use as primary evidence for • Glazing systems

3.1.43 Test Report FRR-2107/2288

Date of Test:	16.AUG.2021
Identification of Test Body:	Material Lab Testing Services L.L.C., Dubai ILAC (EIAC – Emirates International Accreditation Centre): 008-LB-TEST
Sponsor:	Halspan Limited
Tested Product:	Latched, Double Egress, Double Leaf, Flush timber Doorset with glazing apertures.
Tested Orientation:	Doorset opens in both directions, one leaf towards and one leaf away from the test conditions.
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987/Amd: 2014
Performance:	**Integrity:** 61 minutes **Insulation:** 61 minutes In accordance with clause 7.6 of BS 476: part 22: 1987 the glass has not been evaluated for insulation
Reason for Use	For use as primary evidence for • Glazing systems • Hardware

3.1.44 Test Report WF189639 A & B

Date of Test:	17.FEB.2010
Identification of Test Body:	Exova Warringtonfire UKAS No. 0249 (now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Dorma UK Ltd
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset – LSASD. Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD.
Tested Orientation:	Opening away from furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2008
Performance:	**Integrity:** Doorset A: Sustained flaming: 66 minutes Cotton pad test: 66 minutes Gap gauge: 66 minutes Doorset B: Sustained flaming: 66 minutes Cotton pad test: 66 minutes Gap gauge: 66 minutes **Insulation:** Doorset A: 66 minutes Doorset B: 66 minutes
Reason for Use	For use as primary evidence for • Hardware

3.1.45 Test Report BMT/FEP/PF15288 Revision A

Date of Test	9.NOV.2015
Identification of Test Body	Exova Warringtonfire UKAS No. 1762 (now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor	Sealed Tight Solutions
Tested Product	Doorset A: Unlatched, Single Acting, Single Leaf Doorset with Glazing – ULSADD
Tested Orientation	Opening in towards heating condition
Sampling information:	No sampling report included.
Test Standard	BS 476: Part 22:1987
Performance	**Integrity:** 44 minutes **Insulation:** 0 minutes In accordance with clause 8.6 of BS 476: part 22: 1987 the doorset has not been evaluated for insulation
Reason for Use	For use as primary evidence for • Glazing The integrity failure due to the installation of the door frame (sealing to the structure) for a doorset design which is different to the one detailed within this assessment. As the failure modes prior to 60 minutes duration are remote from the glazing. This report supports the use of the STS systems considered within this report.
Failure Mode	Initial integrity failure was recorded at 44 minutes between the back of frame and structural opening, a further leaf edge failure was recorded at 77 minutes. No failures in the area of the glazed aperture were recorded prior to the door being boarded over at 80 minutes into the test.

3.1.46 Test Report BMT/FEP/PF15035

Date of Test	10.FEB.2015
Identification of Test Body	BM TRADA UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor	Sealed Tight Solutions Ltd
Tested Product	Unlatched, Single Acting, Double Leaf Doorset with Glazing – ULSADD
Tested Orientation	Opening in towards heating condition
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance	**Integrity:** 50 minutes **Insulation:** 0 minutes In accordance with clause 8.6 of BS 476: part 22: 1987 the doorset has not been evaluated for insulation
Reason for Use	For use as primary evidence for: • Hardware • Glazing The integrity failure observed is specifically related to a doorset design which is different to the one detailed within this assessment. As the failure modes prior to 60 minutes duration are remote from the glazing. This report supports the use of the STS systems considered within this report.
Failure Mode	Initial failure recorded at the leaf meeting edges, further failure at the left leaf top hanging corner by cotton pad and again by means of continuous flaming in the same location. No failure was observed at the glazing of the leaves until 63 minutes of test duration.

3.1.47 Test Report CFR2105131

Date of Test:	13.MAY.2021
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	2No. Latched, Single Acting, Single Leaf Doorsets with 1No. Glazed Aperture – LSASD within a single aperture
Tested Orientation:	Opening in towards the furnace
Sampling information:	BM Trada, SC21043, 06th and 10th May 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 58 minutes Cotton pad test: 57 minutes Gap gauge: 68 minutes **Insulation:** Insulation I_2: 46 minutes
Reason for Use	For use as primary evidence for: • Hardware The integrity failures observed are specifically related to a doorset design which is different to the one detailed within this assessment. As the failure modes prior to 60 minutes duration are remote from the items being considered herein it has been deemed suitable evidence to support their use.
Failure Mode:	Initial Failure: Cotton Pad Test at RH Letterplate at 57 minutes

3.1.48 Test Report CFR2007291 Revision 1

Date of Test:	29.JULY.2020
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Double Acting, Double Leaf, Glazed Apertures – DADD.
Tested Orientation:	Doorset opens in both directions, towards and away from the test conditions.
Sampling information:	BM Trada, SC20126, 23rd July 2020
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained Flaming: 60 minutes Cotton pad test: 61 minutes Gap gauge: 61 minutes **Insulation:** Insulation I_2: 38 minutes
Reason for Use	For use as primary evidence for: • Glazing systems

3.1.49 Test Report WF390174

Date of Test:	18.OCT.2017
Identification of Test Body:	Exova Ltd. UKAS No. 0249 (now trading under: Warringtonfire Test & Certification)
Sponsor:	Dorma UK Ltd
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset– LSASD. Doorset B: Latched, Single Acting, Single Leaf Doorset - LSASD
Tested Orientation:	Doorset A: Opening away from the furnace Doorset B: Opening away from the furnace
Sampling information:	Warrington Certification, FM388953, 13th September 2017 selection of hardware items
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Doorset A: Sustained flaming: 63 minutes Cotton pad test: 63 minutes Gap gauge: 67 minutes Doorset B: Sustained flaming: 38 minutes Cotton pad test: 38 minutes Gap gauge: 67 minutes **Insulation I_2:** Doorset A: 63 minutes Doorset B: 38 minutes
Reason for Use	For use as primary evidence for • Hardware • Pull handles • Panic hardware The integrity failures observed on doorset B were local to a specific item of building hardware which has not been included herein. Further to this failure no other failures were observed and therefore this report is suitable for other items being included within this report.
Failure Mode:	Initial Failure: Cotton Pad Test and Continuous Flaming at wide panic module at 38 minutes (Doorset B).

3.1.50 Test Report WF379041B Issue 3

Date of Test:	31.JAN.2017
Identification of Test Body:	Exova Ltd. UKAS No. 0249 (Now trading under: Warringtonfire Testing and Certification)
Sponsor:	Dorma Deutschland Gmbh
Tested Product:	Unlatched, Single acting, Single leaf Doorset - ULSASD
Tested Orientation:	Opening towards the furnace
Sampling information:	Warrington Certification, FM378235, 16th January 2017 selected items of hardware
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Sustained flaming: 58 minutes Cotton pad test: 58 minutes Gap gauge: 64 minutes **Insulation:** Insulation I_2: 58 minutes
Reason for Use	For use as primary evidence for • Hardware Intumescent The failure observed has been identified to have originated from the lock position. The lock has not been included within this assessment.
Failure Mode:	Initial Failure: Continuous Flaming around the lockset at 58 minutes

3.1.51 Test Report WF379042

Date of Test:	08.FEB.2017
Identification of Test Body:	Exova Ltd UKAS No. 0249 (Now trading under: Warringtonfire Testing and Certification)
Sponsor:	Dormakaba.
Tested Product:	Doorset A: Unlatched, Single Acting, Single Leaf Doorset – ULSASD. Doorset B: Unlatched, Single Acting, Single Leaf Doorset - ULSASD
Tested Orientation:	Doorset A: Opening away from the furnace Doorset B: Opening towards the furnace
Sampling information:	Warrington Certification, FM378235, 16th January 2017 selected items of hardware
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Doorset A: Sustained flaming: 64 minutes Cotton pad test: 64 minutes Gap gauge: 64 minutes Doorset B: Sustained flaming: 63 minutes Cotton pad test: 63 minutes Gap gauge: 64 minutes **Insulation I_2:** Doorset A: 64 minutes Doorset B: 63 minutes
Reason for Use	For use as primary evidence for • Hardware

3.1.52 Test Report WF350451

Date of Test:	14.APRIL.2015
Identification of Test Body:	Exova Ltd UKAS No. 0249 (Now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Dorma Deutschland GmbH
Tested Product:	Doorset A: Unlatched, Single Acting, Single Leaf Doorset– ULSASD. Doorset B: Latched, Single Acting, Single Leaf doorset – LSASD
Tested Orientation:	Doorset A: Opening towards the furnace Doorset B: Opening towards the furnace
Sampling information:	A representative of Warrington Certification Limited sample selected the concealed door closer on Doorset A and the hinges from a larger batch provided by the manufacturer. A representative of MPA sample selected the SVP components on both doorsets. No sampling report included.
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Doorset A: Sustained flaming: 60 minutes Cotton pad test: 60 minutes Gap gauge: 63 minutes Doorset B: Sustained flaming: 53 minutes Cotton pad test: 52 minutes Gap gauge: 63 minutes **Insulation I_2:** Doorset A: 60 minutes Doorset B: 52 minutes
Reason for Use	For use as primary evidence for • Hardware While failures were observed at the leaf perimeter of Doorset B, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22. It is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Cotton Pad Test at top corner leading edge at 52 minutes (Doorset B) Further Failure: Continuous Flaming along the head at 53 minutes (Doorset B)

3.1.53 Test Report WF198681

Date of Test:	09.DEC.2010
Identification of Test Body:	Exova Ltd. UKAS No. 0249 (Now trading under: Warringtonfire Testing and Certification)
Sponsor:	Dorma UK Ltd
Tested Product:	Doorset A: Double Acting, Single Leaf Doorset – DASD. Doorset B: Latched, Single Acting, Single Leaf Doorset - LSASD
Tested Orientation:	Doorset A: Doorset opens in both directions, towards and away from the test conditions. Doorset B: opening away from the furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2008
Performance:	**Integrity:** Doorset A: Sustained flaming: 33 minutes Cotton pad test: 33 minutes Gap gauge: 33 minutes Doorset B: Sustained flaming: 64 minutes Cotton pad test: 64 minutes Gap gauge: 65 minutes **Insulation I_2:** Doorset A: 33 minutes Doorset B: 64 minutes
Reason for Use	For use as primary evidence for • Hardware intumescent • Hardware While failures were observed at the leaf perimeter of Doorset A, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Cotton Pad Test and Continuous Flaming at head of Doorset A at 33 minutes

3.1.54 Test Report WF513979

Date of Test:	03.MAR.2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Dormakaba UK Ltd
Tested Product:	Doorset A: Unlatched, Single Acting, Single Leaf Doorset – ULSASD. Doorset B: Unlatched, Single Acting, Single Leaf Doorset – ULSASD
Tested Orientation:	Doorset A: Opening towards the furnace Doorset B: Opening away from the furnace
Sampling information:	Warringtonfire Testing and Certification Ltd FM511216 27th January 2022 of hardware items
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset A: 74minutes Doorset B: 74 minutes **Insulation I_2:** Doorset A: 74minutes Doorset B: 74 minutes
Reason for Use	For use as primary evidence for • Hardware • Panic hardware

3.1.55 Test Report WF323822

Date of Test:	07.DEC.2012
Identification of Test Body:	Exova Ltd. UKAS No.: 0249 (Now trading as: Warringtonfire Testing and Certification)
Sponsor:	Bartels Systembeschlage Gmbh and Cooke Brothers Ltd
Tested Product:	Doorset A: Unlatched, Single Acting, Single Leaf Doorset – ULSASD. Doorset B: Unlatched, Single Acting, Single Leaf Doorset- ULSASD
Tested Orientation:	Doorset A: Opening towards the furnace Doorset B: Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2008
Performance:	**Integrity:** Doorset A: Sustained flaming: 63 minutes Cotton pad test: 61 minutes Gap gauge: 66 minutes Doorset B: Sustained flaming: 64 minutes Cotton pad test: 64 minutes Gap gauge: 66 minutes **Insulation I_2:** Doorset A: 61minutes Doorset B: 64 minutes
Reason for Use	For use as primary evidence for • Hardware

3.1.56 Test Report CFR1711241 LH

Date of Test:	24.NOV.2017
Identification of Test Body:	Cambridge Fire Research Ltd, UKAS No: 4319
Sponsor:	Royde and Tucker Ltd
Tested Product:	Doorset LH: Unlatched, Single Acting, Single Leaf Doorset – ULSASD.
Tested Orientation:	Doorset LH: Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Sustained flaming: 68 minutes Cotton pad test: 68 minutes Gap gauge: 68 minutes **Insulation I_2:** 68 minutes
Reason for Use	For use as primary evidence for • Hardware

3.1.57 Test Report CFR1811211 LH

Date of Test:	21.NOV.2018
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Royde and Tucker Ltd
Tested Product:	Doorset LH: Unlatched, Single Acting, Single Leaf Doorset – ULSASD.
Tested Orientation:	Doorset LH: Opening towards the furnace
Sampling information:	FM406927, 14th November 2018 – Hinges FM395802, 16th October 2018 – Letterplate with cowl
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 63 minutes Cotton pad test: 62 minutes Gap gauge: 68 minutes **Insulation I_2:** 62 minutes
Reason for Use	For use as primary evidence for • Hardware

3.1.58 Test Report WF380315B

Date of Test:	28.FEB.2017
Identification of Test Body:	Exova Ltd UKAS No: 0249 (Now Trading Under: Warringtonfire testing and certification)
Sponsor:	Hoppe (UK) Limited
Tested Product:	Doorset B: Unlatched, Single Acting, Single Leaf Doorset – ULSASD
Tested Orientation:	Doorset B: Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Sustained flaming: 47 minutes Cotton pad test: 47 minutes Gap gauge: 47 minutes **Insulation I_2:** 47 minutes
Reason for Use	For use as primary evidence for • Hardware • Security viewer While failures were observed at the leaf perimeter of Doorset B, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22. It is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Continuous Flaming at localised spot at head of Doorset B leaf at 47 minutes

3.1.59 Test Report WF364240 Issue 2

Date of Test:	11.MAY.2016
Identification of Test Body:	Exova Ltd UKAS No. 0249 (Now trading as: Warringtonfire testing and certification)
Sponsor:	Abloy OY.
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf, Doorset – LSASD Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD
Tested Orientation:	Doorset A: Opening towards furnace Doorset B: Opening away from furnace
Sampling information:	Warrington Certification, WF362341, 26th April 2016; 9No. sample reports for hardware items
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Doorset A: Sustained flaming: 68 minutes Cotton pad test: 68 minutes Gap gauge: 68 minutes Doorset B: Sustained flaming: 68 minutes Cotton pad test: 68 minutes Gap gauge: 68 minutes **Insulation I_2:** Doorset A: 68minutes Doorset B: 68 minutes
Reason for Use	For use as primary evidence for • Hardware

3.1.60 Test Report BMT/FEP/F14095

Date of Test:	27.JUN.2014
Identification of Test Body:	BM TRADA UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	Newstar Door Controls Ltd
Tested Product:	Doorset A: Latched, Single Acting, Double Leaf Doorset – LSADD Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD
Tested Orientation:	Doorset A: Opening towards furnace Doorset B: Opening towards furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Doorset A: Sustained flaming: 59 minutes Cotton pad test: 59 minutes Gap gauge: 68 minutes Doorset B: Sustained flaming: 68 minutes Cotton pad test: 68 minutes Gap gauge: 68 minutes **Insulation I_2:** Doorset A: 59 minutes Doorset B: 68 minutes
Reason for Use	For use as primary evidence for • Hardware Intumescent • Flush bolts While failures were observed at the leaf perimeter of Doorset A, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Cotton Pad Failure at top hinge of Doorset A at 59 minutes. Further failure: Continuous flaming across left half of Doorset A leaf head at concealed closer at 59 minutes.

3.1.61 Test Report CFR2006181

Date of Test:	18.JUN.2020
Identification of Test Body:	Cambridge Fire Research Ltd UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset – LSASD Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD
Tested Orientation:	Doorset A: Opening towards the furnace Doorset B: Opening away from the furnace
Sampling information:	BM Trada, SC20099, 16th June 2020
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset A: Sustained flaming: 64 minutes Cotton pad test: 68 minutes Gap gauge: 68 minutes Doorset B: Sustained flaming: 54 minutes Cotton pad test: 44 minutes Gap gauge: 68 minutes **Insulation I_2:** Doorset A: 32 minutes Doorset B: 23 minutes
Reason for Use	For use as primary evidence for • Hardware • Weather bar While failures were observed at the leaf perimeter of Doorset B, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Cotton Pad Failure at packer midway of left hand frame of Doorset B at 44 minutes Further Failure: Continuous Flaming at packer midway of left hand frame of Doorset B at 54 minutes Further Failure: Continuous Flaming at hanging stile mid-height of Doorset B at 59 minutes

3.1.62 Test Report CFR2109021

Date of Test:	03.SEP.2021
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Doorset B: Unlatched, Single Acting, Double Leaf Doorset – ULSADD
Tested Orientation:	Doorset B: Opening towards the furnace
Sampling information:	BM Trada, SC21143, 19th August 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset B: Sustained flaming: 45 minutes Cotton pad test: 64 minutes Gap gauge: 64 minutes **Insulation I_2:** Doorset B: 45 minutes
Reason for Use	For use as primary evidence for • Hardware While failures were observed at the leaf perimeter of Doorset B, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Continuous Flaming at top of meeting stiles of Doorset B at 45 minutes.

3.1.63 Test Report WF504819

Date of Test:	22.JUN.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Leaf Doorset – LSADD
Tested Orientation:	Opening towards the furnace
Sampling information:	BM Trada, SC21096, 15th & 16th June 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 67 minutes Cotton pad test: 77 minutes Gap gauge: 77 minutes **Insulation I_2:** 67 minutes
Reason for Use	For use as primary evidence for • Hardware • Security viewer

3.1.64 Test Report WF504821

Date of Test:	29.JUN.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Leaf Doorset – LSADD
Tested Orientation:	Opening away from the furnace
Sampling information:	BM Trada, SC21096, 15th & 16th June 2021
Test Standard:	BS EN 1634-1:2014 +A1:2018
Performance:	**Integrity:** Sustained flaming: 69 minutes Cotton pad test: 58 minutes Gap gauge: 69 minutes **Insulation I_2:** 58 minutes
Reason for Use	For use as primary evidence for • Hardware While failures were observed at the leaf perimeter of the doorset, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Cotton Pad Failure at bottom meeting edge at 58 minutes

3.1.65 Test Report WF507671

Date of Test:	09.SEP.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Leaf Doorset – LSADD
Tested Orientation:	Opening towards the furnace
Sampling information:	BM Trada, SC21148, 02th September 2021
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 52 minutes Cotton pad test: 51 minutes Gap gauge: 61 minutes **Insulation I_2:** 51 minutes
Reason for Use	For use as primary evidence for • Hardware • Security viewer While failures were observed at the leaf perimeter of the doorset, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Cotton Pad Failure at top of meeting corner at 51 minutes Further Failure: Continuous Flaming at top hanging corner of left leaf at 52 minutes Further Failure: Continuous Flaming across head of left leaf at 58 minutes Further Failure: Cotton Pad Test at top hinge of left leaf at 59 minutes Further Failure: Continuous Flaming at top hinge of left leaf at 59 minutes

3.1.66 Test Report Chilt/RF05036

Date of Test:	21.APR.2005
Identification of Test Body:	Chiltern International Fire Ltd. UKAS No. 1762 (Now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Pilkington Glass Ltd
Tested Product:	Unlatched, Single Acting, Single Leaf Doorset – ULSASD
Tested Orientation:	Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2000
Performance:	**Integrity:** Sustained flaming: 64 minutes Cotton pad test: 67 minutes Gap gauge: 67 minutes **Insulation I_2:** 20 minutes
Reason for Use	For use as primary evidence for • Glazing systems

3.1.67 Test Report WF386186 B

Date of Test:	17.AUG.2017
Identification of Test Body:	Exova Ltd UKAS No. 1762 (Now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Single Leaf Doorset – LSASD.
Tested Orientation:	Doorset: Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** 103 minutes **Insulation:** Insulation: 103 minutes
Reason for Use	For use as primary evidence for • Hardware Intumescent • Hardware

3.1.68 Test Report CFR2004171

Date of Test:	17.APR.2020
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Doorset B: Latched, Single Acting, Double leaf Doorset – LSADD
Tested Orientation:	Doorset B: Opening towards the furnace
Sampling information:	IFC Certification P197A1, P197A2, P197A, and P197B 2nd April 2020
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset B: Sustained flaming: 53 minutes Cotton pad test: 67 minutes Gap gauge: 67 minutes **Insulation I_2:** Doorset B: 53 minutes
Reason for Use	For use as primary evidence for • Surface mounted face fixed bolts While failures were observed at the leaf perimeter of the doorset, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Continuous Flaming at threshold from hanging stile to mid-width of Doorset A at 46 minutes. Continuous Flaming at handleset and meeting stile of Doorset B at 53 minutes

3.1.69 Test Report CFR1711171 Revision 1

Date of Test:	17.NOV.2017
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Double Leaf Doorset – LSADD
Tested Orientation:	Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 89 minutes **Insulation:** 89 minutes
Reason for Use	For use as primary evidence for • Hardware intumescent • Hardware

3.1.70 Test Report CFR2002051

Date of Test:	05.FEB.2020
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Ltd
Tested Product:	Unlatched, Single Acting, Double Leaf Doorset – ULSADD
Tested Orientation:	Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 64 minutes **Insulation:** 64 minutes In accordance with the note to clause 7.6.1.1 of BS 476: part 22: 1987, the glazing has not been evaluated for insulation
Reason for Use	For use as primary evidence for • Configuration and leaf sizes with a steel frame • Hardware • Pull handles • Push plates and kick plates • Environmental seals • Glazing systems

3.1.71 Test Report WB112-1B & 2B

Date of Test:	24.JUN.2022
Identification of Test Body:	Thomas Bell-Wright International Consultants Ltd UKAS No. 4439
Sponsor:	Halspan Limited
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset – LSASD. Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD.
Tested Orientation:	Doorset A: Opening towards the furnace Doorset B: Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset A: Sustained flaming: 54 minutes Cotton pad test: 56 minutes Gap gauge: 56 minutes Doorset B: Sustained flaming: 69 minutes Cotton pad test: 70 minutes Gap gauge: 70 minutes **Insulation I_1:** Doorset A: 48 minutes Doorset B: 69 minutes **Insulation I_2:** Doorset A: 54 minutes Doorset B: 69 minutes
Reason for Use	For use as primary evidence for • Hardware • Rebated threshold drop seal • Hardware intumescent While failures were observed at the leaf perimeter of the doorsets, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Continuous Flaming at top right corner of Doorset A at 54 minutes.

3.1.72 Test Report TB197-1B & 2B

Date of Test:	11.MAR.2020
Identification of Test Body:	Thomas Bell-Wright International Consultants Ltd UKAS No. 4439
Sponsor:	Halspan Limited
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset – LSASD.
Tested Orientation:	Doorset A: Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** Doorset A: 70 minutes **Insulation:** Doorset A: 70 minutes
Reason for Use	For use as primary evidence for • Hardware

3.1.73 Test Report FRR-2008/5506

Date of Test:	26.AUG.2020
Identification of Test Body:	Material Lab Testing Services L.L.C., Dubai ILAC (EIAC – Emirates International Accreditation Centre): 008-LB-TEST
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Single Leaf Doorset – LSASD.
Tested Orientation:	Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987/Amd: 2014
Performance:	**Integrity:** 67 minutes **Insulation:** 67 minutes
Reason for Use	For use as primary evidence for • Hardware intumescent • Hardware

3.1.74 Test Report WF415117

Date of Test:	01.OCT.2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 0249
Sponsor:	Gianni Industries Inc
Tested Product:	Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD
Tested Orientation:	Doorset B: Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset B: Sustained flaming: 63 minutes Cotton pad test: 63 minutes Gap gauge: 63 minutes **Insulation I_2:** Doorset B: 63 minutes
Reason for Use	For use as primary evidence for • Hardware

3.1.75 Test Report CFR1708031

Date of Test:	03.AUG.2017
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	James Latham
Tested Product:	Unlatched, Single Acting, Single Leaf Doorset – ULSASD.
Tested Orientation:	Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 65 minutes **Insulation:** Insulation: 62 minutes
Reason for Use	For use as primary evidence for • Hardware • Glazing systems

3.1.76 Test Report WF437975/LR

Date of Test:	01.MAR.2021
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 0249
Sponsor:	Abloy Oy Ltd
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset – LSASD Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD
Tested Orientation:	Doorset A: Opening towards the furnace Doorset B: Opening away from the furnace
Sampling information:	Warringtonfire, FM434242, 27th January 2021
Test Standard:	Utilising the heating conditions of BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Doorset A: Sustained flaming: 66 minutes Cotton pad test: 68 minutes Gap gauge: 68 minutes Doorset B: Sustained flaming: 68 minutes Cotton pad test: 68 minutes Gap gauge: 68 minutes **Insulation:** Not evaluated
Reason for Use	For use as primary evidence for • Hardware

3.1.77 Test Report Chilt/RF07141 Revision B

Date of Test:	27.NOV.2007
Identification of Test Body:	Chiltern International Fire UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	Lorient Polyproducts Ltd and Harrison Thompson & Co Ltd
Tested Product:	Doorset A: Unlatched, Single Acting, Double Leaf Doorset – ULSADD. Doorset B: Unlatched, Single Acting, Double Leaf Doorset – ULSADD.
Tested Orientation:	Doorset A: Opening towards the furnace Doorset B: Opening towards the furnace
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** Doorset A: 62 minutes Doorset B: 67 minutes **Insulation:** Doorset A: 62 minutes Doorset B: 67 minutes
Reason for Use	For use as primary evidence for • Hardware intumescent • Hardware

3.1.78 Test Report WF520063

Date of Test:	14.OCT.2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No 1762
Sponsor:	Halspan Limited
Tested Product:	Doorset A: Latched, Single Acting, Single Leaf Doorset – LSASD Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD
Tested Orientation:	Doorset A: Opening towards the furnace Doorset B: Opening away from the furnace
Sampling information:	BM Trada, SC22145, 26th & 27th September, 03rd October 2022
Test Standard:	BS EN 1634-1: 2014+A1:2018
Performance:	**Integrity:** Doorset A: 68 minutes Doorset B: 73 minutes **Insulation I_2:** Doorset A: 45 minutes Doorset B: 50 minutes
Reason for Use	For use as primary evidence for • Tracker tags • Glazing systems • Hardware

3.1.79 Test Report CFR2209201

Date of Test:	20.SEP.2022
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Single Leaf Doorset, with side lights and fan lights – LSASD.
Tested Orientation:	Opening towards from the furnace
Sampling information:	BM Trada, SC22170, 06th, 09th & 12th September 2022
Test Standard:	BS EN 1634-1:2014+A1: 2018
Performance:	**Integrity:** Sustained flaming: 56 minutes Cotton pad test: 70 minutes Gap gauge: 70 minutes **Insulation I_2:** 19 minutes
Reason for Use	For use as primary evidence for • Hardware • Security viewer • Rebated threshold drop seal • Letter plate • Security chain • Decorative grooving While failures were observed at the glazing location in a sidelight arrangement, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein. Furthermore, the glass is not being used to extend the scope of the doorset design.
Failure Mode:	Initial Failure: continuous flaming at the surface of the glass within a sidelight arrangement at 56 minutes and 59 minutes. No other failures observed.

3.1.80 Test Report WF523941/MRa

Date of Test:	17.OCT.2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 0249
Sponsor:	Halspan Ltd
Tested Product:	Latched, Single Acting, Double Leaf Doorset – LSADD
Tested Orientation:	Opening towards the furnace
Sampling information:	BM Trada, SC22211, 14th & 15th October 2022
Test Standard:	BS EN 1634-1:2014+A1:2018
Performance:	**Integrity:** Sustained flaming: 63 minutes Cotton pad test: 49 minutes Gap gauge: 68 minutes **Insulation I_2:** 18 minutes
Reason for Use	For use as primary evidence for • Glazing system • Hardware • Pull handles • Push plates & kick plates This report is an evaluation of the potential fire resistance performance if the design were to be tested in accordance with BS 476: Part 22: 1987. If tested to BS 476: Part 22: 1987, a cotton pad test would not normally be applied to the non-insulating elements of a doorset design and therefore the initial failure times are not considered relevant when used for this purpose.
Failure Mode:	Initial Failure: Cotton Pad Test over glass panel at 49 minutes no further failure until in excess of 63 minutes.

3.1.81 Test Report WF526042

Date of Test:	06.DEC.2022
Identification of Test Body:	Warringtonfire testing and certification Ltd. UKAS No. 1762
Sponsor:	Halspan Limited
Tested Product:	Latched, Single Acting, Double Leaf Doorset – LSADD
Tested Orientation:	Opening towards the furnace
Sampling information:	BM Trada, SC22247, 30th November 2022
Test Standard:	BS EN 1634-1:2014 +A1:2018
Performance:	**Integrity:** 58 minutes **Insulation I_2:** 58 minutes
Reason for Use	For use as primary evidence for • Back to back recessed pull handles While failures were observed at the leaf perimeter of the doorset, the test summarised was undertaken to BS EN 1634-1 which as detailed above is more onerous than BS 476-22 it is therefore the opinion of Warringtonfire that these failures do not contradict the scope given herein.
Failure Mode:	Initial Failure: Cotton Pad Failure at the meeting edge at 59 minutes, with a further failure of continuous flaming recorded at 59 minutes.

3.1.82 Test Report TA099-A

Date of Test:	02.APR.2019
Identification of Test Body:	Thomas Bell-Wright International Consultants. UKAS No. 4439
Sponsor:	Halspan Limited
Tested Product:	Doorset: Single Acting, Double Leaf, Doorset with, Steel frame – LSADD.
Tested Orientation:	Doorset opened towards the test conditions
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** 70 minutes **Insulation:** 70 minutes
Reason for Use	For use as primary evidence for: • Configuration and leaf sizes with a steel frame • Hardware

3.1.83 Test Report WF412658

Date of Test:	05.DEC.2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Halspan Limited
Tested Product:	Doorset A: Single Acting, Single Leaf, Doorset with, Glazed Apertures – LSASD. Doorset B: Single Acting, Single Leaf, Doorset with, Glazed Apertures and over panel - LSASD+OP
Tested Orientation:	Both doorsets opened towards the test conditions
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** Doorset A: 59 minutes Doorset B: 44 minutes **Insulation:** Doorset A: 59 minutes Doorset B: 44 minutes
Reason for Use	For use as primary evidence for: • Configuration and leaf sizes with a steel frame • Hardware Doorset A: Failures were observed at the glazing, but the glass and glazing system has not been included or used to extend the scope given for the doorset design herein. Doorset B: Failures were observed at the glazing, but the glass and glazing system has not been included or used to extend the scope given for the doorset design herein. Furthermore, the test on the doorset was terminated at 55 minutes duration and therefore, the tested configuration has not been included within the scope herein.
Failure Mode:	Doorset A: Initial Failure Continuous flaming at the glazing at 59 minutes Doorset B: Initial Failure: Continuous flaming at glazing at 44 minutes, with further failure of continuous flaming at handle at 48 minutes and test terminated at 55 minutes.

3.1.84 Test Report WARRES 111202

Date of Test:	12.JAN.2000
Identification of Test Body:	Warringtonfire Testing and Certification Ltd.
Sponsor:	Halspan Limited
Tested Product:	Unlatched, Single Acting, Double Leaf, Doorset with, Steel frame – ULSADD.
Tested Orientation:	Doorset opened towards the test conditions
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 69 minutes **Insulation:** 32 minutes
Reason for Use	For use as primary evidence for: • Configuration and leaf sizes with a steel frame. • Hardware

3.1.85 Test Report Chilt/RF01073

Date of Test:	01.AUG.2001
Identification of Test Body:	Chiltern International Fire UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	Halspan Limited
Tested Product:	Doorset B: Unlatched, Single Acting, Single Leaf, Doorset with, Steel frame – ULSASD.
Tested Orientation:	Doorset opened towards the test conditions
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 76 minutes **Insulation:** 76 minutes
Reason for Use	For use as primary evidence for: • Configuration and leaf sizes with a steel frame • Hardware

3.1.86 Test Report Chilt/RF01074

Date of Test:	09.AUG.2001
Identification of Test Body:	Chiltern International Fire UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	Halspan Limited
Tested Product:	Doorset A: Unlatched, Single Acting, Single Leaf, Doorset with, Steel frame – ULSASD.
Tested Orientation:	Doorset opened towards the test conditions
Sampling information:	No sampling report included.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 78 minutes **Insulation:** 78 minutes
Reason for Use	For use as primary evidence for: • Configuration and leaf sizes with a steel frame • Hardware

3.1.87 Test Report BMT/FEP/F15163

Date of Test:	18.JUN.2015
Identification of Test Body:	BM TRADA UKAS No. 1762 (Now trading as Warringtonfire Testing and Certification Limited)
Sponsor:	Sealed Tight Solutions Ltd
Tested Product:	Latched, Single Acting, Double Leaf Doorset with glazing aperture – ULSADD.
Tested Orientation:	Opening in towards the furnace
Sampling information:	No sampling report included
Test Standard:	BS 476: Part 20/22: 1987
Performance:	**Integrity:** 51 minutes **Insulation:** 0 minutes In accordance with Section 8.6.1 of BS 476: Part 22: 1987, the specimen has not been evaluated for insulation
Reason for Use	For use as primary evidence for: • Hardware intumescent protection. The 51-minute integrity failure at the glazing has been ignored as the glass and glazing system used within the test has not been included within this assessment.
Failure Mode:	Initial Failure: Continuous flaming at glazing perimeter at 51 minutes No further failure was observed until in excess of 69 minutes.

3.1.88 Test Report WF404075/A

Date of Test:	20.MAY.2016
Identification of Test Body:	Exova Ltd UKAS No. 0249 (Now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Specialized Security
Tested Product:	Doorset B: Unlatched, Single Acting, Single Leaf Doorset – ULSASD.
Tested Orientation:	Doorset B: Opening towards the furnace
Sampling information:	No sampling report included
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Doorset B: Sustained flaming: 63 minutes Cotton pad test: 62 minutes Gap gauge: 68 minutes **Insulation I_2:** Doorset B: 62 minutes
Reason for Use	For use as primary evidence for • Electronic locking

3.1.89 Test Report WF327018

Date of Test:	11.MAR.2013
Identification of Test Body:	Exova Ltd. UKAS No. 0246 (Now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Codelocks Ltd
Tested Product:	Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD
Tested Orientation:	Opening towards the furnace
Sampling information:	No sampling report included
Test Standard:	BS EN 1634-1:2008
Performance:	**Integrity:** Doorset B: Sustained flaming: 63 minutes Cotton pad test: 63 minutes Gap gauge: 66 minutes **Insulation I_2:** 63 minutes
Reason for Use	For use as primary evidence for • Access control system

3.1.90 Test Report WF397957

Date of Test:	23.APR.2018
Identification of Test Body:	Exova Warringtonfire (Now trading as: Warringtonfire Testing and Certification Ltd)
Sponsor:	Codelocks Ltd
Tested Product:	Latched, Single Acting, Single Leaf Doorset – LSASD
Tested Orientation:	Opening towards the furnace
Sampling information:	No sampling report included
Test Standard:	General principals of BS EN 1634-1:2014
Performance:	**Integrity:** Sustained flaming: 63 minutes Cotton pad test: 63 minutes Gap gauge: 63 minutes **Insulation:** Insulation I_2: Not evaluated
Reason for Use	For use as primary evidence for • Access control system

3.1.91 Test Report WF391351

Date of Test:	09.DEC.2017
Identification of Test Body:	Exova Ltd. UKAS No. 0249 (Now trading under: Warringtonfire Testing and Certification)
Sponsor:	Mann McGowan Fabrications Ltd
Tested Product:	Doorset B: Latched, Single Acting, Single Leaf Doorset – LSASD
Tested Orientation:	Doorset B: Opening towards the furnace
Sampling information:	No sampling report included
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Doorset B: Sustained flaming: 69 minutes Cotton pad test: 69 minutes Gap gauge: 69 minutes **Insulation I_2:** Doorset B: 69 minutes
Reason for Use	For use as primary evidence for • Air transfer grille

3.1.92 Test Report Warres 117483

Date of Test:	27.FEB.2001
Identification of Test Body:	Warrington Fire Research Centre Ltd
Sponsor:	Zero Seal Systems Limited
Tested Product:	Indicative 990mm (h) 990 (w) 54 (t) leaf with two glazed apertures
Tested Orientation:	Test was fixed
Sampling information:	None detailed in test report
Test Standard:	The general principles of BS 476: Part 20: 1987
Performance:	**Integrity:** 71 minutes **Insulation:** 71 minutes
Reason for Use	For use as primary evidence for: • Zeroplus Slimport SP450 • Zeroplus Slimport SP250 • Circular apertures

4 Technical Specification

4.1 General

The technical specification for the proposed door assemblies 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

The Prima 60 door design (herein referred to as Leaf 1) can include various design features.

The door designs considered in this Part 2 of the suite of FEA/F96103 field of applications for the Prima 60 product family can include:

1. Glazing
2. Feature Grooves including insert materials
3. Decorative facings
4. Decorative planted on timber mouldings
5. Various hardware options

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.

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

Each of the associated frame options given below have specific requirements for the wall type they are permitted to be installed within. A table of wall type compatibility is detailed within section 11.4 which must be adhered to.

Note: Gaps in frame reference numbering are intentional.

4.4.1 Frame M1: 1 Part Steel Frame with Cement Back Fill

The construction of the Frame M1 door frame is 1.5mm thick, 1 part steel frame with a cement back fill.

Supported by tests referenced: RF01073, RF01074 & TA099-A

For further information on the specification and construction of the door frames see section 7.

4.4.2 Frame M3: 1 Part Hollow Steel Frame

The construction of the Frame M3 door frame is 2mm thick, 1 part steel frame with a cement back fill.

Supported by tests referenced: WARRES 111202

For further information on the specification and construction of the door frames see section 7.

4.4.3 Frame M4: 2 part Steel Frame with Partial Foam Back Fill

The construction of the Frame M4 door frame is 2mm thick, 2 part steel frame with a foam back fill applied to the framing element which the door is hung from.

Supported by tests referenced: WF412658 & CFR2002051

For further information on the specification and construction of the door frames see section 7.

4.5 Doorset Configurations & Maximum Leaf Sizes

4.5.1 General

The evaluation of the leaf size for each 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 60 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 configurations tested. The principle is that the more components included in testing, for example, double door leaves – 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.
2. A test on an unlatched doorset is more onerous than a test on a latched doorset as the leading edge is unrestrained and will deflect more in fire test conditions.

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 Prima 60 doorset design within steel frames, 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.

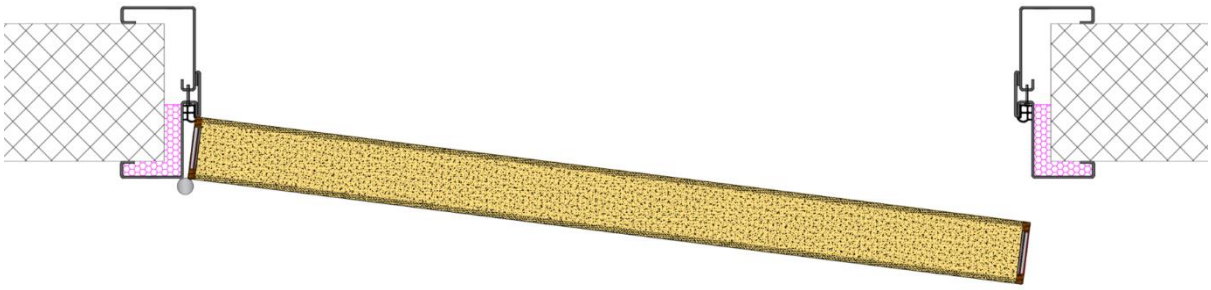
Doorset Configurations		
Depiction	Abbreviation	Description
	LSASD	Latched Single Acting Single Doorset
	ULSASD	Unlatched Single Acting Single Doorset
	LSADD	Latched Single Acting Double Doorset
	ULSADD	Unlatched Single Acting Double Doorset

4.5.3 Orientation

The majority of primary fire resistance tests for these designs were conducted with the doorset hung such that the door leaf opened towards the fire, which is considered the most onerous orientation in terms of fire resistance performance. Based on this testing, assessment is made that the doorsets to this design may be hung either away from or towards the fire risk side of the doorset. The rationale behind the direction of fire testing timber based leaf in a metal frame doorsets opening towards the fire test conditions is further explained in Annex C of BS EN 1634-1:2014 +A1:2018.

The report may refer to the opening or closing face of the door, for clarity the following drawing defines which face is the opening face.

Closing Face



Opening Face

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 with no restriction on the smaller leaf dimensions providing it does not exceed the relevant leaf size envelope and is not smaller in width than 300mm.

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

A table of essential hardware is given in section 10.3 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 and finish flush with the element to which they are applied (e.g. leaf edge) unless stated otherwise.
- Intumescent seals may be interrupted at hardware locations unless stated otherwise, in all cases any interruption shall be kept to a minimum.
- 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.
- While intumescent seals are not specified to be applied at the bottom edge of the leaf, their application may be a requirement for certain elements of building hardware. It is the opinion of Warringtonfire that the application of intumescent seals across the bottom edge of the leaf will not detract from the fire resistance performance under test conditions, when applied the intumescent may consist of either:
    - 1No. Intumescent seal no greater than 30mm wide or
    - 2No. Intumescent seals, each no greater than 15mm wide.
- Inclusion of specific design details for example hardware may require a different intumescent seal specification compared to that stated for the leaf configurations in sections 4.5.7 to 4.5.16. Where this is the case, it is important that the following conditions are met:
    - The intumescent type given for the specific design detail must match that given for the required leaf configuration and leaf size (e.g. if Halspan SLS is given as the required seal type, only leaf configurations and sizes approved for Halspan SLS seals can be used).
    - The largest of the intumescent specifications given for the different design details must take precedence, which is to be determined by the total amount of intumescent required for that doorset design (e.g. if the total amount of perimeter intumescent for a particular hardware item is greater than that required for the associated leaf configuration and size,

the intumescent detail stated for the item of hardware would take precedence and an alternative perimeter intumescent must be used to ensure both requirements are met).

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 Prima 60 Leaf 1 and 3 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 ULSADD
- for each configuration, each frame type is considered separately,
- for each configuration, 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 Configuration for Prima 60 (Leaf 1) & Frame Options

Permitted Configurations with frame types M1, M3 and M4 with leaf type 1 (Prima 60)											
Frame		Configuration									
		LSASD	ULSASD	DASD	LSASD OP	ULSASD OP	LSADD	ULSADD	DADD	LSADD OP	ULSADD OP
M1	1 Part Steel Frame with Cement Back Fill *	Yes	Yes	No	No	No	Yes	Yes	No	No	No
M3	1 Part Hollow Steel Frame *	Yes	Yes	No	No	No	Yes	Yes	No	No	No
M4	2 Part Steel Frame with Partial Foam Back Fill *	Yes	Yes	No	No	No	Yes	Yes	No	No	No

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

4.5.5 Specific Leaf Size Limitations

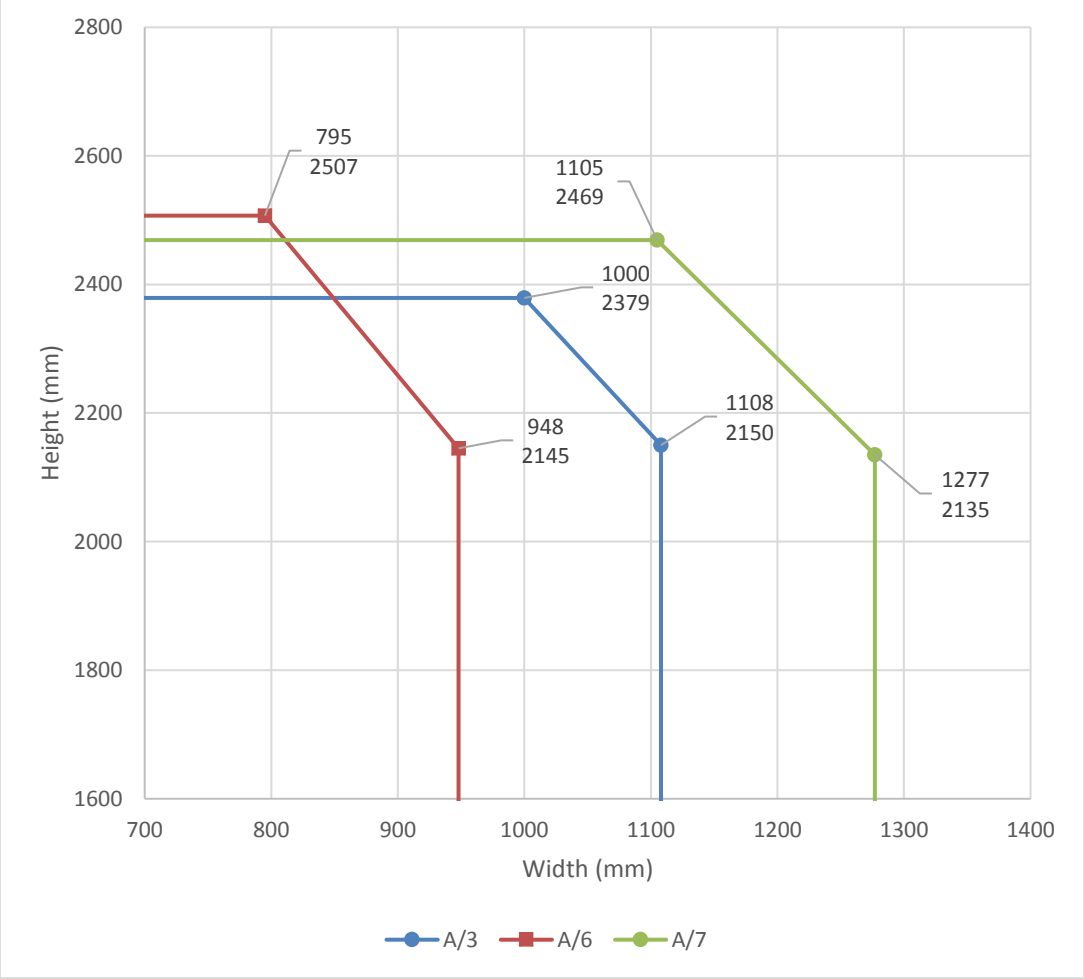
It is important to note that there are specific leaf size limitations relating to some design features of the Prima 60 doorset design. When considering the following design features it is the smallest of the permitted leaf sizes related to the doorset design that applies.

- Perimeter Intumescent, Frame type and Configuration (Section 4.5)
- Door leaf design features (Section 5)
- Hardware (Section 10)

4.5.6 LSASD Configuration: Leaf Sizes & Intumescent Specification

4.5.6.1 Leaf 1 + Frame M1 Doorset

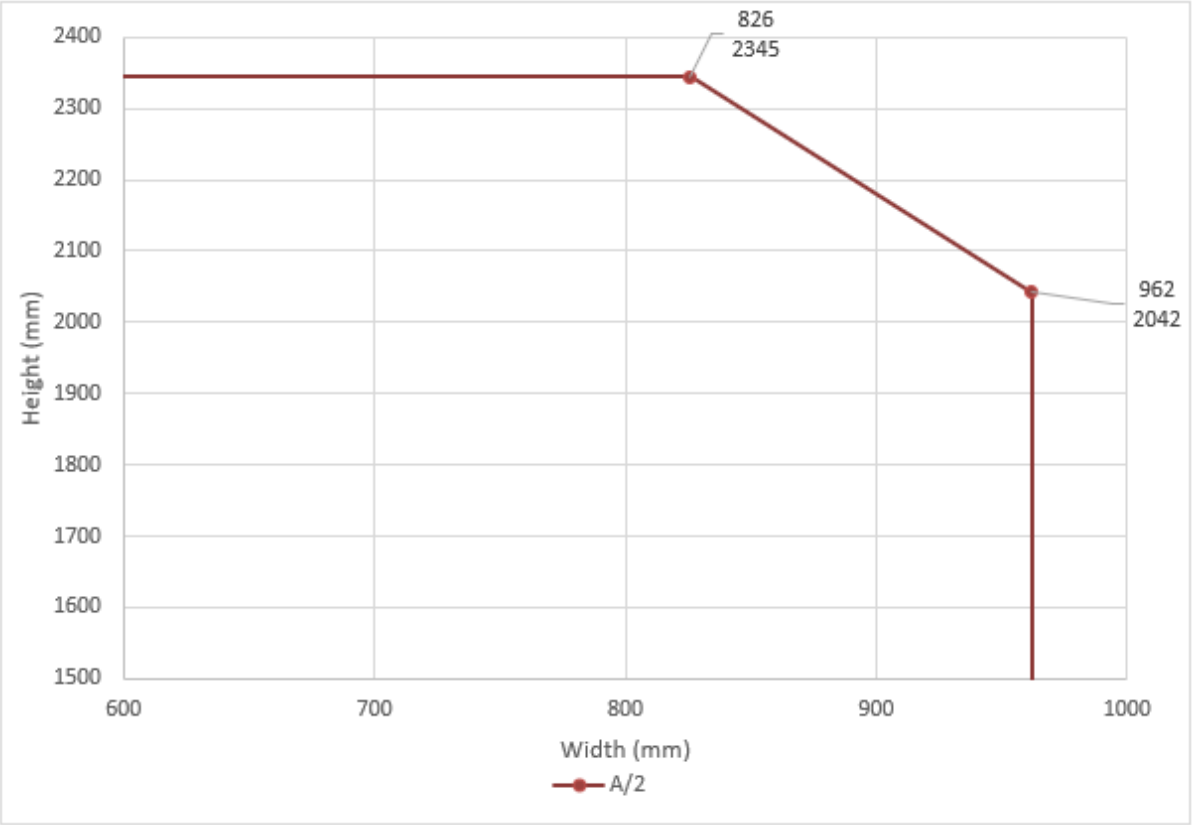
Leaf size envelopes for LSASD using Leaf 1 and Frame M1



Intumescent Specification for LSASD Leaf 1 with Frame M1		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
A/3 (TA099-A)	Halspan H60F	**Leaf (Vertical edges and Head):** 1No. Halspan H60F 38x4. Fitted centrally in the leaf edges.
A/6 (RF01074 A)	Intumescent Seals Ltd, Therm-A-Seal	**Leaf (Vertical edges and Head):** 1No. Therm-A-Seal 38x4. Fitted centrally in the leaf edges.
A/7 (RF01073 B)	Intumescent Seals Ltd, Therm-A-Seal	**Leaf (Vertical edges and Head):** 1No. Therm-A-Seal 38x4. Fitted centrally in the leaf edges.

4.5.6.2 Leaf 1 + Frame M3 Doorset

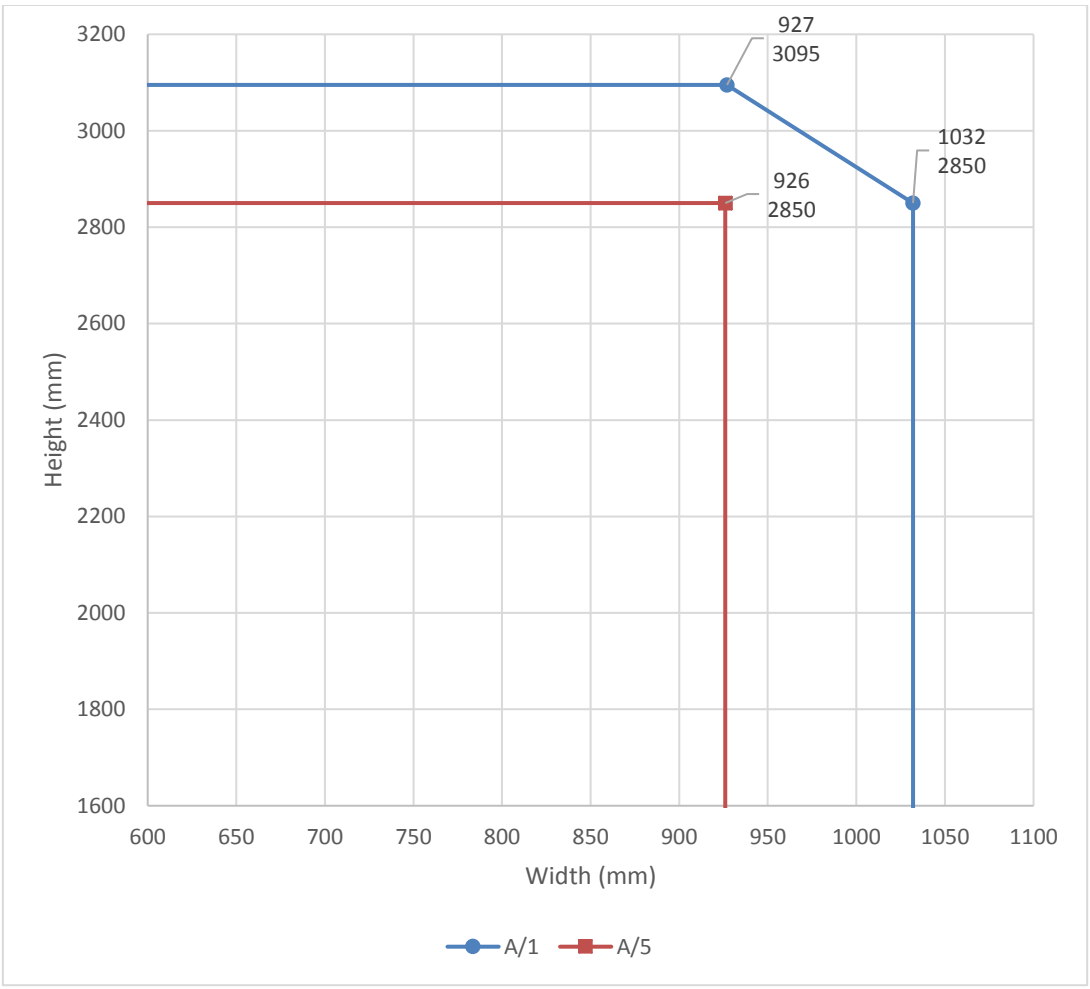
Leaf size envelopes for LSASD using Leaf 1 and Frame M3



Intumescent Specification for LSASD Leaf 1 with Frame M3		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
A/2 (WARRES 111202)	Halspan Ltd, H60	**Leaf (Vertical edges and Head):** 1No. Halspan H60 38mm x 6mm seal. Fitted centrally in the leaf edges.

4.5.6.3 Leaf 1 + Frame M4 Doorset

Leaf size envelopes for LSASD using Leaf 1 and Frame M4

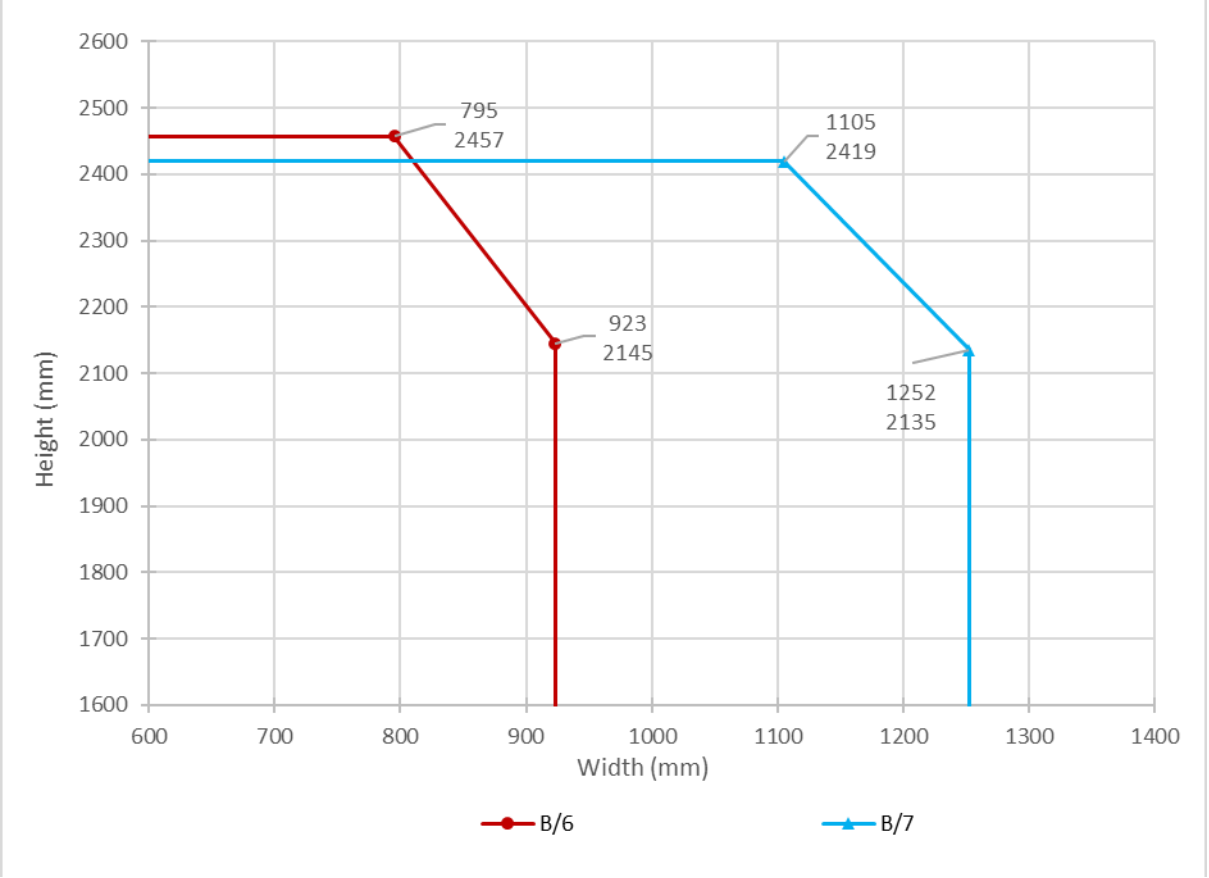


Intumescent Specification for LSASD Leaf 1 with Frame M4		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
A/1 (CFR2002051)	Halspan H60	**Leaf (Vertical edges and Head):** 1No. Halspan H60 38x6 (overall). Fitted in the leaf edges centrally.
A/5 (WF412658 A)	Halspan H60	**Leaf (Vertical edges and Head):** 1No. Halspan H60 38x6 (overall). Fitted in the leaf edges centrally.

4.5.7 ULSASD Configuration: Leaf Sizes & Intumescent Specification.

4.5.7.1 Leaf 1 + Frame M1 Doorset

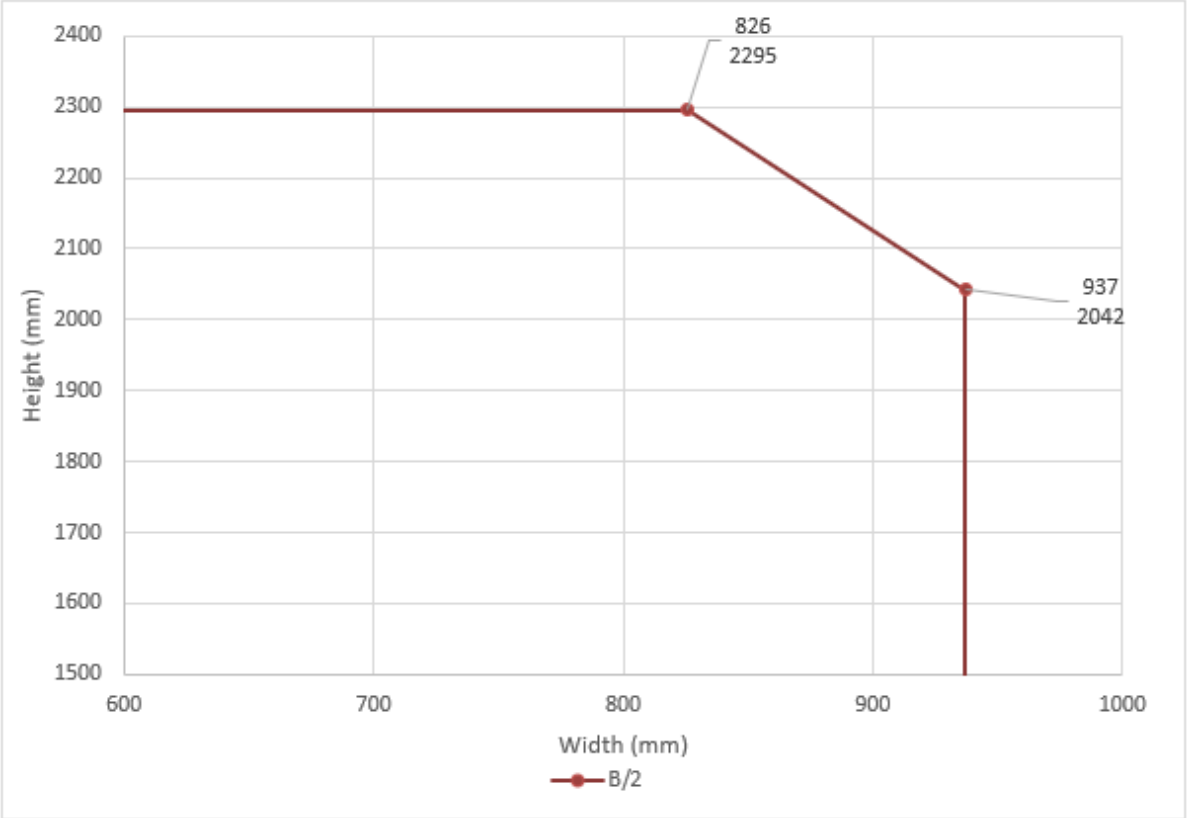
Leaf size envelopes for ULSASD using Leaf 1 and Frame M1



Intumescent Specification for ULSASD Leaf 1 with Frame M1		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
B/6 (RF01074 A)	Intumescent Seals Ltd, Therm-A-Seal	**Leaf (Vertical edges and Head):** 1No. Therm-A-Seal 38x4. Fitted centrally in the leaf edges.
B/7 (RF01073 B)	Intumescent Seals Ltd, Therm-A-Seal	**Leaf (Vertical edges and Head):** 1No. Therm-A-Seal 38x4. Fitted centrally in the leaf edges.

4.5.7.2 Leaf 1 + Frame M3 Doorset

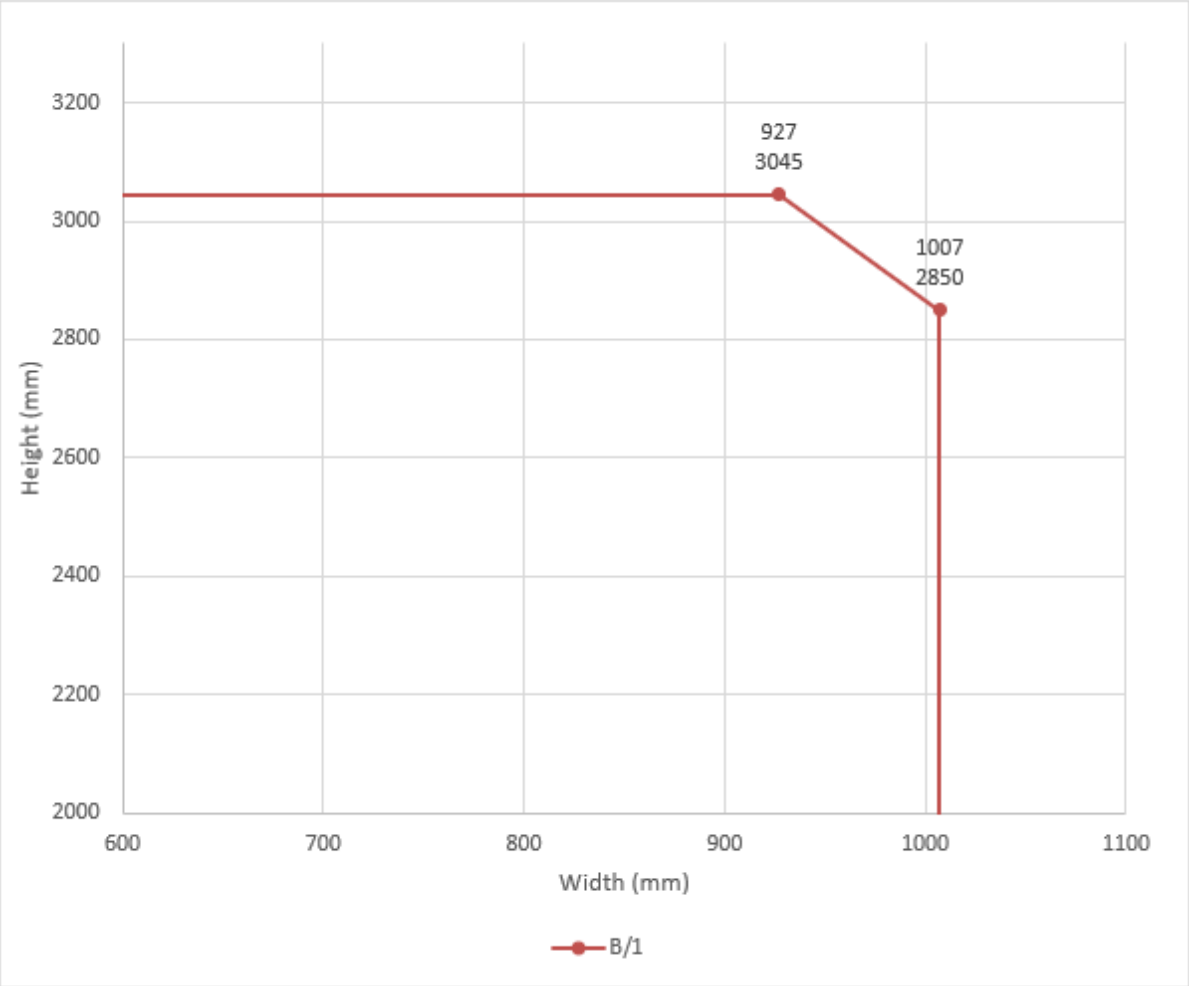
Leaf size envelopes for ULSASD using Leaf 1 and Frame M3



Intumescent Specification for ULSASD Leaf 1 with Frame M3		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
B/2 (WARRES 111202)	Halspan Ltd, H60	**Leaf (Vertical edges and Head):** 1No. Halspan H60 38mm x 6mm seal. Fitted centrally in the leaf edges.

4.5.7.3 Leaf 1 + Frame M4 Doorset

Leaf size envelopes for ULSASD using Leaf 1 and Frame M4



Intumescent Specification for ULSASD Leaf 1 with Frame M4		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
B/1 (CFR2002051)	Halspan H60	**Leaf (Vertical edges and Head):** 1No. Halspan H60 38x6 (overall). Fitted in the leaf edges centrally.

4.5.8 DASD Configuration: Leaf Sizes & Intumescent Specification

4.5.8.1 Leaf 1 + Frames M1, M3 & M4 Doorset

Not Permitted.

4.5.9 LSASD+OP Configuration: Leaf Sizes & Intumescent Specification

4.5.9.1 Leaf 1 + Frames M1, M3 & M4 Doorset

Not Permitted.

4.5.10 ULSASD+OP Configuration: Leaf Sizes & Intumescent Specification

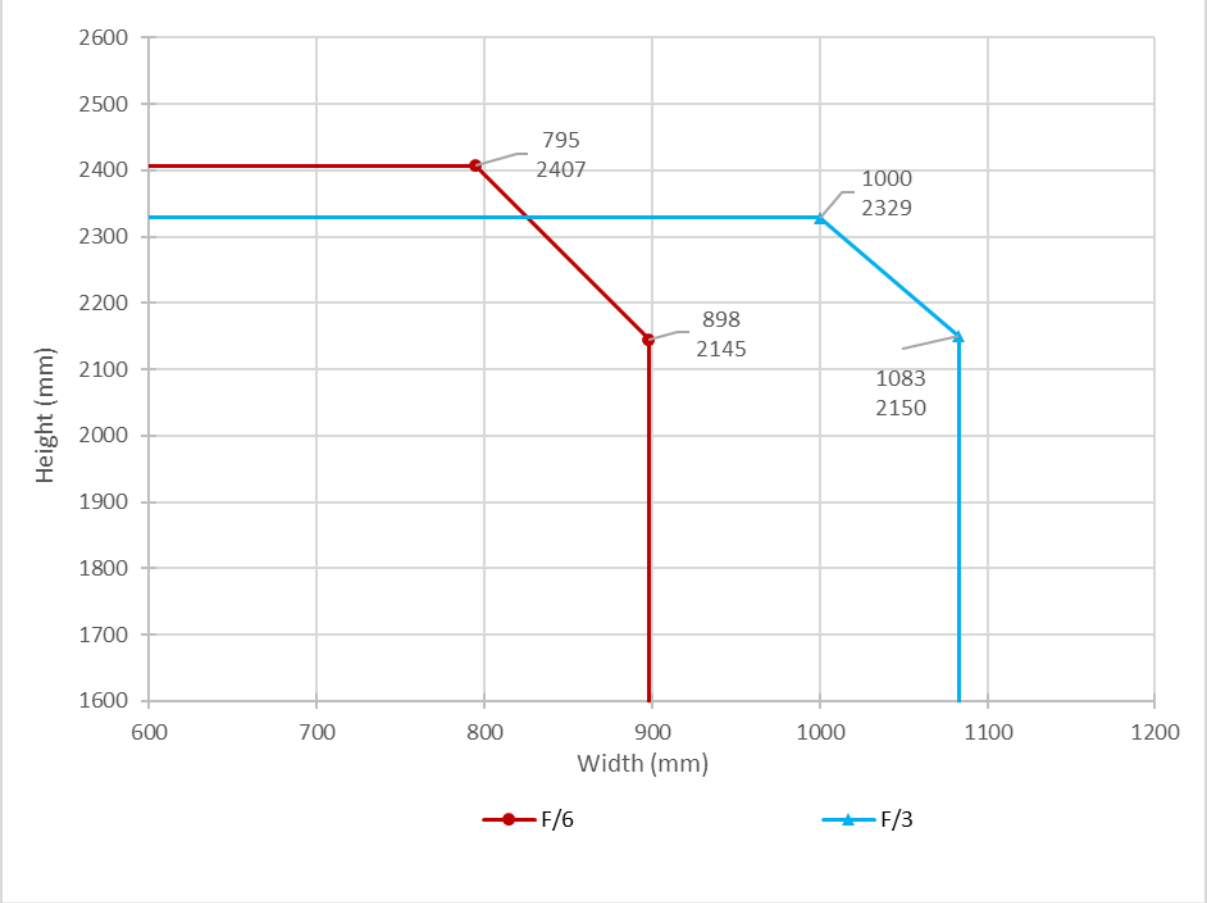
4.5.10.1 Leaf 1 + Frames M1, M3 & M4 Doorset

Not Permitted.

4.5.11 LSADD Configuration: Leaf Sizes & Intumescent Specification

4.5.11.1 Leaf 1 + Frame M1 Doorset

Leaf size envelopes for LSADD using Leaf 1 and Frame M1

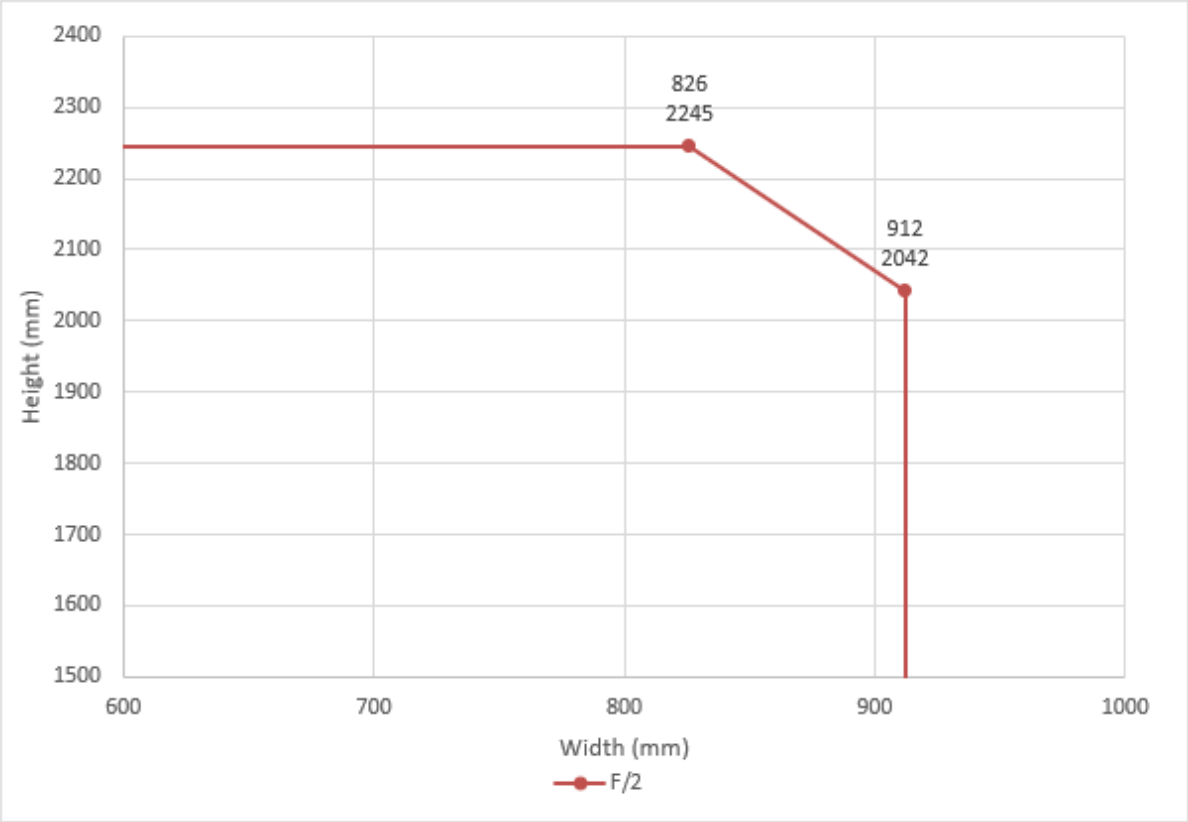


Intumescent Specification for LSADD Leaf 1 with Frame M1		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
F/3 (TA099-A)	Halspan H60F & Halspan SLS-PLA	**Leaf (Hanging edges and Head):** 1No. Halspan H60F 38x4. Fitted centrally in the leaf edges. **Meeting Edges:** 2no SLS-PLA 15x4, fitted centrally and 10mm apart in one leaf and 1no. SLS-PLA 10x4 fitted centrally in the opposing leaf.

Intumescent Specification for LSADD Leaf 1 with Frame M1		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
F/6 (RF01074 A)	Intumescent Seals Ltd, Therm-A-Seal & Therm-A-Stop	**Leaf (Vertical edges and Head):** 1No. Therm-A-Seal 38x4. Fitted centrally in the leaf edges. **Meeting Edges:** 2no Therm-A-Seal 10x4, fitted centrally and 10mm apart in one leaf and 1no. Therm-A-Stop 10x4 fitted centrally in the opposing leaf.

4.5.11.2 Leaf 1 + Frame M3 Doorset

Leaf size envelopes for LSADD using Leaf 1 and Frame M3

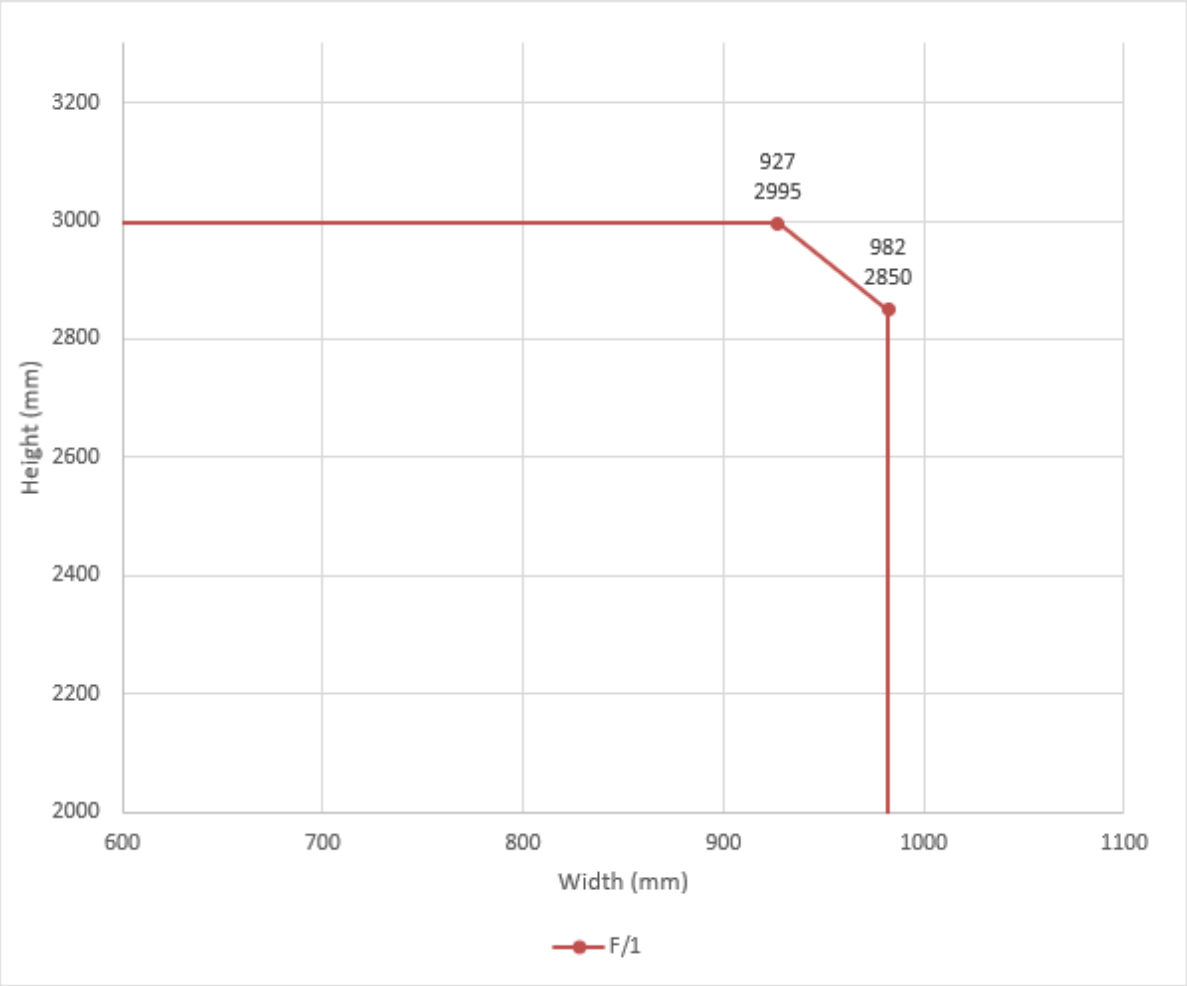


Intumescent Specification for LSADD Leaf 1 with Frame M3		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
F/2 (WARRES 111202)	Halspan Ltd, H60 & Halspan SLS	**Leaf (Hanging edges and Head):** 1No. Halspan H60 38mm x 6mm seal. Fitted centrally in the leaf edges. **Meeting Edges:** 2no SLS 15x4, fitted centrally and 10mm apart in one leaf and 1no. SLS 15x4 fitted centrally in the opposing leaf.

The intumescent specification above has been supported additionally with the results observed within CFR2002051 in relation to the meeting edge detail.

4.5.11.3 Leaf 1 + Frame M4 Doorset

Leaf size envelopes for LSADD using Leaf 1 and Frame M4

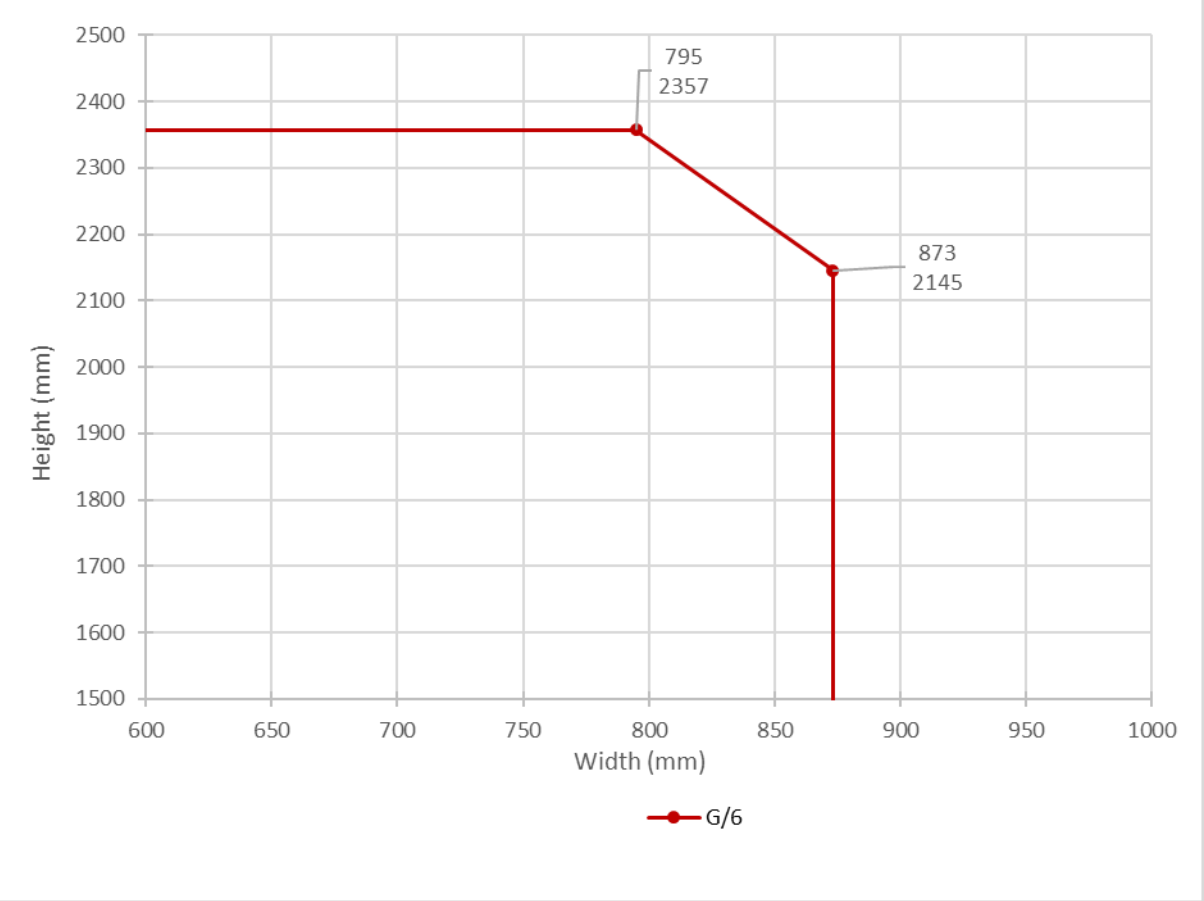


Intumescent Specification for LSADD Leaf 1 with Frame M4		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
F/1 (CFR2002051)	Halspan H60 & Halspan SLS	**Leaf (Hanging edges and Head):** 1No. Halspan H60 38x6 (overall). Fitted in the leaf edges centrally. **Meeting Edges:** 2no SLS 15x4, fitted centrally and 10mm apart in one leaf and 1no. SLS 15x4 fitted centrally in the opposing leaf.

4.5.12 ULSADD Configuration: Leaf Sizes & Intumescent Specification

4.5.12.1 Leaf 1 + Frame M1 Doorset

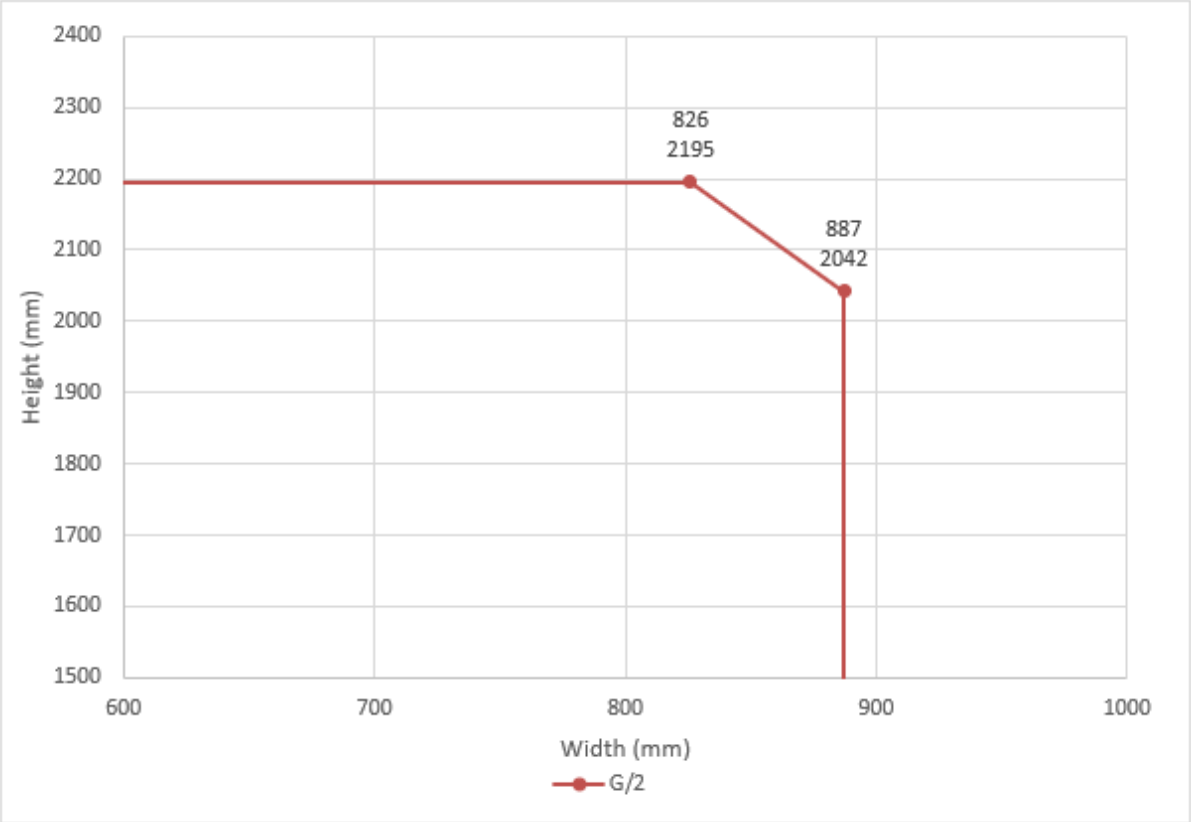
Leaf size envelopes for ULSADD using Leaf 1 and Frame M1



Intumescent Specification for ULSADD Leaf 1 with Frame M1		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
G/6 (RF01074 A)	Intumescent Seals Ltd, Therm-A-Seal & Therm-A-Stop	**Leaf (Vertical edges and Head):** 1No. Therm-A-Seal 38x4. Fitted centrally in the leaf edges. **Meeting Edges:** 2no Therm-A-Seal 10x4, fitted centrally and 10mm apart in one leaf and 1no. Therm-A-Stop 10x4 fitted centrally in the opposing leaf.

4.5.12.2 Leaf 1 + Frame M3 Doorset

Leaf size envelopes for ULSADD using Leaf 1 and Frame M3

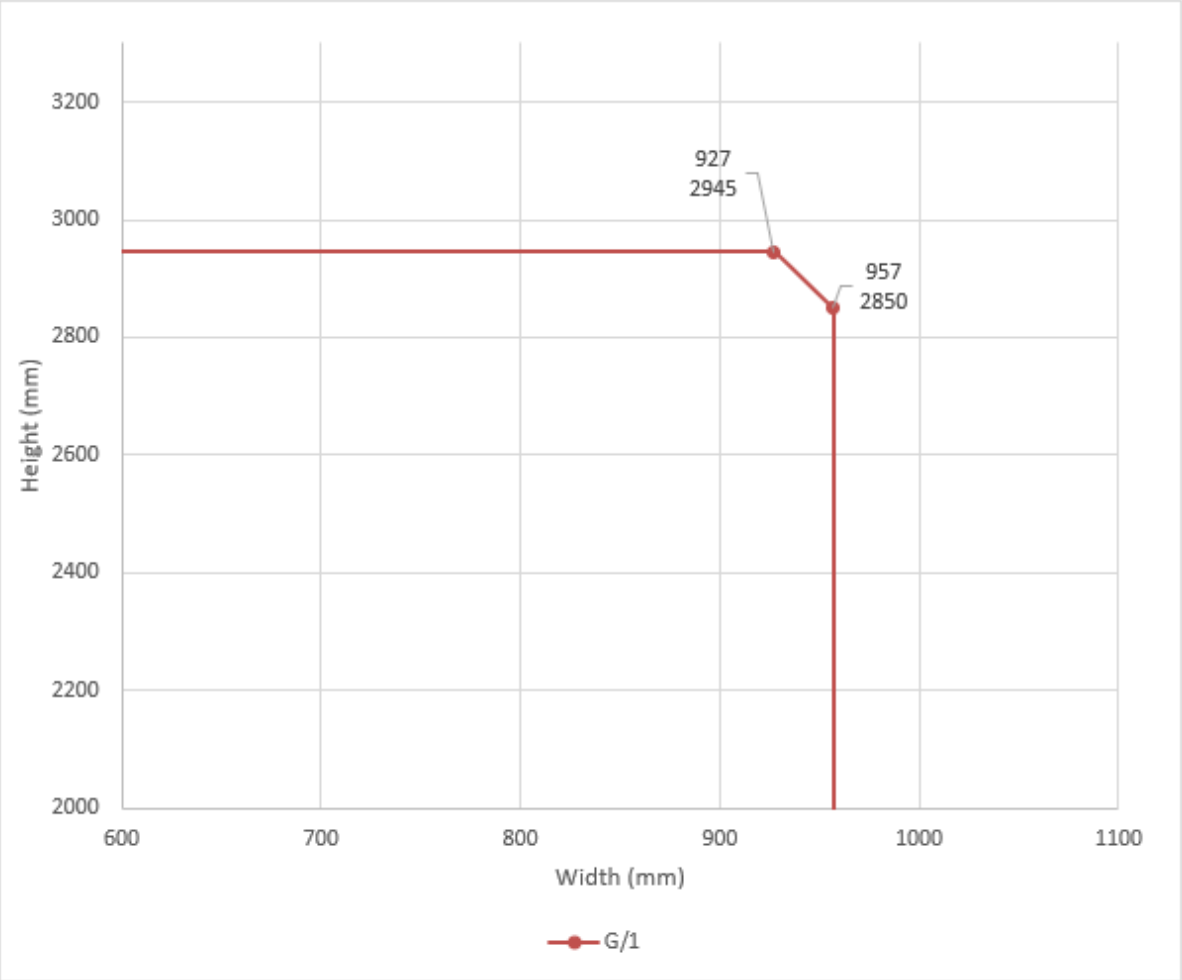


Intumescent Specification for ULSADD Leaf 1 with Frame M3		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
G/2 (WARRES 111202)	Halspan Ltd, H60 & Halspan SLS	**Leaf (Hanging edges and Head):** 1No. Halspan H60 38mm x 6mm seal. Fitted centrally in the leaf edges. **Meeting Edges:** 2no SLS 15x4, fitted centrally and 10mm apart in one leaf and 1no. SLS 15x4 fitted centrally in the opposing leaf.

The intumescent specification above has been supported additionally with the results observed within CFR2002051 in relation to the meeting edge detail.

4.5.12.3 Leaf 1 + Frame M4 Doorset

Leaf size envelopes for ULSADD using Leaf 1 and Frame M4



Intumescent Specification for ULSADD Leaf 1 with Frame M4		
Intumescent Spec. Reference (Test Reference)	Make / Type	Location & Size
G/1 (CFR2002051)	Halspan H60 & Halspan SLS	**Leaf (Hanging edges and Head):** 1No. Halspan H60 38x6 (overall). Fitted in the leaf edges centrally. **Meeting Edges:** 2no SLS 15x4, fitted centrally and 10mm apart in one leaf and 1no. SLS 15x4 fitted centrally in the opposing leaf.

4.5.13 DADD Configuration: Leaf Sizes & Intumescent Specification

4.5.13.1 Leaf 1 + Frames M1, M3 & M4 Doorset

Not Permitted.

4.5.14 LSADD+OP Configuration: Leaf Sizes & Intumescent Specification

4.5.14.1 Leaf 1 + Frames M1, M3 & M4 Doorset

Not Permitted.

4.5.15 ULSADD+OP Configuration: Leaf Sizes & Intumescent Specification

4.5.15.1 Leaf 1 + Frames M1, M3 & M4 Doorset

Not Permitted.

5 General Description of Leaf Construction

5.1 Leaf Core Construction

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

5.1.1 Leaf Type 1 – Prima 60 – 54mm thick

The basic tested construction of this door leaf design comprises the following:

Element	Material	Dimensions (mm)	Minimum Density (kg/m^3)
Core	3 layer solid core particleboard	54 (t)	630±10%

The leaf must be lipped as specified in section 5.3.

The minimum leaf thickness after calibration is 53mm (i.e. a maximum of 0.5mm from both sides).

The minimum leaf thickness after finishes applied is 54mm.

5.2 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 5.3.
Timber Lipping	The timber lipping thickness can be reduced after it has been glued in place, providing it is not reduced below the minimum stated in section 5.3.

5.3 Lipping

The following sections detail the permitted lippings for the Prima 60 doorset design covered herein.

5.3.1 Hardwood Timber Lipping (Excluding Beech)

The testing documented in section 3 has generally been undertaken using 6-10 mm thick flat lippings applied to either vertical edges; or all edges using hardwood of various species at varying densities. A number of different adhesives have also been used to bond the lippings to the core.

On the above basis, Prima 60 door blanks (leaf 1) must be lipped with the following specification. This applies to all door leaves.

Timber Lipping Specification for Prima 60 door blanks		
Material	Size (mm)	Min Density (kg/m^3)
Hardwood (not Beech *fagus species*)	Flat = 6 - 12 thick	640
	Flat "T Section" = 6 – 10 thick (Exposed) with a tongue centrally into the core material with maximum dimensions of 38mm wide x 15mm deep, the tongue may be integral to the exposed element or separate.	
	Rounded = Not Permitted.	
	Rebated = Not Permitted.	

Notes:

1. All lippings are to be the same thickness as the door leaf either prior to the application of decorative facing materials or once they have been applied.
2. Single and double doorsets only require lipping on the vertical edges but may be additionally lipped on the top and bottom edges if required.
3. Lippings can be bonded with UF, PU, PUR or PF. These may be hand applied or may be applied using an edgebander. With either method it must be ensured that sufficient glue is applied to across the entire surface area between the 2No substrates being adhered to guarantee a robust bond. Other manufacturers guidance should be followed, for either installation application.
4. For flat lippings it is permitted to apply one of the following:
    a. Maximum 3mm radius to the corners of the lippings at vertical edges to create edge profiling. (Based upon test reference WF504390).
    b. Maximum of 3mm x 3mm chamfer applied to the corners of the lippings at vertical edges to create edge profiling.
    c. Maximum 2mm wide x 5mm deep chamfer to the vertical leading edges of the leaves, if this would result in a conflict with intumescent positioning this option is not permitted.

5.4 Edge Protectors

The use of Edge Protectors is not permitted within this Part 2 of the suite of FEA/F96103 field of applications for the Prima 60 product family.

5.5 Decorative & Protective Facings

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

The following additional facing materials are therefore permitted to the leaf 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 and paper[3]	0.4

Notes:

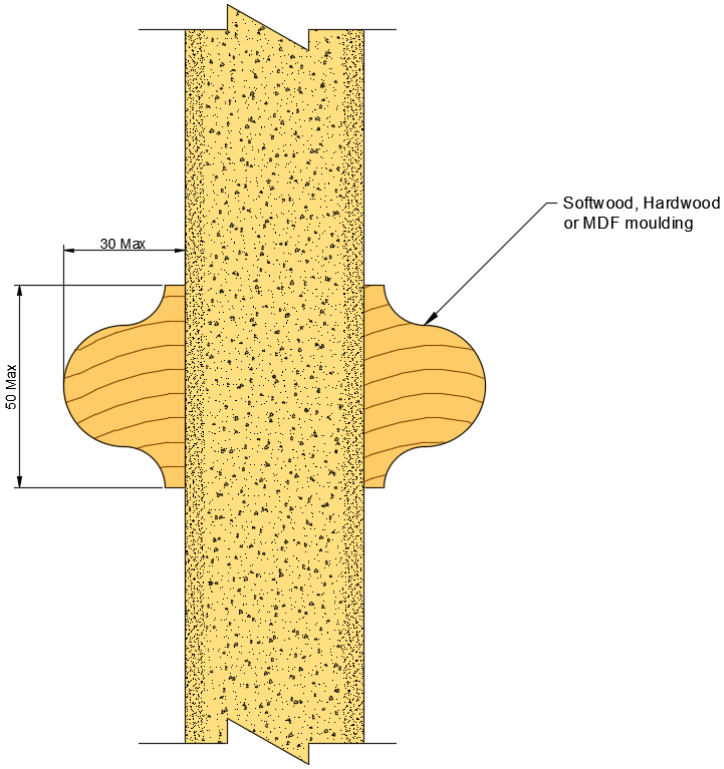
1. Metallic facings are not permitted except for push plates and kick plates
2. The door leaf thickness may be reduced on both sides by a maximum of 0.5mm for calibration purposes in order to accommodate the chosen finish. The minimum overall leaf thickness must remain at 54mm after finishing has been applied.
3. Materials may over sail lippings but must not return around leaf edges. Except:
    - Timber veneers (with a minimum density of 640kg/m^3) or HPL up to 0.8mm thick applied with UF adhesive, which may be applied to the leaf edges on top of timber based lippings defined in section 5.3.1 only.
4. For all options, materials must not conceal intumescent strips.
5. Intumescent paints are not permitted.
6. Decorative finishes listed above may be painted within the limits for paint finish, above.
7. The decorative facings are bonded using the decorative facing adhesives listed in the table in section 9.

5.6 Decorative Planted on Timber Mouldings

On the basis that decorative timber planted on mouldings would not be expected to have a negative effect on the burn through of the leaf, it is the opinion of Warringtonfire that decorative mouldings can be applied to the Prima 60 door leaf 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 or apertures within the leaf.
6. Are bonded into position and small pins may be used up to 12mm penetration into the door core.
7. Are bonded using any glue which is suitable for bonding the lipping of the door.



5.7 Feature Grooves

Feature grooves were included within test references CFR2209201, RF01056, FRR-2009/2351, FRR-2009/1221 and FRR-2102/4628A without being of detriment to the overall performance of the doorset. The doorsets they were included within achieved 68 (when the failures relating to the sidelight were isolated), 61, 71, 75 and 73 minutes respectively.

Both sides of the door leaves may be grooved to the following specifications, which also provide limitations on the application of the desired groove option.

Feature grooves cannot be located within 20mm of any mortice for hardware (i.e. any item which requires material to be removed from the door, including cableways).

Grooves may be applied to the leaf faces of glazed and unglazed doorsets. When applied to the face of a doorset including a glazed aperture the grooves shall not continue under the minimum dimensions provided for bolected glazing bead elements, however groove option A & B may run adjacent to them. This is supported by the evidence contained within RF01056 & FRR-2102/4628A which included grooving in this arrangement.

Where maximum leaf dimensions are given in the specifications for feature grooving below the guidance in section 4.5.5 must be followed.

Note for the following sections:

Grooves which are in the same linear plane but are not continuous are considered to count as one single groove.

5.7.1 Groove Option A

Groove Option A		
Element	**Details**	
Maximum groove size (mm)	5mm wide x 5mm deep	
Inserts	Required. Full depth inserts Hardwood (minimum density 640kg/m³) inserts must be applied within the grooves. The insert may not be grooved when applied.	
Adhesive	See Section 9 (Adhesives)	
Maximum number of grooves	8No. grooves divided between horizontal and vertical orientations as required.	
Proximity to door edges (mm)	Horizontal Grooves	No closer than 100mm to top or bottom edge of leaf. May extend full width
	Vertical Grooves	No closer than 100mm to vertical edge of leaf. May extend full height
Groove spacing (mm)	Full depth hardwood insert applied	No closer than 20mm apart. Vertical and horizontal grooves may intersect each other.
Orientation	Horizontal or Vertical	
Configurations	LSASD, ULSASD, LSADD, ULSADD	
Maximum Leaf size (mm)	Full depth hardwood insert applied	No specified limit.
Minimum perimeter intumescent seal dimensions (mm)	All perimeter intumescent specifications given in section 4.5. subject to the permitted configurations given in the table above.	
Frame option	All frame options	

5.7.2 Groove Option B

Groove Option B		
Element	**Details**	
Maximum groove size (mm)	15mm wide x 8mm deep	
Inserts	Required. Full depth inserts are required to be fitted within the groove. Inserts must be Hardwood (minimum density 640kg/m^3). The insert may not be grooved when applied.	
Adhesive	See Section 9 (Adhesives)	
Maximum number of grooves	8No. grooves divided between horizontal and vertical orientations as required.	
Proximity to door edges (mm)	Horizontal Grooves	No closer than 150mm to top or bottom edge of leaf. May extend full width
	Vertical Grooves	No closer than 150mm to vertical edge of leaf. May extend full height
Groove spacing (mm)	No closer than 150mm apart. Vertical and horizontal grooves may intersect each other.	
Orientation	Horizontal or Vertical	
Configurations	LSASD, ULSASD, LSADD, ULSADD	
Maximum Leaf size (mm)	2415mm x 950mm	
Minimum perimeter intumescent seal dimensions (mm)	All perimeter intumescent specifications given in section 4.5. subject to the permitted configurations given in the table above.	
Frame option	All frame options	

5.7.3 Groove Option C

Groove Option C		
Element	**Details**	
Maximum groove size (mm)	5mm wide x 2mm deep	
Inserts	Not required. Full depth inserts are optionally permitted to provide a decorative detail if required. Inserts may be Hardwood (minimum density 640kg/m³), Brass or Aluminium. The insert may be grooved or profiled when applied but must not project greater than 1mm from the finished leaf face.	
Adhesive	See Section 9 (Adhesives)	
Maximum number of grooves	8No. grooves divided between horizontal and vertical orientations as required.	
Proximity to door edges (mm)	Horizontal Grooves	No closer than 100mm to top or bottom edge of leaf. May extend full width
	Vertical Grooves	No closer than 100mm to vertical edge of leaf. May extend full height
Groove spacing (mm)	No insert applied	No closer than 80mm apart. Vertical and horizontal grooves may intersect each other.
	Full depth hardwood insert applied	No closer than 20mm apart. Vertical and horizontal grooves may intersect each other.
Orientation	Horizontal or Vertical	
Configurations	LSASD, ULSASD, LSADD, ULSADD	
Maximum Leaf size (mm)	2415mm x 950mm	
Minimum perimeter intumescent seal dimensions (mm)	All perimeter intumescent specifications given in section 4.5. subject to the permitted configurations given in the table above.	
Frame option	All frame options	

5.8 Astragal

The inclusion of timber astragals is permitted providing they meet the following specification:

- The astragal shall consist of hardwood (excluding beech species) with a minimum density of 640kg/m^3.
- The astragal shall be mechanically fixed using steel screws at no greater than 250mm centres, the screws shall penetrate into the substrate by at least 15mm and no greater than ½ the thickness of the substrate.
- The astragal shall measure 50mm wide x 18mm thick and shall be positioned centrally over the junction.

Other materials or dimensions of astragals are not permitted.

It has been considered possible to include the above specified astragal based on the fact that the effective rebate of the doorset design will remain unchanged. The addition of the astragal element will provide further protection at the perimeter gaps increasing the time at which failure modes may develop.

Astragals are:

- Optionally permitted at meeting edges of double leaf doorsets.

Astragals may only be fitted to one side of any individual doorset design.

When fitted to the meeting edges of double leaf doorsets, a door selector as defined within section 10.14 shall be fitted to the doorset to ensure functionality.

6 Glazing within the Leaf

6.1 General

The testing conducted on Halspan Prima 60 door designs within steel frames has demonstrated that they are capable of tolerating glazed apertures, whilst providing a margin of over performance, this is supported by the summarised test evidence within section 3.

Glazing is therefore acceptable within the following parameters.

Apertures must not be less than 100mm from top and side edges and 200mm from the bottom edge. (Supported by RF13167).

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. Based on the testing undertaken within RF98051 circular apertures may be utilised within the door leaf when covered by Certifire as defined within section 6.2 up to a maximum of 550mm diameter.

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.

Double glazed units are only permitted where they have been directly tested and must be installed as tested and detailed in section 6.5 below.

6.1.1 Maximum Permitted Glazed Aperture Dimensions

The maximum total assessed aperture area for any individual door leaf based on the test evidence detailed within section 3 is as follows:

Maximum total permitted aperture within the Prima 60 door leaves (FRR-2102/4628)		
Maximum Height (mm)	Maximum Width (mm)	Maximum Area (m^2)
2212	652	1.25

Multiple apertures are acceptable within the permitted total assessed aperture area, with a minimum dimension of 80mm of core between apertures. (As demonstrated in RF13167.)

Maximum glass thickness permitted is 27mm for single pane glazing.

Minimum glass thickness permitted is 5mm, as tested (WF385622) and may not be reduced.

The subsequent sections within this report detail the permitted glass and glazing systems with their associated size ranges permitted within the Prima 60 doorset design.

The maximum glazed areas given in each subsection supersede those given above and must be adhered to. However, the dimensional restrictions given above shall not be exceeded under any circumstance.

It is possible to include glass within the door leaf at smaller dimensions than given for any particular glass type or glazing system.

6.2 Certifire Single Pane Glass and Glazing System Options

Alternative glass and glazing systems with a Certifire certificate – valid at the date of manufacture of the doorset which has been written in accordance with Warringtonfire Testing & Certification Ltd, Technical Schedule TS25 - may be used to glaze the Prima 60 door design, subject to the following.

- The minimum thickness of glass permitted for alternative glass types is 5mm.
- The maximum thickness of glass permitted for alternative glass types is 25mm.
- Where a Certifire certificate is utilised to justify glazing the doorset, the full requirements given within that certificate for the glass and glazing system specified must be complied with.
- Parameters in section 6.1 above must take precedence over those in the supporting Certifire certificate, i.e. the glazed area, maximum height and width permitted in section 6.1 above may not be increased on the basis of the area, height and width permitted within the Certifire certificate. If the area, height and width in the proposed Certifire certificate is smaller than that in section 6.1, the smaller dimension will take precedence for the proposed glass or glazing system.
- The general requirements within the proposed Certifire certificate are still applicable, a specific reference to a door leaf construction similar to that assessed herein must be included – including leaf thickness.
- Where the Certifire certificate requires a timber aperture liner, these must always be fitted.
- Bead fixings – The required pin or screw specification as given in the supporting Certifire certificate must be used, alternatives fixing details are not permitted.

6.3 Single Pane Glass and Glazing Systems (Timber Beading)

The tested and assessed glass and glazing system(s) combinations, detailed within the table below may be used, subject to the limitations and scope detailed in section 6.1 above.

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

The numerical figures in the main body of the table are the maximum height, width (m) & area of glass (in m^2) that is considered acceptable for an individual glazed aperture, based upon the specific system. Where a '-' is applied the glass type and glazing system has not been considered compatible.

Halspan Glazing Systems

Glass & Glazing System Specification			**Maximum Assessed Area (m^2), Height & Width (m)**				
Glass Type Manufacturer		**Thickness**	**System & Manufacturer →**	1	2	3	4	5
				Halspan 60 Glazing Mastic SLS-GLZ-102 3 thick & Halspan 60 Glazing Liner SLS-GLZ-102 54x2	Halspan Glazing Tape SLS-GLZ-112 20x5 Liner SLS-GLZ-113 36x2	Halspan Glazing Tape SLS-GLZ-112 20x5 Liner SLS-GLZ-113 47x2	Halspan Glazing Tape SLS-GLZ-112 20x5 Liner SLS-GLZ-113 45x2	Halspan Glazing Tape SLS-GLZ-112 20x5 Liner SLS-GLZ-113 54x2
				Halspan	Halspan	Halspan	Halspan	Halspan
			Fire Test Reference	WF385622	WF507664	WF508668	WF523941LL & CFR2203091 LL	WF523941 RL & CFR2203091 RL
1	FireLite Ceramic Glass LTD	5	WF385622	Area: 0.21 Height: 0.70 Width: 0.342	-	-	-	-
2	Pyrodur 60-10 Pilkington UK Ltd	10	RF05036	Area: 0.21 Height: 0.70 Width: 0.342	-	-	-	-
3	Pyrostop EI30-10 (INT) – 2(B) Pilkington UK Ltd	15	CFR1509291 & CFR1708031	Area: 0.21 Height: 0.70 Width: 0.274	-	-	Area: 0.41 Height:1.75 Width:0.274	Area: 0.41 Height:1.75 Width:0.274
4	Pyrobelite 12 AGC Flat Glass UK	12	CFR2002051 & WF520064	Area: 0.21 Height: 0.70 Width: 0.168	-	-	Area: 0.21 Height: 1.428 Width: 0.168	Area: 0.21 Height: 1.428 Width: 0.168
5	Pyrobel 16 AGC Flat Glass UK	16	WF504390 & WF520063 & WF507664	Area: 0.14 Height: 0.70 Width: 0.182	Area: 0.15 Height: 0.986 Width: 0.182	-	Area: 0.15 Height: 0.986 Width: 0.182	Area: 0.15 Height: 0.986 Width: 0.182

Glass & Glazing System Specification			Maximum Assessed Area (m^2), Height & Width (m)				
Glass Type Manufacturer		Thickness	System & Manufacturer →	1	2	3	4	5
				Halspan 60 Glazing Mastic SLS-GLZ-102 3 thick & Halspan 60 Glazing Liner SLS-GLZ-102 54x2	Halspan Glazing Tape SLS-GLZ-112 20x5 Liner SLS-GLZ-113 36x2	Halspan Glazing Tape SLS-GLZ-112 20x5 Liner SLS-GLZ-113 47x2	Halspan Glazing Tape SLS-GLZ-112 20x5 Liner SLS-GLZ-113 45x2	Halspan Glazing Tape SLS-GLZ-112 20x5 Liner SLS-GLZ-113 54x2
				Halspan	Halspan	Halspan	Halspan	Halspan
			Fire Test Reference	WF385622	WF507664	WF508668	WF523941LL & CFR2203091 LL	WF523941 RL & CFR2203091 RL
6	Pyrobel 25 AGC Flat Glass UK	27	WF508668	-	-	Area: 0.33 Height: 1.560 Width: 0.240	-	-
7	Pyroguard Advance 2 FD60/7-1 Pyroguard UK Ltd	7	WF515598	-	-	-	-	-
8	Pyroguard Advance 2 EW60/11-1 Pyroguard UK Ltd	11	WF517609	-	-	-	-	-
9	Pyroguard Advance 2 EW60/11-2 Pyroguard UK Ltd	11	WF523941LL & WF523941RL	Area: 0.21 Height: 0.70 Width: 0.342	-	-	Area: 1.16 Height:2.104 Width:0.636	Area: 1.16 Height: 2.104 Width:0.636
10	Pyroguard EI30 (INT) Pyroguard UK Ltd	15	CFR2203091 LL & CFR2203091 RL	Area: 0.21 Height: 0.70 Width: 0.342	-	-	Area: 1.16 Height:2.104 Width:0.636	Area: 1.16 Height: 2.104 Width:0.636
11	Pyroguard 23 Pyroguard UK Ltd	23	RF13167	-	-	-	-	-

The aperture liner for glazing systems 2 and 4 as detailed in the table above must be grooved into the thickness of the core such that it finishes flush with the aperture edge.

Other Glazing Systems

Glass & Glazing System Specification			Maximum Assessed Area (m^2), Height & Width (m)					
Glass Type Manufacturer		Thickness	System & Manufacturer →	6	7	8	9	10	11
				Fire and Acoustic Seals Closed Cell Foam Tape 10x5 & Fire and Acoustic Seals Intumescent Mastic Lining the Aperture 3 thick	Sealmaster Fireglaze 60 (wet) 2 thick	Sealmaster Fireglaze 60 (wet) 4 thick Sealmaster GL60 Liner 2 thick	System 36/15	Scapa 3259 Closed Cell Foam Tape 12x4.5 & Therm-A-Line Liner 44x2	Fire and Acoustic Seals Closed Cell Foam Tape 10x2 & Therm-A-Line Liner 44x2
				Fire and Acoustic Seals	Sealmaster	Sealmaster	Lorient	Intumescent Seals & Scapa	Fire and Acoustic Seals & Intumescent Seals
			Fire Test Reference	WF515592	LP 636.7-09	RF0006A & RF01056 & RF98051	CFR1708031	WF512028	WF517609 & WF515598
1	FireLite Ceramic Glass LTD	5	WF385622	-	-	-	-	-	-
2	Pyrodur 60-10 Pilkington UK Ltd	10	RF05036	-	-	Area: 0.52 Height:1.98 Width:0.30 & Area: 0.50 Height:1.20 Width:0.48 & Circular Diameter: 0.55	-	-	-
3	Pyrostop EI30-10 (INT) – 2(B) Pilkington UK Ltd	15	CFR1509291 & CFR1708031	Area: 0.49 Height:1.37 Width:0.414	-	Area: 0.49 Height:1.37 Width:0.30 & Area: 0.49 Height:1.20 Width:0.414 & Circular Diameter: 0.55	Area: 0.49 Height:1.37 Width:0.414	Area: 0.49 Height:1.37 Width:0.414	-

Glass & Glazing System Specification			Maximum Assessed Area (m^2), Height & Width (m)					
Glass Type Manufacturer		Thickness	System & Manufacturer →	6	7	8	9	10	11
				Fire and Acoustic Seals Closed Cell Foam Tape 10x5 & Fire and Acoustic Seals Intumescent Mastic Lining the Aperture 3 thick	Sealmaster Fireglaze 60 (wet) 2 thick	Sealmaster Fireglaze 60 (wet) 4 thick Sealmaster GL60 Liner 2 thick	System 36/15	Scapa 3259 Closed Cell Foam Tape 12x4.5 & Therm-A-Line Liner 44x2	Fire and Acoustic Seals Closed Cell Foam Tape 10x2 & Therm-A-Line Liner 44x2
				Fire and Acoustic Seals	Sealmaster	Sealmaster	Lorient	Intumescent Seals & Scapa	Fire and Acoustic Seals & Intumescent Seals
			Fire Test Reference	WF515592	LP 636.7-09	RF0006A & RF01056 & RF98051	CFR1708031	WF512028	WF517609 & WF515598
4	Pyrobelite 12 AGC Flat Glass UK	12	CFR2002051 & WF520064	Area: 0.21 Height: 1.428 Width: 0.168	-	Area: 0.42 Height: 1.773 Width: 0.273 & Circular Diameter: 0.55	-	Area: 0.42 Height: 1.548 Width: 0.273	-
5	Pyrobel 16 AGC Flat Glass UK	16	WF504390 & WF520063 & WF507664 & F16037	Area: 0.33 Height: 1.509 Width: 0.249	-	Area: 0.33 Height: 1.509 Width: 0.249 & Circular Diameter: 0.55	-	Area: 0.33 Height: 1.509 Width: 0.249	-
6	Pyrobel 25 AGC Flat Glass UK	27	LP 636.7-09	-	Area: 0.91 Height: 1.368 Width: 0.768	-	-	-	-
7	Pyroguard Advance 2 FD60/7-1 Pyroguard UK Ltd	7	WF515598	-	-	-	-	-	Area: 0.80 Height:1.305 Width:0.618
8	Pyroguard Advance 2 EW60/11-1 Pyroguard UK Ltd	11	WF517609	-	-	-	-	-	Area: 0.95 Height:1.305 Width:0.734

Glass & Glazing System Specification			Maximum Assessed Area (m^2), Height & Width (m)					
Glass Type Manufacturer		Thickness	System & Manufacturer →	6	7	8	9	10	11
				Fire and Acoustic Seals Closed Cell Foam Tape 10x5 & Fire and Acoustic Seals Intumescent Mastic Lining the Aperture 3 thick	Sealmaster Fireglaze 60 (wet) 2 thick	Sealmaster Fireglaze 60 (wet) 4 thick Sealmaster GL60 Liner 2 thick	System 36/15	Scapa 3259 Closed Cell Foam Tape 12x4.5 & Therm-A-Line Liner 44x2	Fire and Acoustic Seals Closed Cell Foam Tape 10x2 & Therm-A-Line Liner 44x2
				Fire and Acoustic Seals	Sealmaster	Sealmaster	Lorient	Intumescent Seals & Scapa	Fire and Acoustic Seals & Intumescent Seals
			Fire Test Reference	WF515592	LP 636.7-09	RF0006A & RF01056 & RF98051	CFR1708031	WF512028	WF517609 & WF515598
9	Pyroguard Advance 2 EW60/11-2 Pyroguard UK Ltd	11	WF523941LL & WF523941RL	Area: 0.96 Height:1.308 Width:0.734	-	Area: 0.52 Height:1.98 Width:0.30 & Area: 0.50 Height:1.20 Width:0.48 & Circular Diameter: 0.55	-	Area: 0.94 Height:1.300 Width:0.726	-
10	Pyroguard EI30 (INT) Pyroguard UK Ltd	15	CFR2203091 LL & CFR2203091 RL	Area: 0.96 Height:1.308 Width:0.636	-	Area: 0.52 Height:1.98 Width:0.30 & Area: 0.50 Height:1.20 Width:0.48 & Circular Diameter: 0.55	-	Area: 0.94 Height:1.300 Width:0.636	-
11	Pyroguard 23 Pyroguard UK Ltd	23	RF13167	-	-	-	-	-	-

Other Glazing Systems Continued

Glass & Glazing System Specification			Maximum Assessed Area (m^2), Height & Width (m)				
Glass Type Manufacturer		Thickness	System & Manufacturer →	12	13	14	15
				Firestrip 60 20x3 & Norseal Flexible Glazing Liner 50x2	STS105GT 10x5 & ST302 Liner 30x2	Norsound Vision 60 25x3 & Liner 52x2	Mono Ammonium Phosphate 20x2 & Therm-A-Line Liner 54x2
				Hodgson Sealants & Norseal	Sealed Tight Solutions	Norseal	Intumescent Seals
			Fire Test Reference	RF05036	CFR2002051	WF504390	RF13167
1	FireLite Ceramic Glass LTD	5	WF385622	-	-	-	-
2	Pyrodur 60-10 Pilkington UK Ltd	10	RF05036	Area: 1.77 Height: 2.148 Width: 0.98	-	-	-
3	Pyrostop EI30-10 (INT) – 2(B) Pilkington UK Ltd	15	CFR1509291 & CFR1708031	-	-	-	-
4	Pyrobelite 12 AGC Flat Glass UK	12	CFR2002051 & WF520064	-	Area: 0.42 Height: 1.773 Width: 0.273	-	-
5	Pyrobel 16 AGC Flat Glass UK	16	WF504390 & WF520063 & WF507664 & F16037	-	Area: 0.33 Height: 1.744 Width: 0.22	Area: 0.33 Height: 1.744 Width: 0.22	-
6	Pyrobel 25 AGC Flat Glass UK	27	LP 636.7-09	-	-	-	-
7	Pyroguard Advance 2 FD60/7-1 Pyroguard UK Ltd	7	WF515598	-	-	-	-
8	Pyroguard Advance 2 EW60/11-1 Pyroguard UK Ltd	11	WF517609	-	-	-	-
9	Pyroguard Advance 2 EW60/11-2 Pyroguard UK Ltd	11	WF523941LL & WF523941RL	-	-	-	-

Glass & Glazing System Specification			Maximum Assessed Area (m^2), Height & Width (m)				
Glass Type Manufacturer		Thickness	System & Manufacturer →	12	13	14	15
				Firestrip 60 20x3 & Norseal Flexible Glazing Liner 50x2	STS105GT 10x5 & ST302 Liner 30x2	Norsound Vision 60 25x3 & Liner 52x2	Mono Ammonium Phosphate 20x2 & Therm-A-Line Liner 54x2
				Hodgson Sealants & Norseal	Sealed Tight Solutions	Norseal	Intumescent Seals
			Fire Test Reference	RF05036	CFR2002051	WF504390	RF13167
10	Pyroguard EI30 (INT) Pyroguard UK Ltd	15	CFR2203091 LL & CFR2203091 RL	-	Area: 0.42 Height: 1.773 Width: 0.273	-	-
11	Pyroguard 23 Pyroguard UK Ltd	23	RF13167	-	-	-	Area: 0.37 Height: 0.66 Width: 0.66

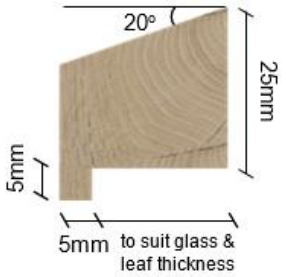
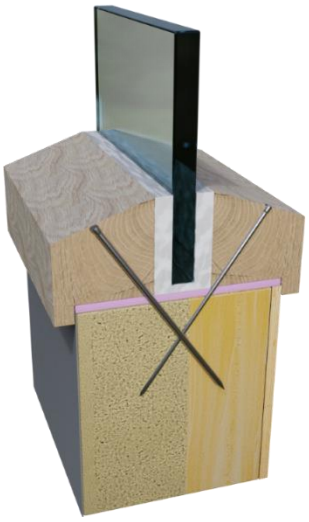
Note:

1. All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion tolerances.
1. Glass types 6 &11 are fully insulating for 60 minutes in terms of the criteria set out BS 476: Part 20: 1987.

6.3.1 Permitted Glazing Beading and Glass Retention (Timber Beads)

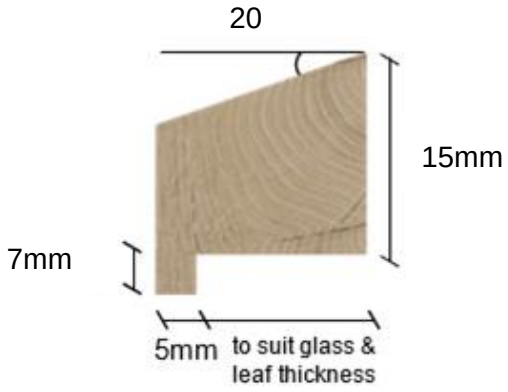
The following sections detail the permitted glazing beading, aperture lining requirements and minimum fixing details for the above detailed glass and glazing systems. Each section deals with a specific type of glazing bead and indicates which glass and or glazing system it is applicable to. Glazing beads shall only be used with the permitted glass and glazing system as identified.

6.3.1.1 Chamfer Beads Option 1

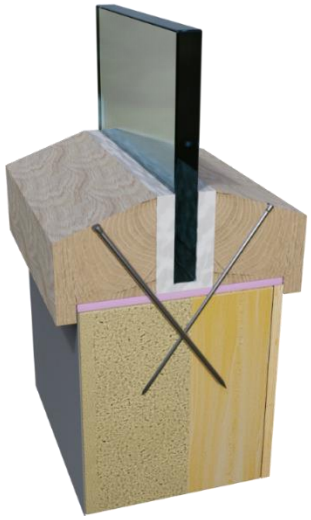
Permitted Glazing Systems (Defined in Section 6.3)	**1, 8, 13 & 14**
	
• The above detailed bolection may be increased in thickness and height if required, with the dimensions shown for the bolection being the minimum. • The glazing beads must be created from hardwood (not Beech *fagus species*) of a minimum 640kg/m^3 density. • Glazing beads must be retained in position with minimum length of 50mm long steel pins or 50mm long No. 6-8 screws, inserted at 35-40º to the vertical. • Fixings must be at 150mm maximum centres and no more than 50mm from each corner. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.3.2 below. • A 6 – 10mm thick square aperture liner is optionally permitted for use with the above bead providing it is constructed from hardwood (not Beech *fagus species*) of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive. • The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions. • Glass shall be aligned within the aperture using hardwood or non-combustible setting blocks or sections of intumescent liner placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires. • Glazing system 12 as detailed within section 6.3 may be applied with circular apertures as supported by RF98051.	

6.3.1.2 Chamfer Beads Option 2

Permitted Glazing Systems (Defined in Section 6.3)	6

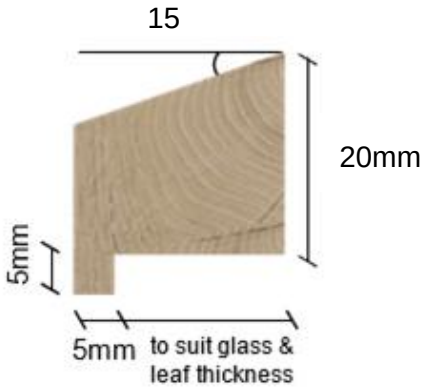


- The above detailed bolection may be increased in thickness and height if required, with the dimensions shown for the bolection being the minimum.
- The glazing beads must be created from **MDF** of a minimum **700kg/m³** density.
- Glazing beads must be retained in position with minimum length of 50mm long steel pins or 50mm long No. 6-8 screws, inserted at 35-40º to the vertical.
- Fixings must be at 200mm maximum centres and no more than 50mm from each corner. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.3.2 below.
- A 6 – 10mm thick square aperture liner is required to be fitted for use with the above bead it must be constructed from hardwood (not Beech *fagus species*) of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using hardwood or non-combustible setting blocks or sections of intumescent liner placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

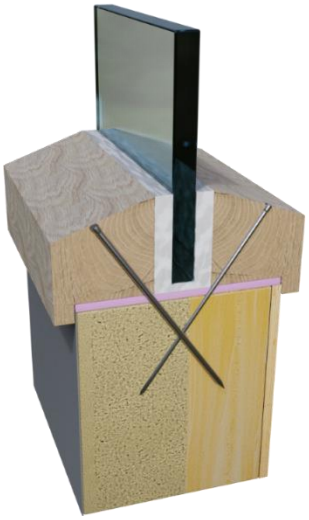


6.3.1.3 Chamfer Beads Option 3

Permitted Glazing Systems (Defined in Section 6.3)	5

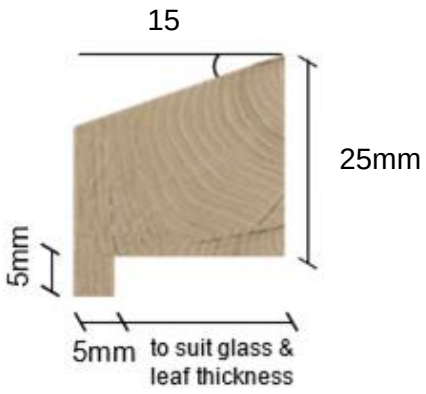


- The above detailed bolection may be increased in thickness and height if required, with the dimensions shown for the bolection being the minimum.
- The glazing beads must be created from hardwood (not Beech *fagus species*) of a minimum 640kg/m^3 density.
- Glazing beads must be retained in position with minimum length of 50mm long steel pins or 50mm long No. 6-8 screws, inserted at 35-40º to the vertical.
- Fixings must be at 150mm maximum centres and no more than 50mm from each corner. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.3.2 below.
- A 6 – 10mm thick square aperture liner is optionally permitted for use with the above bead it must be constructed from hardwood (not Beech *fagus species*) of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using hardwood or non-combustible setting blocks or sections of intumescent liner placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

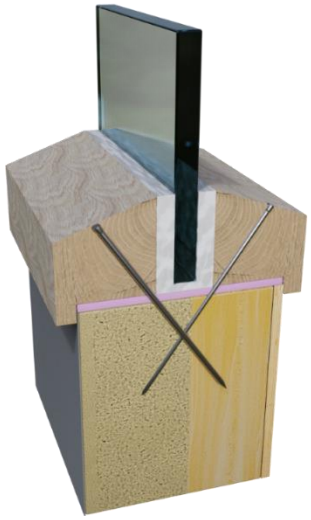


6.3.1.4 Chamfer Beads Option 4

Permitted Glazing Systems (Defined in Section 6.3)	15

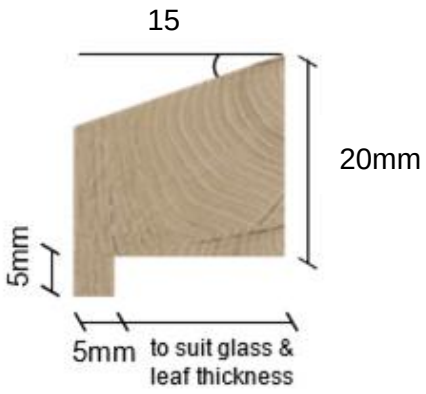


- The above detailed bolection may be increased in thickness and height if required, with the dimensions shown for the bolection being the minimum.
- The glazing beads must be created from hardwood (not Beech *fagus species*) of a minimum 640kg/m^3 density.
- Glazing beads must be retained in position with minimum length of 60mm long steel pins or 60mm long No. 6-8 screws, inserted at 35-40º to the vertical.
- Fixings must be at 150mm maximum centres and no more than 50mm from each corner. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.3.2 below.
- A 6 – 10mm thick square aperture liner is optionally permitted to be fitted for use with the above bead it must be constructed from hardwood (not Beech *fagus species*) of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using hardwood or non-combustible setting blocks or sections of intumescent liner placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

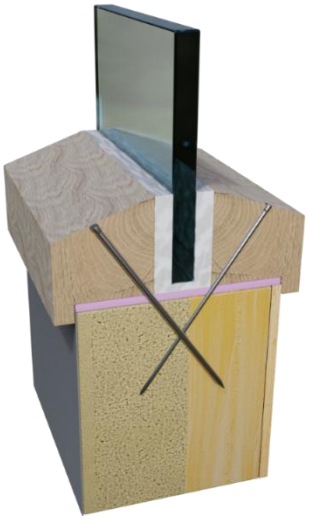


6.3.1.5 Chamfer Beads Option 5

Permitted Glazing Systems (Defined in Section 6.3)	7

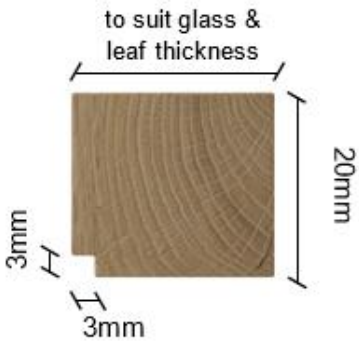


- The above detailed bolection may be increased in thickness and height if required, with the dimensions shown for the bolection being the minimum.
- The glazing beads must be created from hardwood (not Beech *fagus species*) of a minimum 640kg/m^3 density.
- Glazing beads must be retained in position with minimum length of 70mm long steel pins or 70mm long No. 6-8 screws, inserted at 35-40º to the vertical.
- Fixings must be at 150mm maximum centres and no more than 50mm from each corner. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.3.2 below.
- A 6 – 10mm thick square aperture liner is required to be fitted for use with the above bead it must be constructed from hardwood (not Beech *fagus species*) of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using hardwood or non-combustible setting blocks or sections of intumescent liner placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires



6.3.1.6 Square Beads Option 1

Permitted Glazing Systems (Defined in Section 6.3)	2, 4, 9, 10 & 11



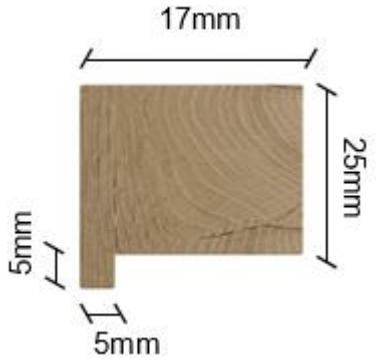
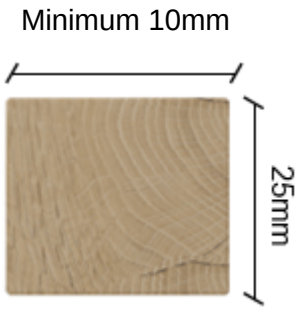
- The above detailed bolection may be increased in thickness and height if required, with the dimensions shown for the bolection being the minimum. In addition, it is permitted to apply up to a 15º splay to all of the beads as detailed above.
- The glazing beads must be created from hardwood (not Beech *fagus species*) of a minimum 640kg/m^3 density.
- Glazing beads must be retained in position with minimum of 50mm long steel pins or 50mm long No. 6-8 screws, inserted at 35-40º to the vertical.
- Fixings must be at 150mm maximum centres and no more than 50mm from each corner. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.3.2 below.
- A 6 – 10mm thick square aperture liner is required for use with square beads it shall be constructed from hardwood (not Beech *fagus species*) of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive. When fitted the intumescent liner, if narrower than 54mm may be rebated by the thickness of the intumescent liner into the top of the hardwood aperture liner.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using hardwood or non-combustible setting blocks or sections of intumescent liner placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

6.3.1.7 Square Beads Option 2

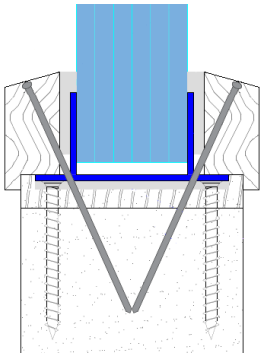
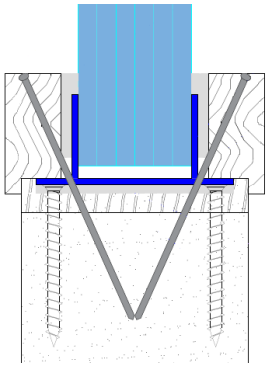
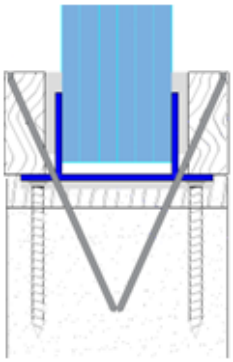
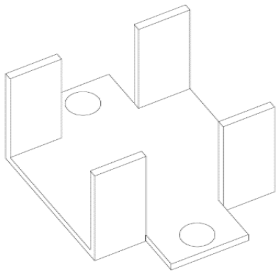
Permitted Glazing Systems (Defined in Section 6.3)	12

- The above detailed bolection may be increased in thickness and height if required, with the dimensions shown for the bolection being the minimum. In addition, it is permitted to apply a 15º splay to the bolected bead as detailed above. A splay must not be applied to the bead designs without a bolection.
- The glazing beads must be created from hardwood (not Beech *fagus species*) of a minimum 640kg/m^3 density.
- Glazing beads must be retained in position with minimum of 60mm long steel No. 6-8 screws, inserted at 35-40º to the vertical.
- Fixings must be at 150mm maximum centres and no more than 50mm from each corner.
- A 6 – 10mm thick square aperture liner is required for use with square beads and it shall be constructed from hardwood (not Beech *fagus species*) of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive. When fitted the intumescent liner, if narrower than 54mm may be rebated by the thickness of the intumescent liner into the top of the hardwood aperture liner.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using hardwood or non-combustible setting blocks or sections of intumescent liner placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

6.3.1.8 Square Beads Option 3

Permitted Glazing Systems (Defined in Section 6.3)	3
	

Permitted Configurations

		
	**Halspan Glazing Clip:** – Steel 35 (w) x 47 (d) x 21.5(h) mm	

- The above detailed bolection may be increased in thickness and height if required, with the dimensions shown for the bolection being the minimum. In addition, it is permitted to apply a 15º splay to the bolected bead as detailed above. A splay must not be applied to the bead designs without a bolection.
- Flush beads as detailed above, must finish flush with the face of the leaf when applied. Quirks or checks are not permitted.
- The glazing beads must be created from hardwood (not Beech *fagus species*) of a minimum 640kg/m^3 density.
- Glazing beads must be retained in position with minimum of 60mm long steel pins or 60mm long No. 6-8 screws, inserted at 25º to the vertical.

- Fixings must be at 150mm maximum centres and no more than 50mm from each corner. Pneumatically fired pins are acceptable for the application of the glazing bead providing the pins meet the specification given in section 6.3.2 below.
- In addition to the detailed glazing beads, the glass is to be retained by the tested glazing clip system. Clips meeting the specification given above shall be applied to the vertical edges at no greater than 100mm from corners and 320mm centres. 1No. clip shall also be applied to the top and bottom horizontal edges centrally within the aperture. Clips shall be fixed with 2No. 4mm x 40mm long steel screws per clip as tested.
- A 6 – 10mm thick square aperture liner is required for use with the above beads and it shall be constructed from hardwood (not Beech *fagus species*) of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive. When fitted the intumescent liner, if narrower than 54mm may be rebated by the thickness of the intumescent liner into the top of the hardwood aperture liner.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using hardwood or non-combustible setting blocks or sections of intumescent liner placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

Note: The tested door leaf was 60mm thick (54mm Prima with 3mm MDF facings applied), the flush glazing bead option has been retained with the beads at the dimension tested as illustrated above.

Given the performance achieved within the tested design it is the opinion of Warringtonfire that the above detailed beading system when utilised with the permitted glass type and glazing system from section 6.3 will achieve 60 minutes fire resistance performance within a 54mm thick door leaf.

6.3.2 Glazing Pins for Glazing Within Leaf

The following pin specification is permitted and has been considered suitable for applications where a pin fixing is permitted for glazing beads:

Option 1 – Round, Oval & Rectangular Pins

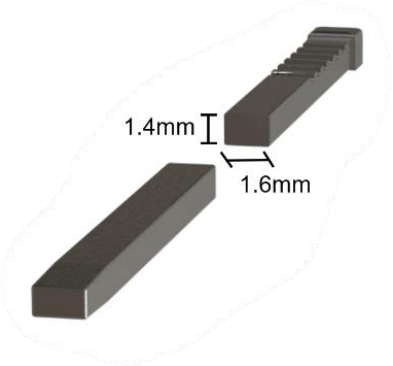
The following dimension of pin has been approved for round, oval and rectangular shaped pins which are hand applied:

- Minimum Standard Wire Gauge (SWG) 16.
- Minimum cross section area of 2.03mm^2.
- Minimum linear dimension of 1.6mm in any direction, see figure below. The maximum pin diameter or any linear dimensions may be no greater than 2.0mm.

Option 2 – Gun (Pneumatically) Fired Rectangular Pins

The following dimension of rectangular pin has been deemed suitable for gun (pneumatically) fired applications.

- Minimum Standard Wire Gauge (SWG) 16.
- Minimum cross section area of 2.24mm^2.
- Minimum linear dimensions as shown in the figure.
- The 1.6mm dimension is predominately oriented perpendicular to the glass, where possible.
- The maximum pin diameter or any linear dimensions may be no greater than 2.0mm.



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

6.4 Single Pane Glass and Glazing Systems (Steel Beading)

The tested and assessed glass and glazing system(s) combinations, detailed within the table below may be used, subject to the limitations and scope detailed in section 6.1 above.

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

The numerical figures in the main body of the table are the maximum height, width (m) & area of glass (in m^2) that is considered acceptable for an individual glazed aperture, based upon the specific system. Where a '-' is applied the glass type and glazing system has not been considered compatible.

Glass & Glazing System Specification			**Maximum Assessed Area (m^2), Height & Width (m)**					
Glass Type Manufacturer		**Thickness**	**System & Manufacturer→**	1	2	3	4	5
				R90 Glazing Liner & 4mm thickness R90 SLS-GLZ-102 Glazing Mastic filling glazing void.	Kerafix SL2000 Glazing Liner 30mm x 2mm & Kerafix SL2000 Tape: 25mm x 5mm applied to bead to glass junction 15mm x 3mm applied to bead to leaf face junction	2mm thick Therm-A-Line Liner & Kerafix SL2000 Tape: 2mm thick applied to bead to glass junction and to bead to leaf face junction, width matching dimension of glazing bead	2mm thick Lorient Liner & Kerafix SL2000 Tape: 2mm thick applied to bead to glass junction and to bead to leaf face junction, width matching dimension of glazing bead	2mm thick Lorient Liner & 23mm x 2mm applied to bead to leaf junction Kerafix SL2000 Tape: 20mm x 4mm applied to bead to glass junction
				Halspan Limited	ROLFKUHN GMBH	ROLFKUHN GMBH & Intumescent Seals Ltd	ROLFKUHN GMBH & Lorient	ROLFKUHN GMBH & Lorient
			Fire Test Reference	WF380349	FRR-2010/2942	FRR-2102/4628	FRR-2107/2288	FRR-2110/1497 & FRR-2110/1498
1	Keralite Vetrotech Saint Gobain	5	FRR-2102/4628 & FRR-2107/2288 & FRR-2110/1497 & FRR-2110/1498	-	-	Area: 1.00 Height: 1.844 Width:0.544	Area: 0.35 Height:1.671 Width:0.219	Area: 0.3 Height:1.5 Width:0.2
2	FireLite Ceramic Glass LTD	5	WF380349 & FRR-2010/2942	Area: 0.12 Height:0.600 Width:0.200	Area: 0.18 Height:0.595 Width:0.308	-	-	-

Note:

1. All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion tolerances.

6.4.1 Permitted Glazing Beading and Glass Retention (Steel Beads)

The following sections detail the permitted glazing beading, aperture lining requirements and minimum fixing details for the above detailed glass and glazing systems. Each section deals with a specific type of glazing bead and indicates which glass and or glazing system it is applicable to. Glazing beads shall only be used with the permitted glass and glazing system as identified.

6.4.1.1 Steel 'Z' Beads

Each of the tested glass types and glazing systems when tested used a steel 'Z' profiled beading. The tables in the following sections provides the minimum dimensional details for each of the above tested glass types and glazing systems.

When using the below detailed glazing beads, the overall thickness of the finished door leaf under the 'Z' bead needs to be considered when specifying the glazing bead depth to ensure adequate compression of the glazing seals.

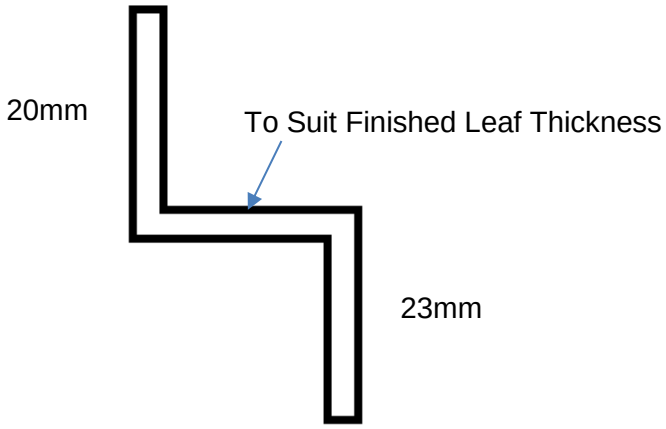
The dimension shown as 'To Suit Finished Leaf Thickness' in the subsequent sections will depend on the finished leaf thickness.

The table below details the required shoulder dimension, this dimension shall be increased directly proportionally to any increase in thickness of the leaf for example the application of decorative and protective finishes.

Glazing System	Required Shoulder Dimension (54mm Leaf Thickness)
1	18.5mm
2	21.5mm
3	22.5mm
4	26.5mm
5	23mm

6.4.1.1.1 Steel 'Z' Bead Option 1

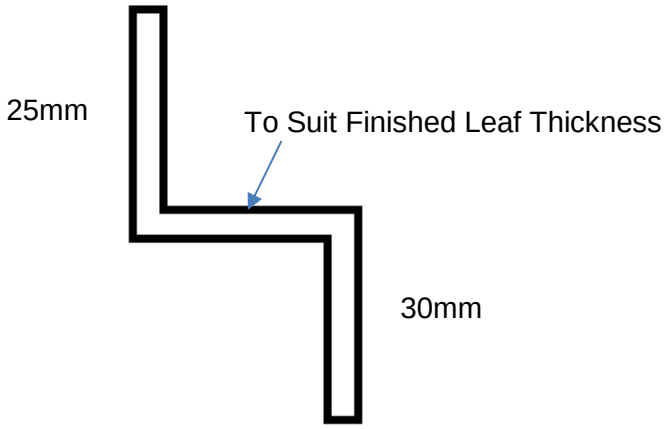
Permitted Glazing Systems (Defined in Section 6.4)	3 & 5



- The glazing beads must be created from steel with a thickness of 1.5mm with fully welded corners.
- Glazing beads must be retained in position with minimum length of 38 - 40mm long steel screws, inserted at 90º to the face of the glass into the leaf face a minimum of 10mm from the glazed aperture.
- Fixings must be at 140mm maximum centres and no more than 27mm from each corner.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using non-combustible setting blocks placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

6.4.1.1.2 Steel 'Z' Bead Option 2

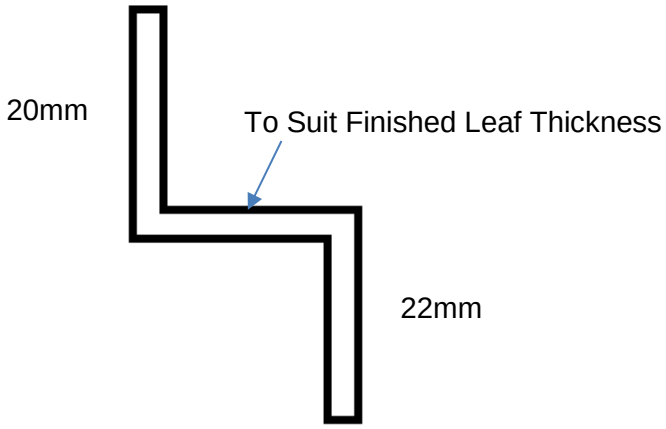
Permitted Glazing Systems (Defined in Section 6.4)	1 & 2



- The glazing beads must be created from steel with a thickness of 1.5mm with fully welded corners.
- Glazing beads must be retained in position with minimum length of 38 - 40mm long steel screws, inserted at 90º to the face of the glass into the leaf face a minimum of 10mm from the glazed aperture.
- Fixings must be at 140mm maximum centres and no more than 27mm from each corner.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using non-combustible setting blocks placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

6.4.1.1.3 Steel 'Z' Bead Option 3

Permitted Glazing Systems (Defined in Section 6.4)	4



- The glazing beads must be created from steel with a thickness of 2mm with fully welded corners.
- Glazing beads must be retained in position with minimum length of 40mm long steel screws, inserted at 45º to the face of the glass into the nominal centre of the shoulder of the glazing bead.
- Fixings must be at 140mm maximum centres and no more than 27mm from each corner.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using non-combustible setting blocks placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

6.5 Double Glazed Units & Glazing Systems

The glazing system must be one of the following proprietary tested systems.

The table below specifies the maximum assessed height, width & area of glazing for each permitted glass type and glazing system. The numerical figures in the main body of the table are the maximum area of glass (in m^2) that is considered acceptable for an individual glazed aperture, based upon the specific system.

The total area of all glazed apertures must not exceed that stated in section 6.1 above.

Test reference WF512409 was undertaken with the left hand doorset opening in towards the fire exposure and the right hand doorset out away from the fire exposure. The double-glazed units fitted into the leaves were tested in both orientations due to the tested arrangements.

Although integrity failures to Doorset A are noted at 24 and 58 minutes neither of these are localised or attributable to the glass or glazing system. Doorset B achieved 62 minutes fire resistance integrity performance. It is therefore deemed suitable evidence for the glazing option, noted below, to be fitted in either orientation.

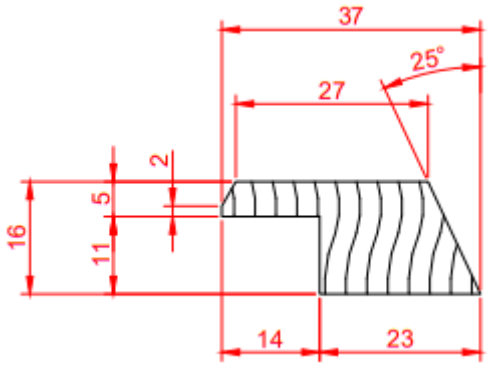
Glass & Glazing System Specification		**Maximum Assessed Area (m^2), Height & Width (m)**	
Glass Type Manufacturer		**System & Manufacturer →**	1
			Halspan SLS-GLZ-112 20mm x 5mm uncompressed & SLS-GLZ-113 Glazing Liner 54mm x2mm Pyroplex – PFRS310WT Fire Rated Silicone capping the top of the glazing system and between the glazing bead and the leaf face
			Halspan & Pyroplex
		Fire Test Reference	WF512409
1	AGC Pyrobelite 12, 12.3mm thick & AGC Stratobel Clearite 33.2 with iplus 1.0 pos.2, 6.8mm thick Hollow box steel spacer 5.5mm wide Total Unit Thickness 25.1mm	WF512409	Area 0.118 Height: 0.47 Width:0.271

Note:

1. All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion tolerances.
2. Based on the testing within WF512409 it is permitted to include lead within the double-glazed unit to the maximum volume of lead that was tested. Units without lead are permitted.

6.5.1 Glazing Beading Arrangement – Double Glazed Units

Permitted Glazing Systems (As defined in section 6.5)	1



- The above detailed bolection may be increased in thickness and height if required, with the dimensions shown being the minimum shown for the bolection.
- The 11mm depth of bead detailed above must be increased subject to leaf thickness increases.
- The glazing beads must be created from hardwood (not Beech *fagus species*) of a minimum 640kg/m^3 density.
- Glazing beads must be retained in position with PU adhesive as well as mechanical fixings with a minimum length of 50mm long steel pins or 50mm long No. 6-8 screws, inserted at 30-40º to the vertical.
- Fixings must be at 150mm maximum centres and no more than 50mm from each corner. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 6.5.2 below.
- A 6 – 10mm thick square aperture liner is required for use with the above bead and shall be constructed from hardwood (not Beech *fagus species*) of minimum density 640kg/m^3 and glued in position using a UF, PVA or PU type adhesive.
- The fitting of the glazing seal between the bead and the glass should be in accordance with the manufacturer's instructions.
- Glass shall be aligned within the aperture using hardwood or non-combustible setting blocks placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires

6.5.2 Glazing Pins for Glazing Within Leaf

The following pin specification is permitted and has been considered suitable for applications requiring a pin fixing to glazing beads:

Option 1 – Round, Oval & Rectangular Pins

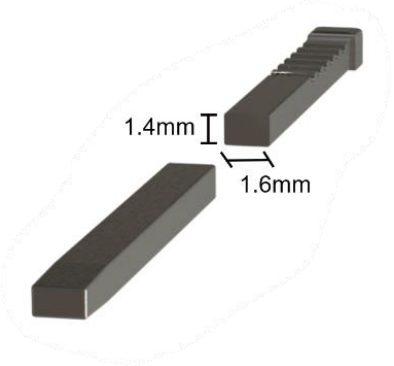
The following dimension of pin has been approved for round, oval and rectangular shaped pins which are hand applied:

- Minimum Standard Wire Gauge (SWG) 16.
- Minimum cross section area of 2.03mm^2.
- Minimum linear dimension of 1.6mm in any direction, see figure below. The maximum pin diameter or any linear dimensions may be no greater than 2.0mm.

Option 2 – Gun (Pneumatically) Fired Rectangular Pins

The following dimension of rectangular pin has been deemed suitable for gun (pneumatically) fired applications.

- Minimum Standard Wire Gauge (SWG) 16.
- Minimum cross section area of 2.24mm^2.
- Minimum linear dimensions as shown in the figure.
- The 1.6mm dimension is predominately oriented perpendicular to the glass, where possible.
- The maximum pin diameter or any linear dimensions may be no greater than 2.0mm.



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

6.6 Hygeno IntaVista & FlushView Units

These glazing units have been successfully tested as shown in the table below. The table identifies the fire test reference, unit overall dimensions and the fire glass included within the Hygeno unit.

Test Report	Hygeno Product	Unit			Fire Glass
		Height	Width	Thickness	
CFR1909241	FlushView	750	500	54	5mm Firelite
	IntaVista	750	500	54	5mm Firelite
WF509421	FlushView	750	500	58	Pyroguard EI30 15mm
	IntaVista	750	500	58	Pyroguard EI30 15mm
WF509420	FlushView	1500	200	58	Pyroguard EI30 15mm
	IntaVista	1500	200	58	Pyroguard EI30 15mm

The Hygeno units are therefore permitted for use within the following specification as detailed below:

- Unit Dimensions:
    a. For Firelite or Pyroguard EI30 based units:
        i. Maximum height of glazing unit: 750mm
        ii. Maximum width of glazing unit: 500mm
        iii. Maximum glazed area: 0.375 m^2
    b. For Pyroguard EI30 based units only:
        i. Maximum height of glazing unit: 1500mm
        ii. Maximum width of glazing unit: 200mm
        iii. Maximum glazed area: 0.3 m^2

In all cases the overall unit thickness must be 54mm to 58mm thick, with the variance in size coming from the dimensions of the spacer. The width of the spacers shall be kept in the same ratio as tested.

Description of the units follows in sections 6.6.1 and 6.6.2 which include permitted installation details relevant for each of the units.

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

6.6.1 Hygeno IntaVista Unit

Hygeno Flush Fit IntaVista is supplied as a unit and comprises a central 5mm Firelite or Pyroguard EI30 15mm pane, with one pane of 6mm toughened glass to one side and with 2 panes of 6mm toughened glass, with an extra layer of movable annealed obscuring glass with a stainless-steel handle to the other side.

This unit has been tested with the operating lever exposed to furnace conditions (CFR1909241) and on the unexposed face (WF509421 & WF509420). When the operating lever was orientated towards the furnace conditions it was observed that the two panes of 6mm thick toughened glass detached and fell away into the furnace prior to 20 minutes. This demonstrates that the toughened glass layers are essentially sacrificial layers, which are not in isolation, essential in order to maintain the integrity performance of the unit in fire test conditions. Furthermore, this indicates that the lever which could under test conditions act as a heat sink would fall away with the toughened glass reducing the risk of premature failure of the fire resisting glass within the centre of the unit.

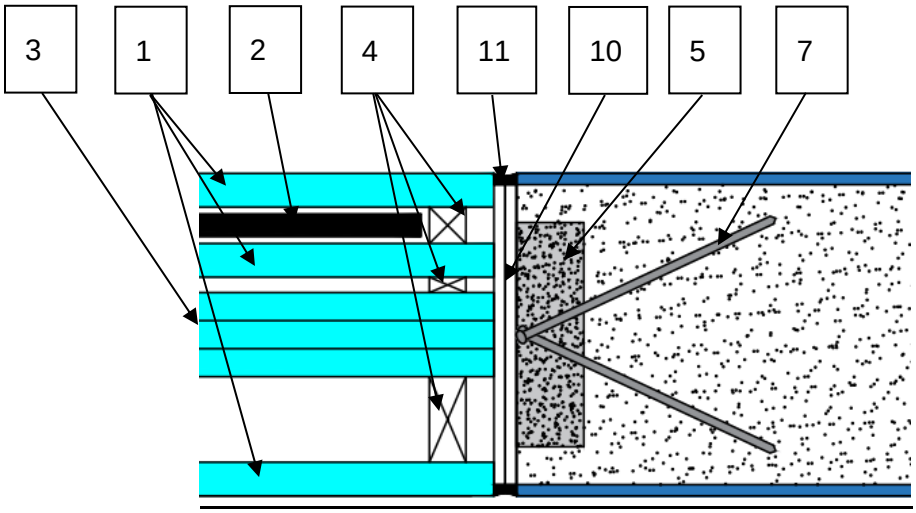
On this basis it is assessed that, subject to the fire resisting pane within the units construction remaining uninterrupted, the unit can be considered fire resisting from both sides with either central fire resisting glass type.

	Make/type	Dimension (mm)	Key to figures
Triple glazed unit	Thermally Toughened to BS EN 12150 with Polished Edges [1]	6 thick	1
	Thermally Toughened to BS EN 12150 with Polished Edges [1]		
	Annealed glass [1]	4 thick	2
	Firelite ceramic glass	5 thick	3
	Pyroguard EI30	15 thick	
	Aluminium spacer bar [1]	15.5 / 10 / 6 wide	4
Expansion allowance	4mm on all edges		-
Lining glazing aperture rebate	Vertical edges – MgO board 40mm wide x 12mm deep		5
	Horizontal edges – MgO board 2No 14mm wide x 12mm deep		6
Fixings	Vertical edges – 40mm long pins or No. 6 screw centrally fitted within the MgO board in line with the glass as depicted overleaf, located at 50mm from the corners and spaced at 150mm centres.		7
	Horizontal edges – 40mm long pins or No. 6 screws located at 50mm from the corners and spaced at 150mm centres at 30º to the plane of the glass. Fixing required for each of the calcium silicate blocks. As depicted overleaf.		8
Intumescent materials	Horizontal edges – Central glass pane is bedded onto Everbuild Firemate mastic, which is applied fully filling the 12mm wide x 12mm deep void between the two MgO boards		9
	50 x 2mm Interdens® (comprising 50 x 2mm liner + 1mm – 2mm packing sections) fitted centrally to the leaf thickness and interrupted by the central glazing pane at the horizontals		10
	All edges – bead of Otto Chemie S94 or Forgeway Formoa 055 sealant applied between outer panes of toughened glass and door core around the perimeter of glazed unit (approx. 4mm deep bead)		11

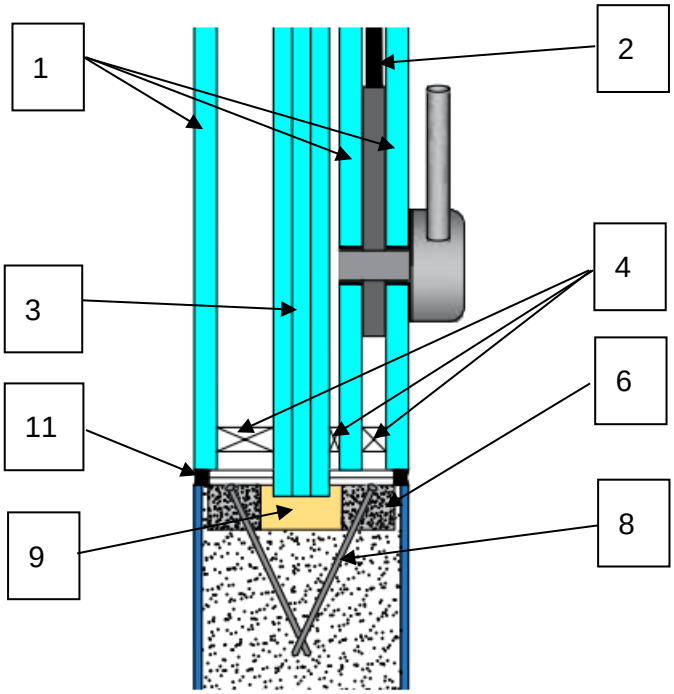
Notes:

1. As detailed within section 2.1 the components must not be changed from the tested detail. Alternatives have not been considered.

Horizontal section detail



Vertical section detail



6.6.2 Hygeno FlushView Unit

Hygeno FlushView is supplied as a unit and comprises a central 5mm FireLite or Pyroguard EI30 15mm pane with 6mm toughened glass to either face.

This unit is symmetrical and therefore can be considered fire resisting from both sides supported by the testing undertaken in WF509421, WF509420 & CFR1909241.

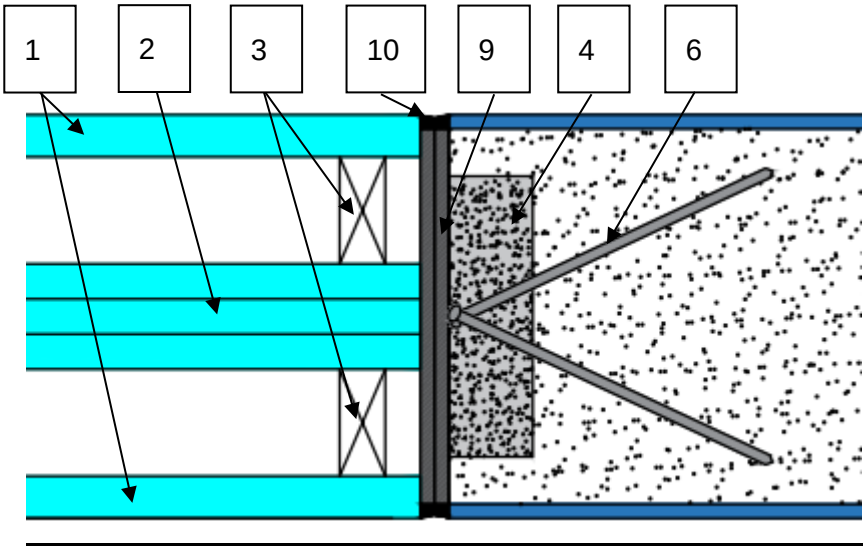
The table below provides information on how the unit is constructed and installed. There is multiple options for some items which may be considered.

	Make/type	Dimension (mm)	Key to figures
Triple glazed unit	Thermally Toughened to BS EN 12150 with Polished Edges [1]	6 thick	1
	Thermally Toughened to BS EN 12150 with Polished Edges [1]		
	Firelite ceramic glass	5 thick	2
	Pyroguard EI30	15 thick	
	Aluminium spacer bar [1]	15 wide	3
Expansion allowance	4mm on all edges		-
Lining glazing aperture rebate	Vertical edges – MgO board 40mm wide x 12mm deep		4
	Horizontal edges – MgO board 2No 14mm wide x 12mm deep		5
Fixings	Vertical edges – 40mm long pins or No. 6 screw centrally fitted within the MgO board in line with the glass as depicted overleaf, located at 50mm from the corners and spaced at 150mm centres.		6
	Horizontal edges – 40mm long pins or No. 6 screws located at 50mm from the corners and spaced at 150mm centres at 30º to the plane of the glass. Fixing required for each of the calcium silicate blocks. As depicted overleaf.		7
Intumescent materials	Horizontal edges – Central glass pane is bedded onto Everbuild Firemate mastic, which is applied fully filling the 12mm wide x 12mm deep void between the two MgO boards		8
	50 x 2mm Interdens® (comprising 50 x 2mm liner + 1mm – 2mm packing sections) fitted centrally to the leaf thickness and interrupted by the central glazing pane at the horizontals		9
	All edges – bead of Otto Chemie S94 or Forgeway Formoa 055 sealant applied between outer panes of toughened glass and door core around the perimeter of glazed unit (approx. 4mm deep bead)		10

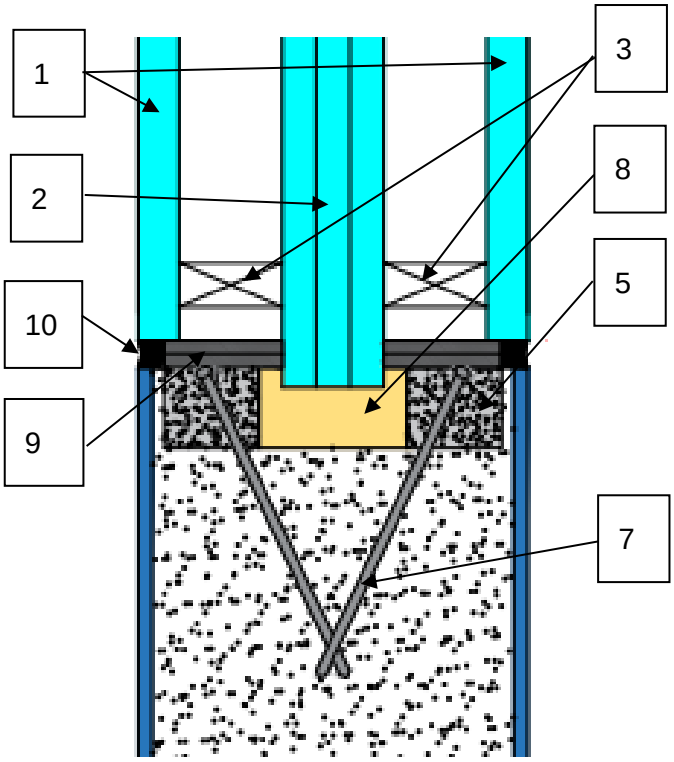
Notes:

1. As detailed within section 2.1 the components must not be changed from the tested detail. Alternatives have not been considered.

Horizontal section detail



Vertical section detail



6.7 Zeroplus Slimport

The Zeroplus Slimport circular glazing system is constructed from steel and has been tested within Warres117483 as summarised within section 3. The test included a Zeroplus Slimport SP250 and a Zeroplus Slimport SP450 which was installed within a 54mm thick timber-based door leaf. It was observed that the first failure mode was recorded at 71 minutes test duration. Supporting the use of the glazing system.

The Zeroplus Slimport glazing system is permitted in the following dimensions:

- 250mm
- 450mm

When utilised the Zeroplus Slimport glazing system shall be positioned within the requirements of section 6.1.

The following intumescent specification shall be applied:

- Zero FS2002, 1.6mm (t) x 9.5mm (w), applied to both faces of the glass between the glass and the bead.
- Zero FS4004, 1.6mm (t) x 54mm (w), applied lining the aperture within the leaf.

The glass type permitted for the Zeroplus Slimport glazing system is as follows:

Pyrocet, 6mm thick, modified toughened glass.

When applied the glass shall be 25mm smaller than the chosen Zeroplus Slimport glazing system to allow for expansion tolerances as tested.

Fixings and glass retention techniques shall be as tested within Warres117483.

7 Door Frame Construction

Based on the testing detailed in section 3 the Prima 60 doorset design is permitted to be utilised with 3No. steel frame types. The following sections detail each of these frame types and their associated fixing and installation methods.

Each frame type is linked to a specific intumescent sealing solution as defined within section 4.5.

Restrictions on the use of specific items of hardware with any individual frame type can be found within the relevant sub-section of section 10.

7.1 Details for Frame M1

On the basis of the testing cited in section 3.1, the door frame listed below is the minimum size which has been successfully tested and assessed by this report. The frame must be constructed to meet the following specification for single acting frames.

Frame specification		
Frame type	Primary Material	Description
M1	1.5mm thick Steel	The frame is made from profiled steel and may be installed such that it wraps around both faces of the wall or within the thickness of the wall. The frame includes an integral stop in the form of a single rebate. When installed the frame must be backfilled with cement mortar.

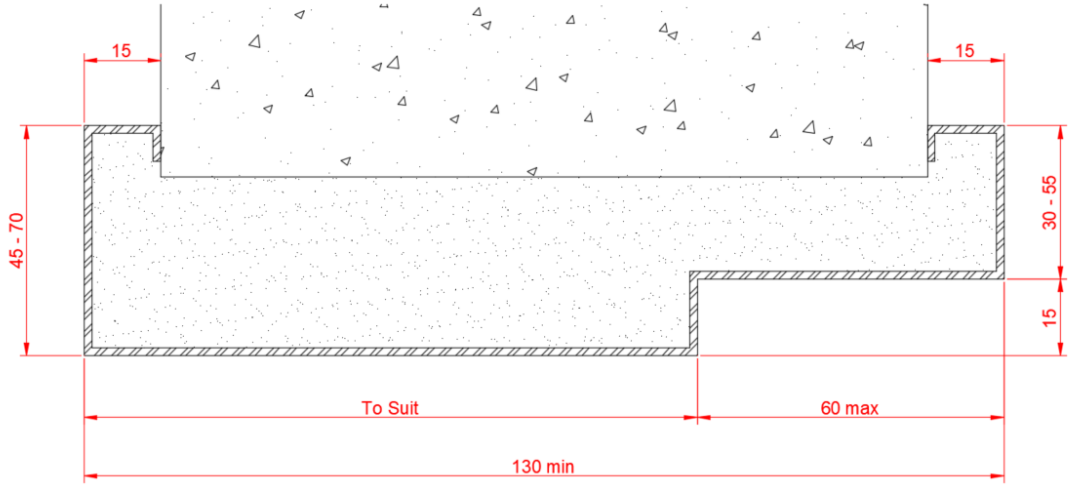
Note:

Permitted sizes associated with the M1 frame construction are detailed below.

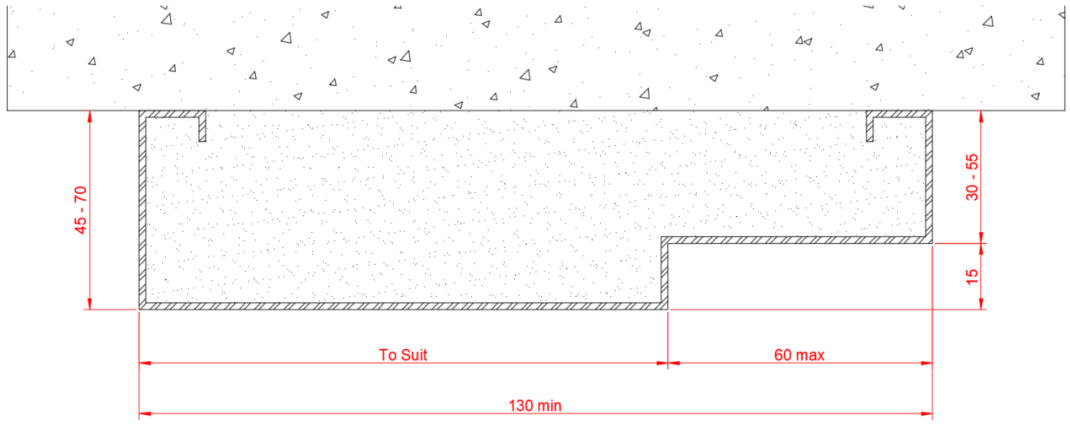
The frame itself must include a 25mm high x 2mm thick steel ‘U’ brackets which suit the overall depth of the frame to facilitate frame fixings as detailed below. The bracket must be welded to the frame such that movement cannot occur. More information on required fixings is found within section 11.5.3.

In all instances the wrap around option shall overlap the wall by 15mm – 30mm.

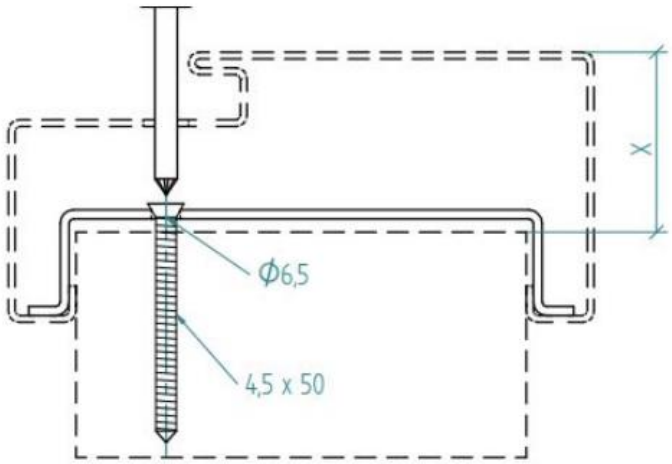
Wrap Around Frame (Frame M1)



Within Wall Thickness (Frame M1)



Fixing Application (Frame M1)



7.2 Details for Frame M3

On the basis of the testing cited in section 3.1, the door frames listed below are the minimum size which have been successfully tested and assessed by this report. The frame must be constructed to meet the following specification for single frames.

Frame specification		
Frame type	Primary Material	Description
M3	2mm thick galvanised Steel	The frame is made from profiled steel and must be installed such that it wraps around the face of the wall, as depicted below. The frame includes an integral stop in the form of a single rebate. When installed the frame is not required to be backfilled but must be fitted with an intumescent mastic in the locations detailed within section 11.3.

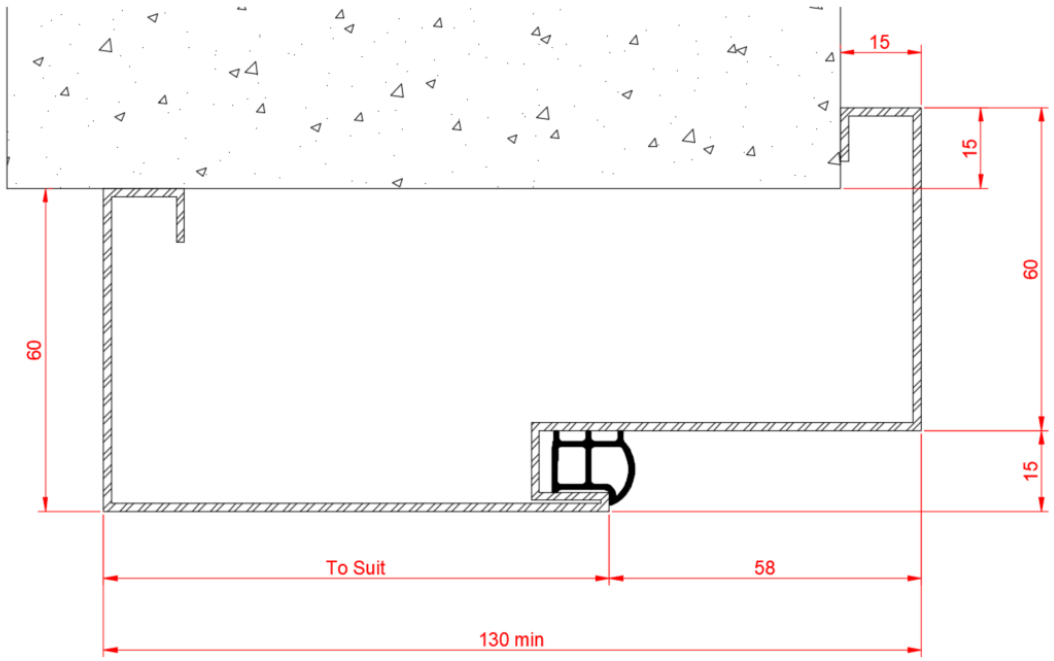
Note:

Permitted sizes associated with the M3 frame construction are detailed below.

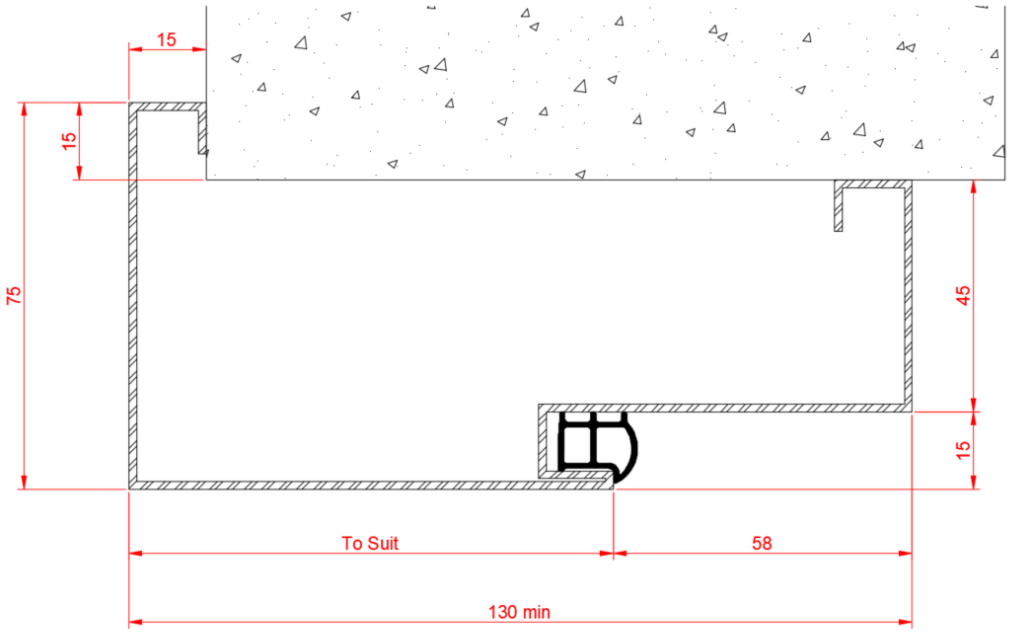
The frame itself must include a 25mm high x 2mm thick steel 'U' brackets which suit the overall depth of the frame to facilitate frame fixings as detailed below. The bracket must be welded to the frame such that movement cannot occur. More information on required fixings is found within section 11.5.3.

In all instances the wrap around section of the frame shall overlap the wall by 15mm.

Wrap Around Opening Face (Frame M3)



Wrap Around Closing Face (Frame M3)



7.3 Details for Frame M4

On the basis of the testing cited in section 3.1, the door frames listed below are the minimum size which have been successfully tested and assessed by this report. The frame must be constructed to meet the following specification for single acting frames.

Frame specification		
Frame type	Primary Material	Description
M4	2mm thick Steel	The frame is made from 2 parts profiled steel and must be installed such that it wraps around both faces of the wall. The frame includes an integral stop in the form of a single rebate. When installed the frame to which the door leaf is hung must be backfilled with Sealed Tight Solutions Ltd, ST99 FR Foam. The two frame sections are to be fixed together using Ø3.8mm x 38mm steel counter sunk screws at 150mm from top corners and 200mm from bottom corners. The fixings are to be positioned within the profile of the stop which is to be covered by the tested BOS Elastic hollow chamber seal (15mm x 15mm cross-sectional dimensions) compression seal.

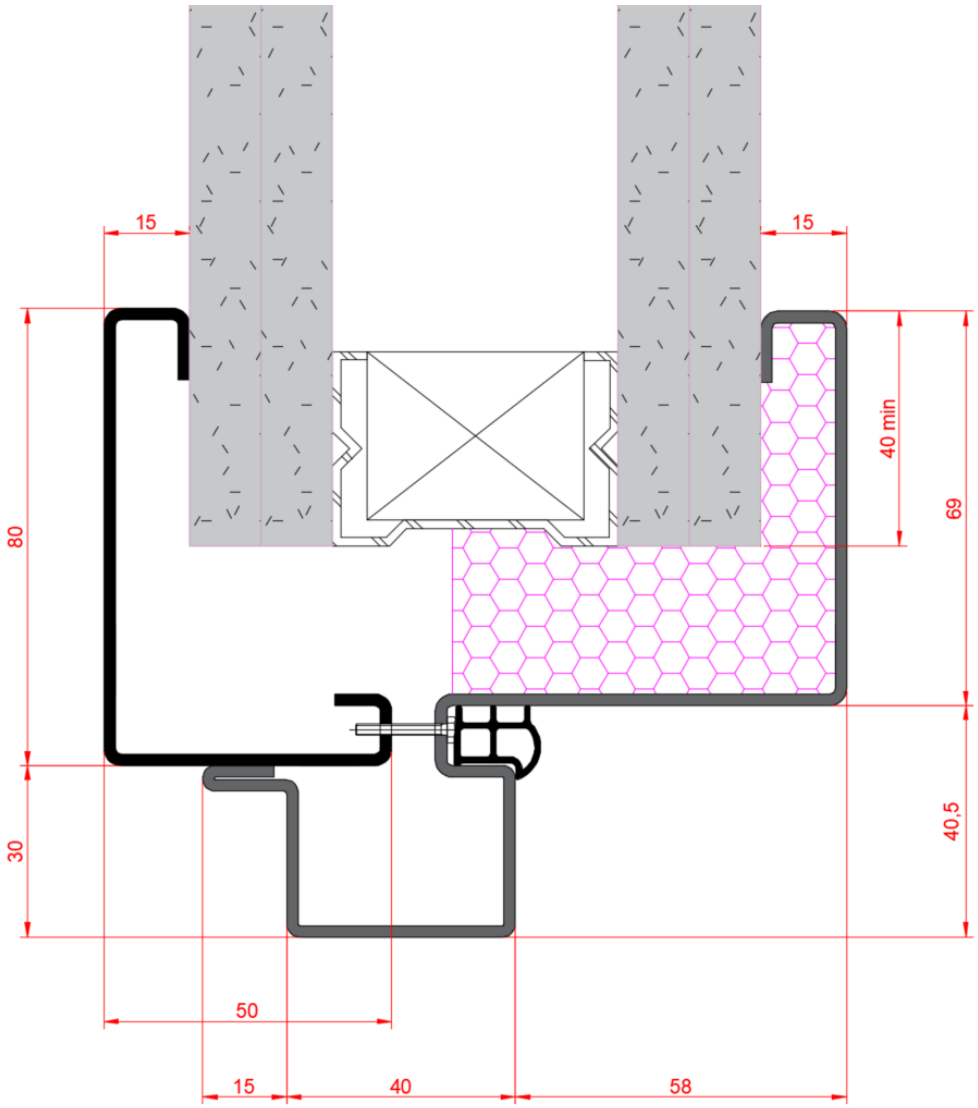
Note:

Permitted sizes associated with the M4 frame construction are detailed below.

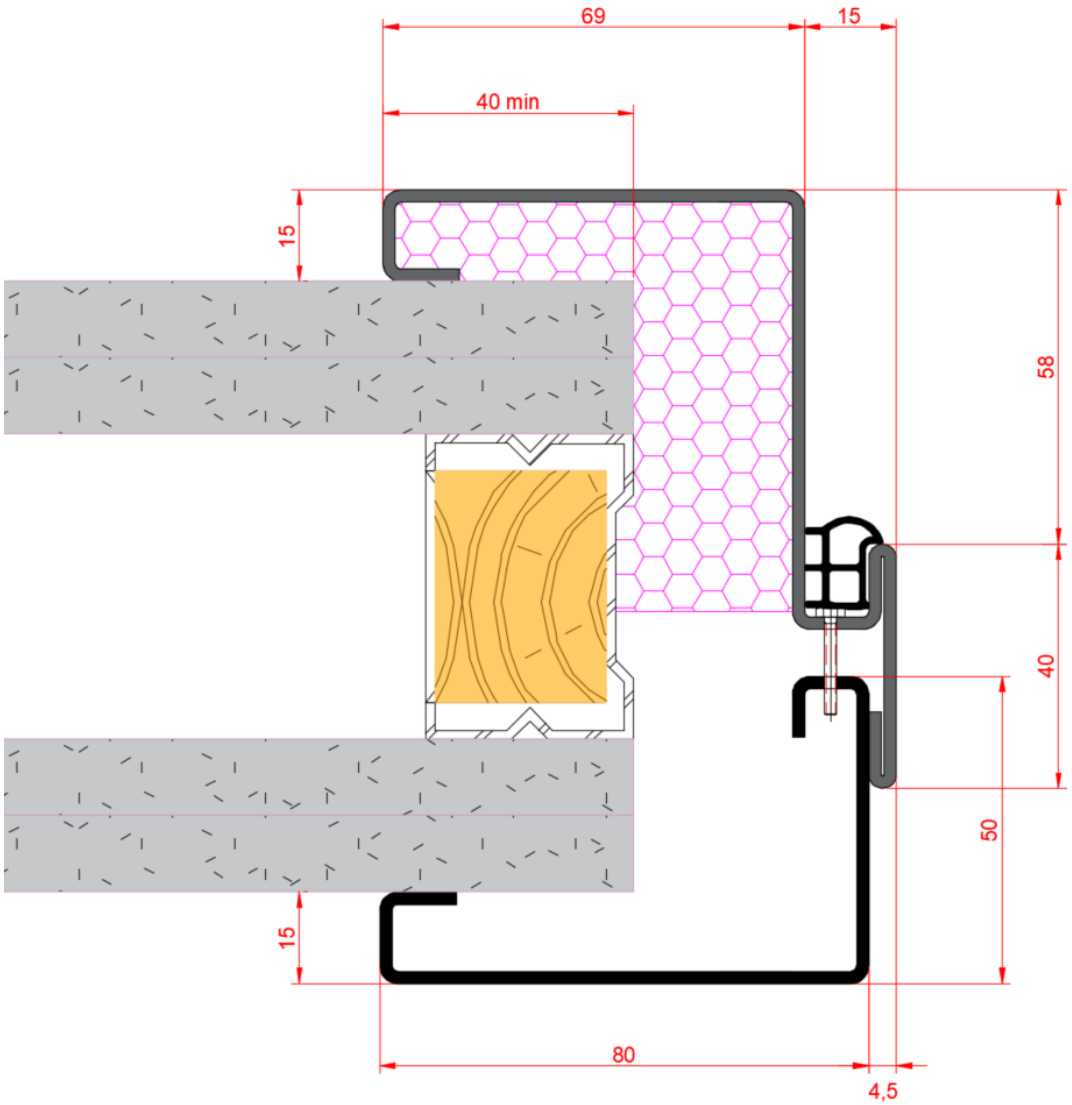
Details on frame fixing is detailed within section 11.5.3.

In all instances the wrap around section of the frame shall overlap the wall by a minimum of 40mm.

Wrap Around Frame Head (Frame M4)



Wrap Around Frame Jambs (Frame M4)



7.4 Door Frame Joints

The frames may be manufactured using either welded, bolted or knock down tabs as required. Joints must be tight and secure with no gaps.

Fixing locations through the stop may be capped with steel or plastic grommets without compromising the integrity.

7.5 Decorative Facings

7.5.1 All Frame Options

Relatively thin facing materials are deemed to be decorative. 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 for this door 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]	0.8

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, however, powder coating is permitted.

8 Overpanels & Fanlights, Sidepanel & Sidelights

The Prima 60 doorset design within steel frames is not permitted to be used with overpanels, fanlights, sidepanels or sidelights.

9 Adhesives

The following adhesives must be used in the construction of the doorsets. These may be hand applied or may be applied using an edgebander. 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 manufacturers guidance should be followed, for either installation application used.

Element	Product/Material Type
Door blank core	As per manufacturers tested specification.
Timber lipping	UF, PU, PUR or PF
Feature Groove Inserts	UF, PU, or PVA
Decorative & protective facings	UF, PF, PU, PVA, PVAc or contact adhesive (see note below)

Note:

Contact adhesive has been permitted as an acceptable adhesive for decorative facings as the outer decorative & protective facings will have negligible effect on the stability of the door leaf and will be rapidly consumed in fire test conditions.

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:

- The component has been successfully tested to BS 476: Part 22: 1987 or BS EN 1634-1 in a suitably similar type of doorset e.g. timber leaf in metal frame.
- As a result of an assessment of the appropriateness of the item of hardware, based on test evidence not commissioned by Halspan Limited.
- As a result of the Certifire approval of the item of hardware – Valid at the date of manufacture.

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.** Referenced Certifire approved hardware may be incorporated subject to the design, material and dimensional limitations identified within this assessment report and identified on the relevant Certifire certificate.

Where maximum leaf dimensions are given in the specifications for items of hardware the guidance in section 4.5.5 must be followed.

10.2 Intumescent to Hardware

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 1No manufacturer should be considered per doorset application. For specific items of hardware, the intumescent requirements are detailed within the relevant subsection.

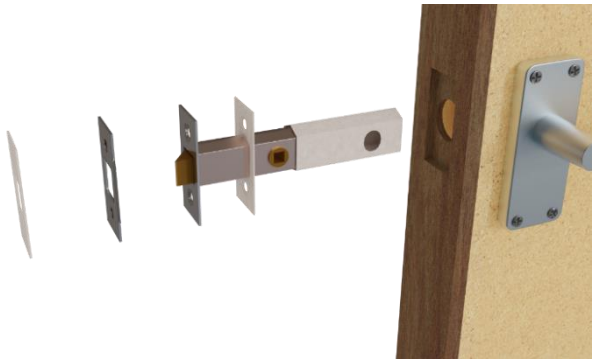
The door gap perimeter intumescent seal specifications are documented in conjunction with the leaf envelope size limitations in section 4.

Hardware Intumescent Specification		
Item	**Location**	**Product/Manufacturer (mm)**
Butt Hinges	Fitted under each hinge blade to the leaf only.	1 (t) Halspan Limited SLS-PAD-103 graphite (WF412658) 1 (t) Interdens® (WF198681) 2 (t) Interdens® (WF508668) 1 (t) Lorient Polyproducts Ltd, MAP (RF07141) 1 (t) Sealed Tight Solutions Ltd, Graphite, (ST100 x 25) (PF15163)
Single Point Lock/latches	Under forend and encasing lock or latch body for all doorsets	1 (t) Halspan Limited SLS-PAD-109 (TA099-A) 1 (t) Interdens® (WF379041) 1 (t) Lorient Polyproducts Ltd, MAP (FRR-2008/5506) 2 (t) Lorient Polyproducts Ltd, MAP (FRR-2110/1497 A/B) 1 (t) Sealed Tight Solutions Ltd, Graphite (PF15163)
Flush bolts	Encasing the entire body of the flush bolt including the back surface of the face plate	2 (t) Halspan Limited SLS-PAD-112 (WF526042) 2 (t) FlexiFire Z1F0160G graphite (CFR1909241 B) 2 (t) Therm-A-Strip - Intumescent seals Ltd (RF13167) 2 (t) Interdens® (F14095) 2 (t) Lorient MAP (FRR-2110/1498) 1 (t) Lorient MAP (FRR-2102/4628A) 1 (t) Interdens® (F16037) 1 (t) Sealed Tight Solutions Ltd, Graphite (PF15035)

Item	Location	Product/Manufacturer (mm)
Rebated threshold drop seals (when required – see section 10.16.2)	Encasing the concealed faces of the drop seal	1(t) Eurolever MAP XX8002DDS (FRR-2010/2942) 2(t) Lorient MAP (FRR-2110/1497) 1(t) Lorient MAP (WB112-1B & 2B)

Note: Halspan intumescent protection is supplied with Halspan hardware, e.g. Halspan sashlock LCK-BSS-104 comes with SLS-PAD-109. The combined product is then referenced BOM-LCK-111.

Example of hinge protection detail



Example of lock & latch protection detail

Flush bolt installation and intumescent protection

Gaskets must be fitted where required by supporting evidence, for example, test evidence or Certifire certificates. If gaskets are not required by the supporting evidence but are within this Field of Application, the requirements of this Field of Application take precedence.

Where it is stated that intumescent is not required for a particular element of hardware, it is permitted to use up to 2mm thick MAP, Interdens or graphite-based gasket tested for the particular application as appropriate for the hardware. It is the opinion of Warringtonfire that the additional protection will not detract from the fire resistance performance under test conditions.

10.3 Essential Hardware

The following table details the essential hardware for the various doorset configurations that are referenced in this assessment. Other items of hardware which are detailed within this report may be fitted in addition to the essential items as required for the selected configuration.

Configuration	Hardware
LSASD	• Latch • Handle • Hinges • Self-closing device (closer)
ULSASD	• Hinges • Self-closing device (closer)
LSADD	• Latch • Handle • Hinges • Self-closing device (closer) • Flush bolt or face fixed bolt • Door Selector if astragal present
ULSADD	• Hinges • Self-closing device (closer) • Flush bolt • Door Selector if astragal present

Note:

1. The above table includes a self-closing device, but for some permanently locked fire doors a closer is not required, providing it is fitted with the appropriate signage. If this is the case the doorset must be considered a latched doorset arrangement for the purpose of leaf size envelopes defined within section 4.5.
2. It is permitted to omit the door closer and fit bolts to the inactive leaf of unlatched double doorsets. The active leaf must be fitted with a door closer and both leaves must carry the appropriate signage.

10.4 Latches & Locks

The following sections detail the permitted locks and latches which have been tested or assessed within the Halspan Prima 60 doorset design.

Doorsets fitted with only a lock without a latching function are permitted. The fitting of a lock only is not considered to change the latching arrangement of the doorset and therefore the permitted leaf size shall be established using unlatched doorset configurations as detailed within section 4.5.

Up to 2No. single point engagement locks or latches may be applied within the vertical edge of the door leaf in any individual doorset providing 200mm of uninterrupted perimeter intumescent is maintained between the two hardware items. When fitted the lock or latch bodies shall be installed at a height as detailed within the relevant section below. Refer to specific notes contained within each section for further considerations on lock or latch type.

10.4.1 Single Point Engagement

The table below details a selection of the tested latches and locks that are approved.

Element	Manufacturer & Product Reference
Locks & latches	• Zoo Hardware ZDL0060RSS (WF504390)
	• Zoo Hardware ZDL0060LR (WF412658)
	• Dorma – Dorma 181 mortise lock (WF189639 A)
	• Dorma – SVP5252 mortise lock with 80mm long standard cylinder (WF189639 B)
	• Dorma – SVP2277 next generation mortise lock (WF350451 A/B)
	• Hoppe – AR913-S-80 SSS (WF193473/A A)
	• Arrone (Hoppe) AR910 (WF380315B B)
	• Hoppe (UK) Ltd AR 912-S-60-SSS (WF331430 B)
	• Halspan – LCK-BSS-100 (WF384748B B)
	• Halspan – BOM-LCK-104 (TA099-A)
	• Halspan – LCK-BSS-200 (WF386186 B)
	• Halspan – BOM-LCK-104 (WF380349 AR1 B)
	• Durable collection Ltd. S-5572 (WB112-1B&2B B)
	• DORMAKABA Mortise 170Plus/WZ 55 (TB 197-1B&2B A)
	• Halspan – LCK-BSS-101 (CFR1809241 A/B)
	• Hafele 911/02/145 mortise sash lock (FRR-2110/1497 A/B)
	• Securefast plc SEU777/2R (WF415117 B)
	• E*S Easi-T latch (RF07141 B)
	• Dormakaba SVP 6000 80mm backset (WF523824/R A/B)
	• Abloy OY– EL520/100 & Abloy OY EA 329 (WF364240)
	• Abloy – EL560 Solenoid Lock 100mm backset & Abloy EL 322 keep (WF508198)
	• Abloy – EL 560 Solenoid Lock 60mm Backset & Abloy – EA 322 keep (WF508668)

	• Abloy EL560 - 65mm backset & Abloy EA322 (WF520063)
	• Abloy EL560 - 100mm backset & EA 322 keep (CFR2211141)

Alternatively, Certifire approved components certified for use within 60-minute fire resistance applications on 54mm thick timber door and steel frames with the following specification are also deemed acceptable for both single and double leaf doorsets.

Element	Specification
Maximum forend and strike plate dimensions (excluding tongue)	235mm high x 26mm wide x 4mm thick
Maximum body dimensions	168.5mm high x 133mm wide x 18mm thick
Intumescent protection	see section 10.2
Materials	All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel, stainless steel or brass with a melting point ≥ 800^0 C

Notes:

1. In all instances the location of the handle must be:
    - For single leaf arrangements between 800 – 1200mm from the finished floor level.
    - For double leaf arrangements between 800 – 1500mm from the finished floor level.
2. Locks with the above specification may be fitted centrally within the thickness of the leaf.
3. Mechanical locks which meet the specification given above are permitted.

10.4.2 Cylinders

The table below details a selection of the tested cylinders that are approved.

Element	Manufacturer & Product Reference
Cylinder	• Winkhaus XR604/6 (WF512409)
	• Dorma – Dorma profilcylinder PC 51 / 30-30 (WF198681)
	• Arrone (Hoppe) AR3130-CC-NP (WF380315-B)
	• ISEO EN 1303-2005 (WF331430)
	• Abloy OY – CY332T (WF364240)
	• UAP – Kinetica Double 3 Kitemarked Euro Cylinder (CFR2006181)
	• Vier V5 – 35/10/35 (CFR1909241)
	• Glutz – GC9991.AT (WF504819)
	• Glutz – GC9991.B (WF507671)
	• Abloy – CY326 (WF508668)
	• Abloy Breaksecure 3DS 59080026 (WF507664)
	• Durable Collection Ltd – DCP M-70 (WB112-1B&2B)
	• Dorma – Double profile cylinder DEC 150-DN 40/40 (TB 197-1B&2B)
	• Eurolever SC11.71 (FRR-2010/2942)
	• Hafele 916.96.076 (FRR-2110/1497)
	• Euroart CYD270 (TA099-A)
	• EUROART CYD280 (FRR-2008/5506)

	• Union Assa Abloy J-U6PED4555SN Union 6 pin Euro Profile (WF415117)
	• Assa Abloy CY331T (WF437975/LR)
	• Kinetica 3* cylinder & turn (WF523824/R)
	• Halspan Kinetica 3* cylinder & turn (CFR2209201)

Alternatively, components with the following specification are also deemed acceptable.

- Where required for use with either single or multi point latches, the cylinder must be constructed of either brass or steel with a melting point in excess of 800^0C.
- The cylinder must be compatible with the lock/latch.
- Cylinder dimensions may be up to 33mm high x 17mm wide at the maximum dimension and may be of euro profile or oval.
- Single and double cylinders, along with cylinder & turn are permitted.
- Door preparation for single cylinders shall penetrate no greater than 2/3rds of the door thickness.
- Intumescent protection and tightness of fitting:
    - As the lock body is protected with an intumescent material, maximum clearance between leaf and cylinder is 3mm to each edge.
    - 1mm thick MAP or non-pressure forming graphite intumescent around the cylinder is optionally permitted.

10.4.3 Electronic locking

Based on the testing undertaken on the Prima 60 doorset designs as detailed within section 3.

10.4.3.1 Surface Head Mounted Maglocks

The following maglocks have been successfully tested within the Halspan Prima 60 doorset design when the mag lock body was fitted to the door frame head with the armature or associated bracket fitted to the face of the leaf:

Test Evidence	Item
WF404075	Halspan / RGL ML1200 Standard magnetic lock with a ZL bracket and using BLK 1200 contact armature/bracket and AH 1200 armature housing.
WF523824/R	Dormakaba EM 5300 GL AH with and without Dormakaba 19860290 Z & L BRACKET FOR EM 5300

In addition to the tested and permitted maglocks detailed above the following alternative Halspan / RGL maglock bodies are permitted for use:

- ML600: Slimline mini magnet
- ML600-M: Monitored version of the ML600

- ML600-D: Double Slimline mini magnet
- ML600-D-M: Monitored version of the ML 600-D
- ML600-D-MDS: As ML600-D but with monitored door status

- ML1200-M: Monitored version of the ML1200
- ML1200-MDS: As ML1200 but with monitored door status

- ML1200-D-M: Double standard magnetic lock, monitored
- ML1200-D-MDS: As ML1200-D-M but with monitored door status

The following mounting brackets and accessories are assessed as permitted in conjunction with the ML series of maglocks:

- AH600 and AH1200: Armature housing
- BK600ZL and BK1200ZL: Z&L bracket
- BK600L and BK1200L: L bracket
- BK600-D-ZL and BK1200-D-ZL: Double Z&L bracket
- BK600-D-L and BK1200-D-L: Double L bracket
- AB600ZL-DC: Architectural Z&L bracket
- AB600CL and AB1200CL: Architectural L Bracket
- BK600-F-L/AB and BK1200-F-L/AB: Architectural F/ZL bracket
- BK600-D-FL/AB and BK1200-D-FL/AB: Double Architectural F/ZL bracket
- ADJ-600L and ADJ-1200L: Adjustable L Bracket
- MAG-STRAP and ARM-STRAP: Safety Wire Holding strap

The above ML series of maglocks, armatures or brackets have been included within this assessment as none of the items are recessed into the edge or face of the door or frame and therefore it would not be expected that their fitting would increase the risk of burn through if subjected to fire resistance testing. The dimensions of some of the alternative maglock bodies are increased from the tested product. However, as they are of identical materials to the tested

product, no reduction in performance would be expected as a consequence of substitution of the tested product.

Based on the test evidence, the above listed tested and assessed alternative face fixed magnetic locks are suitable for use within the following parameters:

Frame option: M1, M3 & M4

Configurations: LSASD, ULSASD, LSADD and ULSADD

- The maglock body must be fitted directly to the frame head or utilising one of the permitted mounting brackets.
- When using the ML series of maglocks the armature(s) can be fixed to the face of the door via separate armature housing AH600 or AH1200 so that no fixings penetrate the full door thickness. The armature housing must be fixed to the door leaf using 4mm x 22mm woodscrews and the armature plate fixed to the housing by a single 8mm coachbolt which is fixed to the armature housing. Alternatively, based on the testing detailed within WF523824/R it is considered possible to throughbolt the armature to the face of the leaf, providing there is no more than 1mm clearance between the hole and bolt.
- When using the Dormakaba EM 5300 GL AH maglock the armature must be through bolted as tested in WF523824/R.
- No recessing of frame or leaf is permitted for cable runs.
- When fitted the maglock shall not interrupt any fire stopping detail applied to the doorset, nor require the removal of material (except screws) from the frame section.

The fitting of face fixed magnetic locks is not considered to change the latching arrangement of the doorset and therefore the permitted leaf size shall be established using the appropriate doorset configuration based on the other latch/lock hardware fitted to the doorset.

10.4.4 Access control systems

10.4.4.1 Electro-mechanical locks

The electro-mechanical access control systems detailed in the following sections have been successfully tested and assessed with the Prima 60 door blanks and are therefore suitable for use within the scope stated herein.

Test Evidence (Tested configuration)	Lock Body (Dimensions)	Handleset (Dimensions)	Intumescent Protection
WF379042 (ULSASD)	Dorma Kaba – Quantum hotel lock (Body - 148mm long x 100mm wide x 22 deep Forend – 204mm long x 26mm wide)	Dorma Kaba – Quantum hotel lock (Lever handle with back plate of 255mm x 89mm wide x 21mm projection to one face with Lever handle on rose of Ø75mm x 15mm thick and Card reader of 74mm diameter x 12.5 deep fitted including 75mm diameter x 2mm thick rubber gasket to the opposing face)	1mm Interdens to all concealed faces of lock body, under forend and under strike.
WF520064 (LSASD)	Abloy Aperio L100 BL560 – 65mm RFID locking system. (Body - 166mm long x 98mm wide x 15.4 deep Forend – 225mm long x 24mm wide)	Abloy Aperio L100 long plate handleset with escutcheon, including RFID card readers. (282mm high x 48mm wide to one face of the leaf and 348mm x 52mm to the opposing face)	1mm MAP to all concealed faces of lock body, under forend and under strike.
WF437975/LR (LSASD)	Abloy OY Mortice lock/latch AL560_200170 (Body – 168.5mm long x 98mm wide x 16.5mm deep Forend – 235mm long x 24mm wide) Strike plate Assa Abloy EA329	Assa Abloy Reader HF Abloy Oy 953032 handleset	1mm MAP to all concealed faces of lock body, under forend and under strike.

WF327018 (LSASD)	Codelocks Ltd – CL 5010, tubular mortice latch	Codelocks Ltd – CL 5010	Codelocks Ltd – Code Locks Fire Kit consisting of: 3No. 8mm diameter graphite based intumescent tubes positioned in fixing bore holes Data cable bore hole lined with 1mm thick Interdens® Spindle bore hole lined with 2No. layers of 1mm thick Interdens® 1mm thick Interdens® applied under the forend and keep.
	Codelocks Ltd – CL 2255, tubular mortice latch	Codelocks Ltd – CL 2255	
WF397957 (LSASD)	Codelocks Ltd – CL 4510, tubular mortice latch	Codelocks Ltd – CL 4510	
	Codelocks Ltd – CL 5510, tubular mortice latch	Codelocks Ltd – CL 5510	

Based on the test evidence the above tested and assessed electro-mechanical locksets are permitted for use with the doorset design subject to the following parameters:

Configurations:

All of the above listed locks: LSASD, ULSASD

In addition, the above listed code locks using a tubular mortice latch: LSADD & ULSADD

Locks which require a cable for signal or power from an external source are not permitted.

- Any of the perimeter intumescent specifications provided within section 4.5 for the appropriate configuration are permitted for use with the above detailed locksets.
- The frame must be fitted with a stop of minimum 15mm.
- Locks must be fitted between 800mm – 1200mm from the floor level to the spindle.

10.5 Handles & Escutcheons

The table below details a selection of the tested handles and escutcheons that are approved.

Element	Manufacturer & Product Reference
Handles	• Dormakaba c-Lever pro (26xy-K6) (WF523824/R A/B)
	• Dorma – PLUS 8906/6500/6612 levers, (WF350451 A/B)
	• Arrone (Hoppe) Paris E138/42H/42HS (WF380315B B)
	• HOPPE - AR3901/10-UN-SSS (WF193473/A)
	• Hoppe AR3901/29-SSS (WF193473/A)
	• UAP – DH243-DUO-SSS-NANOCOAST (CFR2006181 A/B)
	• Halspan – LCK-MSC-274 (CFR2209201)
	• Glutz – GF.NES.4.GFB lever on GF.NES.5.GB (WF504821 AB)
	• HEWI – 162XAH12.530 (WF508198 A/B)
	• Hewi – 162XAH12.530 (WF508668 A)
	• Abloy 319242/PZ+BL (WF507664 A/B)
	• Durable Collection Ltd HL42 SSS (WB 112-1B&2B B)
	• Eurolever SS140X (FRR-2010/2942 A/B)
	• Hafele LDH 2170 (FRR-2110/1497 A/B)
	• Altro -SAA Lynx Pattern Latch set (CFR1509291 A)
	• EUROART LRS201/SSS (FRR-2008/5506 A)

Escutcheons	• Dorma – Dorma Plus Cylinder rose (WF198681 B)
	• Zoo Architectural Hardware – ZCS001SS – (CFR1909241 A)
	• Glutz – GF.NES.8.GFB Square escutcheon (WF504819 AB)
	• HEWI – 306.23X (WF508198 A)
	• Hewi – 306.23 (WF508668 A/B)
	• Eurolever square escutcheon SS5011 (FRR-2010/2942 A/B)

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 2mm clearance between the hole and the fixing.
- The hole through the leaf to facilitate the spindle must be no greater than 25mm 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 56mm.
- Handle on back plate with a back plate size up to 260mm high x 200mm wide.
- Handle 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 2mm clearance between the hole and the fixing.
- The escutcheon may be up to Ø56mm overall and up to 10mm thick.

10.6 Hinges

10.6.1 Butt Hinges

The table below details a selection of the tested butt hinges that are approved.

Element	Manufacturer & Product Reference
Butt Hinge	• Halspan Limited – HIN-BSS-108 (WF520064) **BOM-HIN-202** when paired with SLS-PAD-103 intumescent
	• Halspan Limited – HIN-BSS-104 (CFR2109021) **BOM-HIN-201** when paired with SLS-PAD-103 intumescent
	• Halspan Limited – HIN-BSS-103 (CFR2103161) **BOM-HIN-200** when paired with SLS-PAD-103 intumescent
	• Royde and Tucker Ltd – Hi-Load 102 (WF390174)
	• Royde and Tucker Ltd – Hi load 125 (WF379042)
	• Royde and Tucker Ltd – Hi-Load G4530-FS-BSS (CFR1811211)
	• Royde and Tucker Ltd – H101 (PF14102)
	• Royde and Tucker Ltd – Hi Load 101 (RF01073)
	• Royde and Tucker Ltd – H105 Gi load lift off type hinges (RF07141)
	• Dorma – 3090F 2BB (TB197-1B&2B)
	• Dorma – 3094F (WF350451)
	• Hoppe (UK) Ltd – AR 8380 SSS (WF331430)
	• Glutz – GH2351.R.3K (WF504819)
	• Allgood – SS8066R Grade 14 (WF508668)
	• Zoo Hardware Ltd – ZHS243R (CFR2002051)
	• EUROART – HINBB433/304/SSS (FRR-2008/5506)

	• Cooke Brothers Ltd – Phoenix concealed bearing butt hinge 7730 (CFR1708031)

Alternatively, Certifire approved components certified for use within 60-minute fire resistance applications on 54mm thick timber door and metal frames with the following specification are also deemed acceptable for both single and double leaf doorsets.

Element	Specification
Blade height:	90 - 120mm
Blade width (excluding knuckle):	29 - 35mm (Fitted within the leaf frame) (See note 1)
Blade thickness	2.5 - 4mm
Fixings:	Minimum of 4 No. 30mm long No. 8 or No.10 steel wood screws per blade to the leaf & M5 x 12mm long steel machine screws to the frame.
Materials:	Steel or stainless steel or brass with a melting point of greater than 800 degrees Celsius.

Intumescent protection shall be as defined in section 10.2 in all instances.

Note:

1. Projection hinges with blade widths greater than the widths detailed above are permitted providing that no more than 35mm of each blade is rebated within the leaf edge or frame.

In all instances, the hinges must have the following specification.

Leaves less than 2200mm (h) must be hung on a minimum of 3 hinges. Leaves greater or equal 2200mm (h) must be hung on 4 hinges.

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

Element		Specification	
Hinge positions:	If 3 hinges are required:	Top	100 –180mm from the head to top of hinge
		2nd	Minimum 200mm from top hinge or centrally fitted between top and bottom hinge
		Bottom	150 - 250mm from the foot of leaf to bottom of hinge
	If 4 hinges are required:	Top	100-180mm from the head to top of hinge
		2nd & 3rd	Equispaced between top and bottom or 2nd hinge 200mm from top hinge and 3rd hinge equally spaced between 2nd and bottom hinge
		Bottom	150 - 250mm from the foot of leaf to bottom of hinge
Intumescent protection:		See section 10.2	

10.7 Doorset Self Closing

Doorset automatic self-closing can be provided by:

- Overhead face fixed closers

Alternative means of doorset self-closing devices such as concealed items or pivots used with floor springs are not considered acceptable for use with the Prima 60 doorset range with steel frames.

10.7.1 Overhead Face Fixed Closer

The table below details the tested overhead face-fixed closers that are approved.

Element	Manufacturer & Product Reference
Overhead face-fixed closers	• Halspan Limited – Halspan 6000 Eco Closer (CLR-AGN-100) (CFR 2211141)
	• Halspan 6100 Cam action closer (WF520064 A/B P60)
	• Halspan – 9000 Series Power closer (WF523941/R)
	• Halspan – 9100 series Cam Action Door Closer (CFR2103161)
	• Dorma door controls TS83 (RF07141)
	• Dorma TS73V/RA (TB 197 - 1B&2B)
	• Dorma – TS-Profil (WF189639)
	• Dorma Kaba – TS92G EMF with G-EMF guide rail and G-EMF angle bracket (WF379042)
	• Dorma – Dorma TS 93 B EN 5-7 with GN slide Channel (WF198681)
	• Dorma Ltd – TS72 (CFR1711241)
	• Dorma UK Limited TS68 (CFR1708031)
	• Dormakaba TS71 (BMTFEP16037)
	• Briton 121 CE (WF323822)

	• Hoppe (UK) Ltd AR3500MSE (WF331430)
	• Geze – TS2000V (BMT14102)
	• Geze TS2000 (BMTFEP16037)
	• Rutland TS3204 (BMTFEPF14012B)
	• Assa Abloy DC250 door closer DC194 guide rail DC194 mounting plate (WF437975/LR)

Alternatively, components with the following specification are also deemed acceptable.

- Certifire approved overhead face-fixed closers for 60-minute fire resistance applications on 54mm thick timber door and metal frames.

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

10.8.1 Flush Bolts

The table below details the tested flush bolts that are approved.

Product Reference (Test evidence)	Size (mm)
Newstar FB200 (F14095)	203x38x19
Halspan – LCK-MSC-205 (CFR1909241)	203x38x19
Carlisle Brass (sunk slide) AA79CP (RF13167)	101x17x3
Hafele 911.62.335 (FRR-2110/1498)	151x19x34
Simplex SDB 108 dust proof socket SDS 101 (FRR-2102/4628A)	200x19
Zoo Flush bolt (F16037)	200x20

In addition to the tested and permitted flush bolts detailed above, flushbolts which meet the following requirements are permitted.

- Flush bolts must be steel.
- The following maximum dimensions are not exceeded:
    - 203mm long x 20mm deep x 38mm wide.

On the basis of the testing, the tested and alternative flush bolts are suitable in the following applications only:

Frame options: All frame types

Configurations: LSADD (Optionally ULSADD)

In all cases the following scope must be complied with:

- Flush bolts must be fitted centrally within the thickness of the secondary leaf at the meeting edge.
- Flush bolts may be fitted to only the top of the leaf or alternatively to both the top and bottom of the leaf.
- The components are fitted relative to the meeting edge intumescent strips in one of the following ways:
    - Opposing the leaf edge fitted with intumescent strips such that no interruption occurs in either leaf (primary or secondary).
    - Where there are intumescent strips fitted to both the primary and secondary leaf meeting edges a minimum of 2No. intumescent strips shall be in the leaf opposing the flush bolt.

- Intumescent Protection: All edges of the mortice of the keep and body must be protected with intumescent gaskets as specified in section 10.2.
- Flush bolts fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.
- The mortice to facilitate the flush bolt must be as tight to the mechanism as is compatible with its operation and the inclusion of intumescent protection.

10.8.2 ANSI Z005 Automatic Flush Bolt

The table below details the tested automatic flush bolt that is approved.

Manufacturer & Product Reference	Overall Size of Product (mm)	Intumescent
ANSI – Z005 Auto (WF508198 B)	Lock case 190x50x30 Top and bottom plate 218 x 27 x 2 Meeting edge plate 215x25x3	2(t) Interdens® around the lockcase, Top & bottom end plate and forend plate

On the basis of the testing, the ANSI Z005 is suitable for use within the following scope:

Frame options: All frame types

Configurations: LSADD (Optionally ULSADD)

In all cases the following scope must be complied with:

- The ANSI Z005 must be fitted centrally within the thickness of the secondary leaf at the meeting edge.
- The ANSI Z005 may be fitted to only the top of the leaf or alternatively to both the top and bottom of the leaf.
- The ANSI Z005 must be fitted relative to the meeting edge intumescent strips in the following way:
    - Intumescent strips must be fitted to both the primary and secondary leaf meeting edges and a minimum of 2No. intumescent strips shall be in the leaf opposing the ANSI Z005.
- The Intumescent protection must be as tested and identified within the table above.
- ANSI Z005 bolts fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.
- The mortice to facilitate the bolt must be as tight to the mechanism as is compatible with its operation and the inclusion of intumescent protection.

10.8.3 Surface Mounted Face Fixed Bolts

The table below details the tested surface mounted face fixed bolts that are approved.

Frame options: All frame types

Configurations: All configurations

Manufacturer & Product Reference (Test evidence)
• Halspan Limited – BLT-BZA-100 (CFR2211141)
• Royde & Tucker - Barza bolt B151-300-220 (CFR1809241)
• Royde & Tucker – Barza bolt B151-300-200 (TA099-A)
• Royde and Tucker – Barza B151-200-220 (CFR 2004171)
• Carpenters Supply Co surfaced mounted 143C (RF 07141)

In addition to the above summarised tested surface mounted face fixed bolts, alternative surface mounted face fixed bolts constructed from steel, stainless steel or bronze may be fitted, providing the dimensions are no greater than:

- 350mm long x 38mm wide (footprint).

Surface mounted face fixed bolts may be applied to the horizontal or vertical edges of the doorset providing the components are fitted at least 40mm from the corners of the leaf.

Intumescent protection is not required where both the bolt and keep are face fixed.

The application of surface mounted bolts must not result in removal of frame material except to facilitate screw fixings and receive the bolt where applicable.

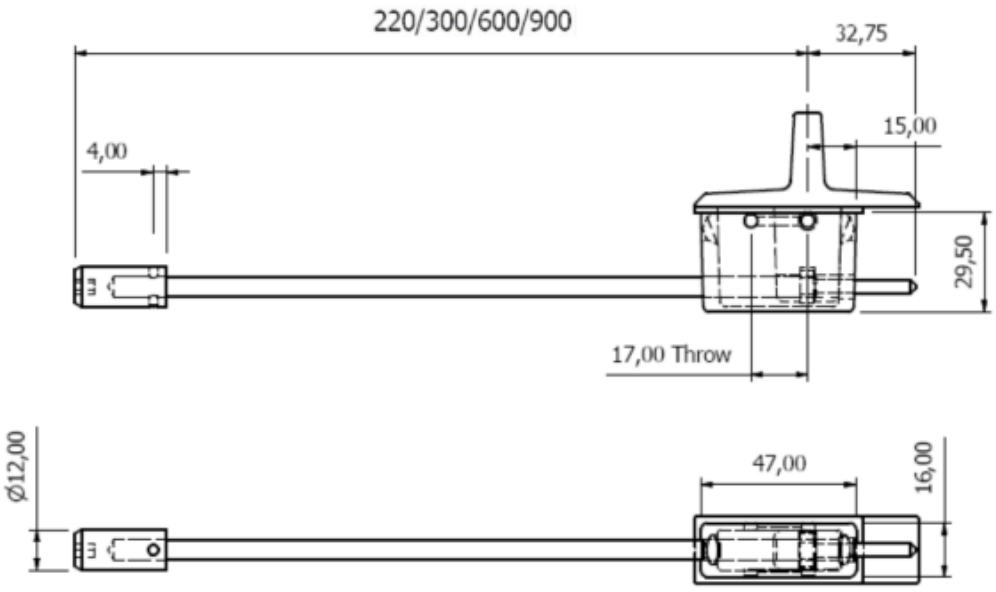
10.8.4 Royde & Tucker Anza surface mounted bolt

ANZ-220-FD has been successfully tested in WF504819 with the bolt activator in the face of the leaf, and is suitable for use within the following scope:

- Frame: All frame types
- Door configuration: LSADD, ULSADD
- Intumescent protection:

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

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



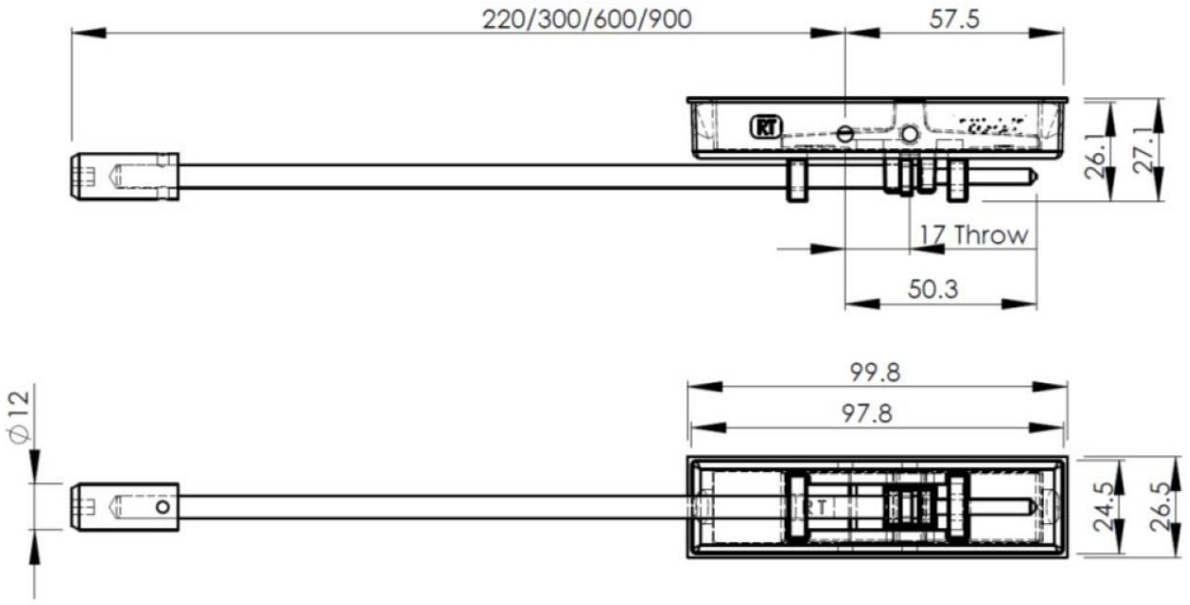
10.8.5 Royde & Tucker Anza flush mounted bolt

ANZ/R-300-FFD has been successfully tested in WF504819 with the bolt activator in the meeting edge, and is suitable for use within the following scope:

- Frame: All frame types
- Door configuration: LSADD, ULSADD
- Intumescent protection:

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

- The rebate for the operating handle recessed into the leaf edge must not be closer than 170mm to the top or bottom of the leaf and must be positioned centrally in the leaf edge.
- The bolt fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.
- The longer length product variants ANZ/R-600-FFD and ANZ/R-900-FFD are also permitted as the bolt activator will be located further away from the top and bottom of the door leaf.
- The shorter length product variant ANZ/R-220-FFD is also permitted on the basis that the fire resistance performance has been demonstrated on the longer product variant as well as the fact that the doorset design has been proven with flush bolts which interrupt the leaf edge further than required within the ANZ/R-220-FFD.



10.9 Pull Handles

The table below details the tested pull handles that are approved.

Manufacturer & Product Reference (Test evidence)
• Dorma UK Ltd ZP11 630 EP (WF390174)
• Zoo Hardware Ltd – ZAAD600BS (CFR2002051)
• Simplex VSP 2025 (FRR-2107/2288)
• Zoo Hardware ZAAD425BSA (WF 523941/R)

Alternatively pull handles must be Steel, stainless steel or bronze handles and 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.

10.10 Push Plates & Kick Plates

The table below details the tested push plates that are approved.

Manufacturer & Product Reference (Test evidence)
• Zoo Hardware Ltd – ZAS30RDSS (CFR2002051)
• Simplex – PPS-AE.150.1250 (FRR-2107/2288)
• Simplex – PPS-AE.100.400 (FRR 2102/4628A)
• Zoo Hardware – ZAA40CSA (WF523941/R)

Alternatively, components with the following specification are also 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:

- Polymeric or metal 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.
- Plates may not be recessed into the face of the leaf.
- In all cases plates meeting the above specification shall not be applied under glazing beads or door stops.

10.11 Back-to-back recessed pull handles

The table below details the tested back-to-back recessed pull handles that are approved.

Manufacturer & Product Reference (Test evidence)	Overall Size of Product	Recess in leaf	Intumescent
Zoo ZAS41 (WF526042)	90mm diameter x 19mm thick	71.5mm diameter x 18mm deep	1mm MAP to the rear of the flush pull handle
Zoo ZAS10 (WF526042)	102mm high x 51mm wide x 12mm thick	83mm high x 38mm wide x 10mm deep	None

On the basis of the testing, the tested steel recessed pull handles are suitable for use within the following scope:

Frame options: All

Configurations: All

- When required the Intumescent protection must be as tested and identified within the table above.
- The recessed pull handle must be located with the centre of the item between 500mm and 1700mm above the finish floor level and no closer than 100mm to a door edge and no closer than 100mm to glazing, cableways, grooves or any hardware.
- These items may be fixed in a back-to-back arrangement with the recessed pull handle to one face and the push plate to the other face of the leaf, face-fixed with 18 to 20mm long screws and with a recess for the pull handle as tested.

10.12 Security Viewers

Up to 2no. viewers are permitted within an individual door leaf, viewers are to be positioned no closer than 60mm to door edges and no closer than 75mm to glazed apertures or any other hardware component.

The table below details tested security viewers that are approved, in all cases the tested viewers shall include the intumescent specification which has been proven within the doorset design.

Manufacturer & Product Reference (Test evidence)	Intumescent Protection
Halspan – DOR-VWR-100 (CFR2105131) (CFR2209201)	Halspan Limited SLS-PAD-127 50 x 1mm Graphite based intumescent lining the viewer aperture
Arrone Hoppe AR539-64PC (WF380315B)	0.6mm graphite intumescent sheet wrapped around the body
Glutz – GY3505.1PC (WF504819) (WF504821)	1mm thick graphite liner
Glutz UK Limited – GY3504.F (WF507671)	45mm x 40mm x 1mm S/A graphite
Durable – DV-200 (WB 112-1B&2B)	1mm Lorient Interdens®
Eurolever SS1945 (FRR-2010/2942, FRR-2009/1221)	Eurolever XX8002EV 1mm thick mono ammonium phosphate (MAP) self-adhesive around door viewer body in leaf

Alternatively, components with the following specification are also deemed acceptable.

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

10.13 Door Selectors

These items are suitable in the following applications only:

Configurations: All double leaf door configurations

These may be freely applied, provided that they are not invasive in the leaf edges or door frames and they do not interfere with the self-closing action of the door leaf. Products that are invasive are not considered within this field of application.

10.14 Air Transfer Grilles

The table below details the tested and therefore approved air transfer grilles within the doorset design.

Configurations: All configurations

Manufacturer & Product Reference (Test evidence)	Maximum Dimensions (mm)	Fixing Details	Intumescent Protection
Mann McGowan Pyrogrille 100 (WF391351)	598 w x 596 h	Fixings 75mm x 4.3mm drywall screws, nom 100mm from each corner applied through the vertical edges of the grille into the leaf.	Mann McGowan Pyromas A intumescent acrylic sealant. Cartridge gunned around the perimeter of each grille on both faces

In addition to the above detailed air transfer grille, it is possible to include a Certifire approved air transfer grille, which is approved for application in 60 minute fire resisting solid timber doorsets. In all instances the following specification must be followed:

- The aperture shall be lined with a hardwood (not Beech *fagus species*, minimum density 640kg/m^3) aperture liner which is to be 6 - 8mm thick and adhered with PU or PVA adhesive and pinned with steel pins. The steel pins shall be positioned nominally 50mm from corners, no greater than 250mm centres and positioned centrally to the aperture liner.
- The air transfer grille must be fitted centrally to the leaf thickness.
- The size of any air transfer grille shall be no greater than 602mm high x 602mm wide or 0.36m^2.
- Air transfer grilles shall be rectilinear, other shapes are not permitted.
- Air transfer grilles shall be positioned such that the centre of the grille is 500mm ±200mm from the bottom of the leaf.
- Air transfer grilles shall not be closer than 200mm from the edge of the leaf or adjacent apertures within the leaf.
- It is possible to include a surface mounted ferrous or non-ferrous metal cover over the grille once installed providing it is applied with screws that are no longer than 20mm in length and when applied they are affixed into the leaf core material, i.e. not applied into the aperture liner or the grille itself.
- When a Certifire approved grille is utilised the full requirements of the Certifire certificate must be met in addition to the specification given above.
- The area occupied by the air transfer grille must be deducted from the area of glazing if both elements are fitted.
- Multiple apertures are permitted providing the maximum area of apertures is no greater than 1.25m^2.

10.15 Environmental Seals

A number of different environmental seals fitted to the upstand of the stop have been successfully tested as part of the Prima 60 doorset design, in conjunction with steel Frames.

Some of the frame options include a seal by design and must therefore include the tested seal. However, the other frame options have been tested both with and without an environmental seal present and their application is therefore optional.

The table below details tested environmental seals that are approved and / or required.

Frame Option	Optional / Required	Manufacturer & Product Reference (Test evidence)
M1	Optional (Stop mounted self-adhesive)	Neoprene buffer seals no greater than 13mm wide. (Chilt/RF01073)
		Halspan Limited Triple Fin SLS-TRI (10mm x 10mm) (CFR2211141; WF520063)
		Durable Collection Ltd DS88 series (WB112-1B & 2B)
		LORIENT LAS1010 (10mm x 10mm) (FRR-2009/1221)
		LORIENT LAS 1212 (12mm x 12mm) (FRR-2110/1498)
M3	Optional	BOS AADC0006, Elastomeric Seal Push Fit into Stop Profile (CFR2002051)
M4	Required	BOS AADC0006, Elastomeric Seal Push Fit into Stop Profile (CFR2002051)

On this basis, for frame option 1, silicone or PVC based flame retardant acoustic, weather and dust seals (for example those similar to the seals referenced above) 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.

The Halspan Limited Flipex (5mm x 16mm with 8mm exposed) as tested within WF509420 & WF509421 may be optionally applied to the bottom edge of the leaf as tested.

10.16 Threshold drop seals

10.16.1 Face mounted threshold drop seal

The table below details tested face mounted drop down seals that are approved to be face mounted at the bottom of one face of the door leaf.

Manufacturer & Product Reference (Test evidence)
• Norseal NOR820 900/S (CFR2103161)
• Lorient LAS8009 si (CFR2103161)

Tested and alternative aluminium face mounted threshold drop seals may be fitted subject to the following requirements:

- Face mounted threshold drop seal of maximum 62mm high x 22mm wide cross-sectional dimensions.
- Installation must not require the removal of any timber from the leaf nor steel from the stop or frame reveal (except for screw fixing) and it does not interfere with the self-closing action of the door leaf.
- Screws to affix the threshold drop seal shall be no greater penetration into the leaf than 29mm long.
- 2No. 15mm wide x 4mm thick seals fitted 10mm apart centrally to the bottom edge of the leaf.

10.16.2 Rebated threshold drop seal

The table below details the tested rebated drop seals that are approved.

Manufacturer & Product Reference (Test evidence)
• Halspan – SLS-DRP (CFR2209201) – 35mm x 14mm
• EUROLEVER AS61000 (FRR-2010/2942) – 35mm x 14mm
• Lorient LAS8001 si (WB112-1B & 2B) – 35mm x 14mm

Alternatively, the following components are also deemed acceptable.

Product	Manufacturer
RP8Si	Raven Products Ltd.
NOR810, NOR810S	Norsound Ltd.
STS 422, STS422GT	Sealed Tight Solutions Ltd

Tested and alternative drop seals are permitted subject to the following:

- The tested and assessed rebated drop seals shall be fitted centrally within the leaf thickness at the bottom edge of the leaf.
- The rebated drop seal may be optionally protected with either one of the following arrangements:

- 2No. 15mm wide x 4mm thick Halspan SLS seals to the bottom edge of the leaf fitted centrally and spaced either side of the drop seal.
- Intumescent protection to the rebated threshold drop seal as detailed in section 10.2.

- If a rebated drop seal is fitted to the doorset then flush bolts, may not be fitted to the bottom of the doorset.

10.17 Letter Box / Plate

The table below details the tested letter plate that is approved.

Manufacturer, Product Reference & Intumescent Protection (Test evidence)
• Halspan TS008 Certified Letter plate – (CFR2209201) Aperture in leaf: 54mm x 260mm Intumescent: Halspan letterplate kit, comprising: 42mm x 6mm graphite to top and bottom of the letterplate aperture 25mm x 3mm graphite internally in the letterplate body 1mm graphite lining the fixing holes through the leaf.

The above letterplate is permitted subject to the following requirements:

- The area of the letter plate plus any glazing must not exceed the total permitted area for apertures within the leaf.
- The letterplate shall be installed at a location of 800mm to 1400mm from the bottom of the leaf and shall be no closer than 100mm to the edge of the leaf or any other apertures within the leaf.

10.18 Knockers, Numerals & Signage

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 specifications:

Knockers:

- Steel, stainless steel, aluminium or bronze knockers, may be surface fixed or bolted through the door leaf, providing they are fitted no closer than 30mm from the leaf edge, other elements of building hardware or to any glazing and are no greater than 200mm high x 120mm wide. If through fixed, there must be no more than 1mm clearance between the hole and stud. It is only permitted to fit 1No. knocker to any one doorset.

Numerals & Signage:

- Steel, stainless steel, aluminium or bronze numerals or signage may be surface fixed to the door leaf, providing they are fitted no closer than 35mm from the leaf edge, other elements of building hardware or to any glazing. The dimension of each numeral or sign must be no greater than 200mm high x 100mm wide x 4mm thick. Up to 5No. numerals or signs may be applied to a doorset, numerals and signs may be applied adjacent to each other providing the 35mm from other elements as detailed above is maintained.

10.19 Security Chain

The table below details the tested security chain that is approved.

Manufacturer & Product Reference (Test evidence)
• Halspan LCK-CHN-100 (CFR2209201)

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 with fixings positioned away from the edge of the door leaf and 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 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:

- Metallic security chains may be surface fixed to the face of the door leaf and frame, providing they are fitted such that they do not interfere with the junction between the leaf edge and the frame, and no material is removed in order to facilitate the fitting of the security chain. Screws to affix the security chain shall be no greater than 32mm long.

10.20 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).

d) For compliance with HTM 58 (WF509420).

When applied to a door leaf the plate shall either be:

- surface mounted to the face without removing material from the leaf or
- fitted into a tight rebate into the leaf face such that it finishes flush with the leaf face

10.21 Panic Hardware

The table below details tested panic hardware that is approved when fitted at a height of 800mm to 1400mm from the floor.

Manufacturer & Product Reference (Test evidence)
• Dorma GmbH & Co. KG – Dorma PHA 2500 panic exit device (WF198681) This item may be fitted in conjunction with a single point latch/lock (section 10.4.1) and a lever handle (section 10.5). If a spindle hole is required, then the details given in section 10.5 must be followed.
• Dorma UK Ltd – 9800 (Panic touch bar and Locking Rod Assembly) (WF513979) This item is limited to use on SASD configurations with a maximum leaf height of 2040mm.
• Dorma UK Ltd – 9700 Series with ZT08/09 630 EP (Panic touch bar and Lever Trim with Europrofile adaptor) (WF390174)
• Hoppe (UK) Ltd AR/TB 8802 with AR/TB 8805 (WF331430)

Alternative panic hardware may be fitted, providing the installation does not require the removal of any timber from the leaf or steel from the stop or frame reveal (except for screw fixing) 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 and therefore the permitted leaf size shall be established using the appropriate doorset configuration based on the other latch/lock hardware fitted to the doorset.

10.22 Halspan Smart Tags

Based on the testing summarised within section 3, including WF509420 the following Near-Field Communication (NFC) devices as detailed below are permitted to be applied to the doorset within the following parameters:

Tested Specification:		
Manufacturer & Reference (Test evidence)	**Material**	**Overall Dimensions**
Halspan Limited, Halspan Edge Mounted Smart Tag TAG-025-BLK (WF509420, WF509421, WF520064, CFR2211141 WF520063 & WF523824)	PVC	Ø25mm x 3mm thick
Halspan Limited, Halspan Surface Mounted Smart Tag TAG-028-BLK (WF523824)	PVC	Ø28mm x 1mm thick

The following limitations must be adhered to when fitting the Smart Tag to the doorset:

Edge Mounted (Frame Reveal)

- The TAG-028-BLK Smart Tag must be surface mounted onto the frame reveal.
- The Smart Tag shall be applied within the hanging jamb only.
- The Smart Tag shall be positioned centrally relative to the thickness of the door leaf.
- The Smart Tag shall be fitted no closer than 100mm below the top hinge position, measured from the centre of the Smart Tag .
- The Smart Tag must be no closer than 87mm to any other element of hardware.
- It is not permitted to interrupt or remove intumescent material within the doorset to apply the above detailed tag.
- The Smart Tag shall not be applied over intumescent materials within the leaf edge but may be fitted opposing them.

Surface Mounted (Door leaf face)

- The TAG-025-BLK or TAG-028-BLK Smart Tag must be fitted into a tight rebate such that the Smart Tag results in being flush with the face of the leaf.
- The TAG-028-BLK Smart Tag must be surface mounted onto the leaf face without the removal of leaf material.
- The Smart Tag may be applied to the leaf face without restriction providing the tags meet the following limitations:
    - The Smart Tag shall not be applied such that it interfaces with the door stop.
    - The Smart Tag shall not be positioned directly above or on a glazed aperture.
    - The Smart Tag must be no closer than 87mm to any other element of hardware, apertures within the leaf or the edge of the leaf.

10.23 Overhead door operator

Frame option: All frame types

Configurations: LSASD, ULSASD, LSADD, ULSADD

The table below details the tested overhead door operator that is approved.

Manufacturer & Product Reference (Test evidence)
• Dormakaba ED250, with slide arm (WF513979)

The tested overhead door operator must be installed with the body transom mounted on the closing face. The door must not be glazed with greater than 20% uninsulated glass.

Notes:

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.

In the event of power failure it must be ensured that the door operator reverts to self closing function.

The Dormakaba ED250 overhead door operators and associated equipment should be supplied and fitted by the manufacturer or an approved agent to ensure compatibility and installation in accordance with the tested details.

10.24 Sensors

(to be used in conjunction with the Dormakaba ED250 overhead door operator)

The table below details the tested and approved sensors.

Manufacturer & Product Reference
• Dormakaba 294350 IRS-4 Infrared sensor 350mm (WF513979)
• Dormakaba 294110 IRS-4 Infrared sensor 1200mm (WF513979)
• Dormakaba Flatscan 4020009050 Kit LZR Flatscan SW + 3D left hand black (WF513979)

The tested sensors listed in the table above are suitable for use with the Prima 60 doorset design, subject to the following requirements:

- They must be face fixed to the leaf with screws no greater than 12mm long.
- A link cable is permitted when two sensors are fitted back-to-back on each face of the leaf. The through hole and link cable combination must comply with the following:
    - 7mm diameter hole with 4.25mm - 5mm diameter cable.
    - The through hole for the link cable must be lined with a minimum thickness of 0.6mm Interdens®
- The master cable for the Dormakaba IRS-4 is permitted to be mounted to the leaf face on the opposite face to the mounted sensor, as tested in WF513979. The through hole and cable combination must comply with the following:
    - 8.5mm diameter hole with 5.25mm diameter cable.
    - The through hole for the link cable must be lined with a minimum thickness of 0.6mm Interdens®
- Sensors and through holes must be no closer than 60mm to the edge of the leaf and no closer than 200mm to glazing apertures.

10.25 Rain Deflector

The table below details tested face fixed rain deflector that is approved to be face mounted at the bottom of one face of the door leaf.

Manufacturer & Product Reference (Test evidence)
• Exitex Ltd – Deflector 20 reference 1.01.0110 (CFR2105131, CFR2006181)

Tested and alternative aluminium rain deflectors may be fitted subject to the following requirements:

- Rain deflectors of maximum 30mm high x 20mm cross-sectional dimensions.
- Installation must not require the removal of any timber from the leaf or steel from the stop or frame reveal (except for screw fixing) and it does not interfere with the self-closing action of the door leaf.
- Screws to affix the rain deflector shall be no greater penetration into the leaf than 24mm long.
- 2No. 15mm wide x 4mm thick seals fitted centrally to the bottom edge of the leaf.

10.26 Hold Open Armatures

Armatures for magnetic hold open devices have been tested in WF404075/A and achieved in excess of 60 minutes fire resistance performance. On this basis the following tested armature is permitted for use within the Prima 60 doorset design:

Manufacturer & Product Reference (Test evidence)
• Specialized Security, DR-01, Aluminium with Slim line magnet (WF404075/A)

Alternative hold open armatures may be fitted subject to the following requirements:

- Hold open armatures are to be constructed of metallic or polymeric construction.
- The maximum dimensions of 65mm high x 65mm wide shall not be exceeded.
- Installation must not require the removal of any timber from the leaf or steel from the stop or frame reveal (except for screw fixing) and it does not interfere with the self-closing action of the door leaf.
- Screws to affix the hold open armature shall be no greater penetration into the leaf than 24mm long.
- The hold open armature shall be positioned no further than 200mm from the top or bottom edge of the leaf and be positioned no closer than 60mm from the leaf edge or rebated hardware.

11 Installation

11.1 General

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

- the door frame 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 Door Frame Installation

Each door frame type considered herein must be installed as depicted within section 7.

Frame type M1 may be installed within the thickness of the wall or alternatively in a wraparound arrangement.

Frame type M3 may be installed with one face of the frame (opening or closing) wrapped around the wall but not both.

Frame type M4 must be installed in a wraparound arrangement.

11.3 Firestopping / Sealing to Structural Opening.

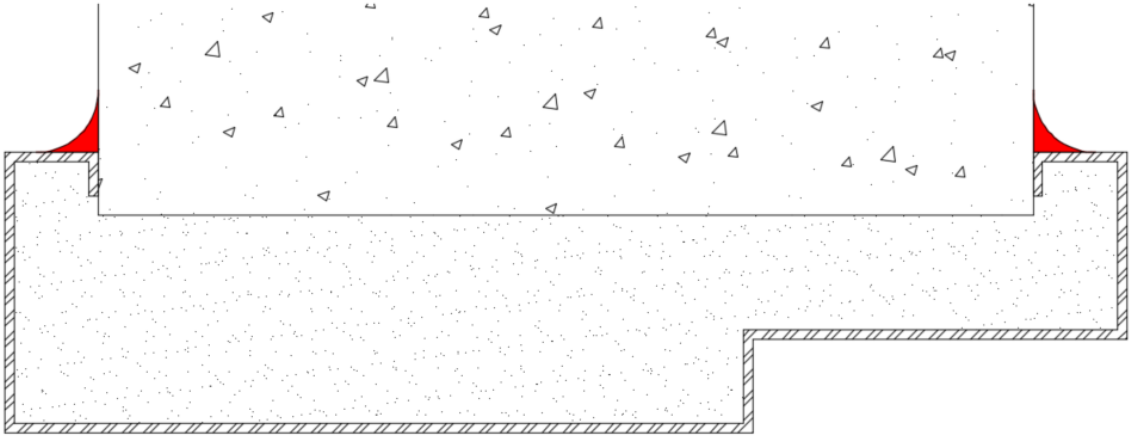
The following sub-sections provide tested and assessed acceptable door frame firestopping / sealing to structural opening requirements which are dependent on the Frame type chosen.

11.3.1 Frame M1

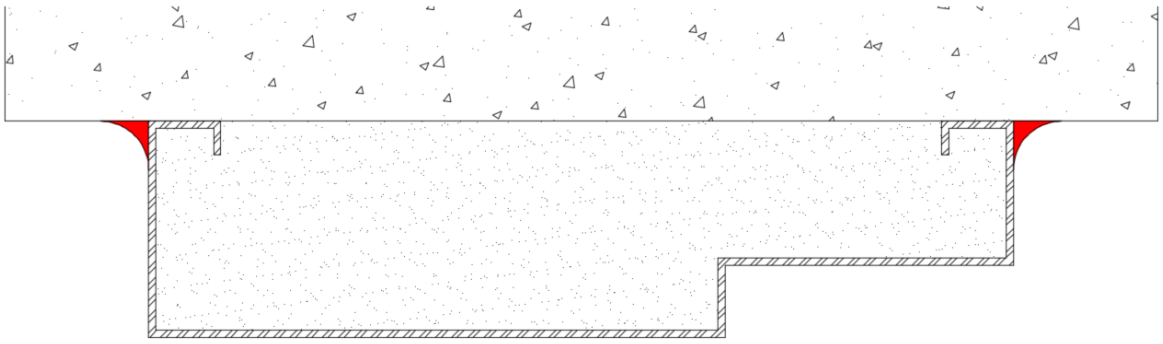
Frame M1 requires the rear of the frame to be fully back filled with cement mortar. Once completed no further fire stopping materials are required to be applied.

Optionally the junction between the frame and supporting construction may be additionally sealed with an intumescent acrylic mastic which has been tested in accordance with BS 476-22: 1987. The location is included as a red coloured seal in the following images.

Wrap Around Detail:



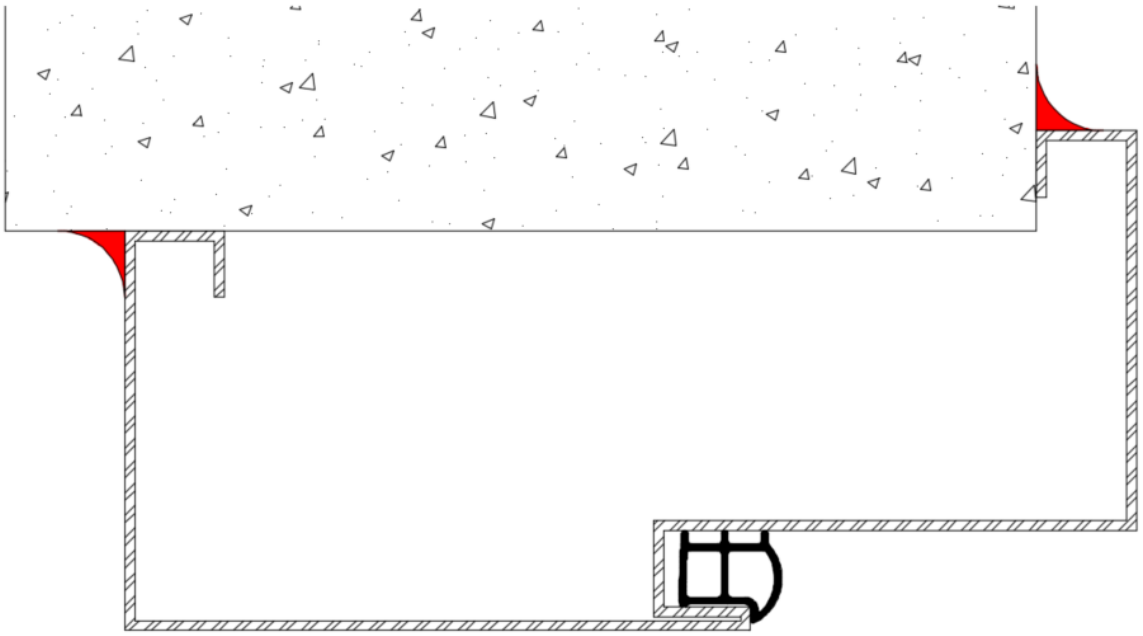
Within the Wall Thickness Detail:



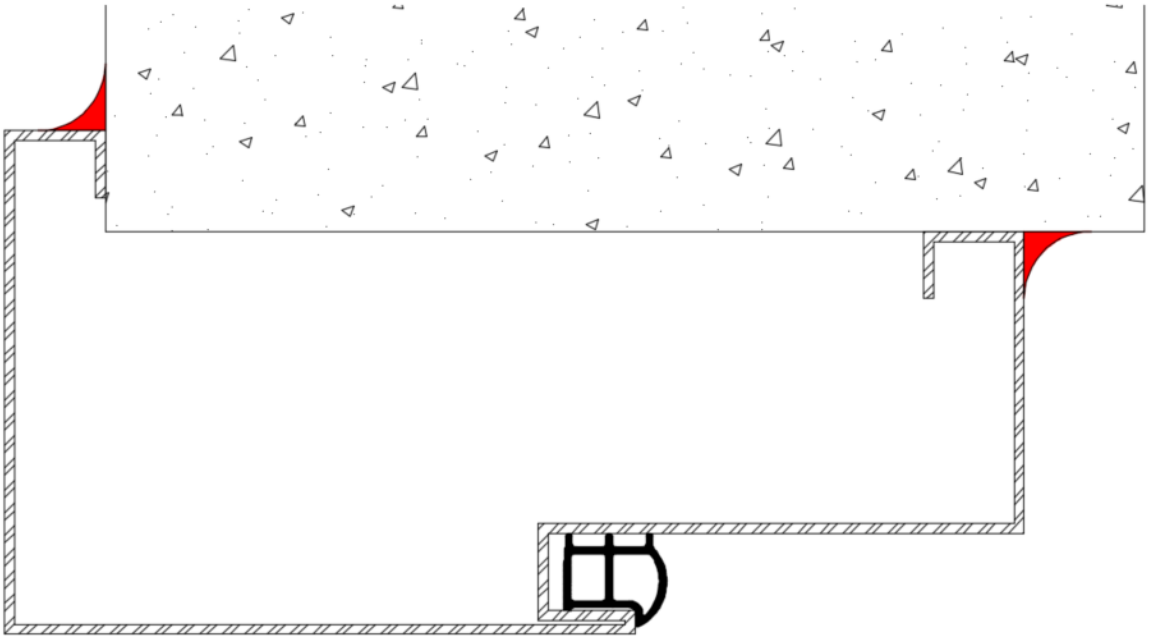
11.3.2 Frame M3

Frame M3 consists of a hollow frame profile. Once the doorset has been installed the junction between the frame and supporting construction must be sealed with a nominal bead of 6mm of intumescent acrylic mastic which has been tested in accordance with BS 476-22: 1987 with an non-insulating steel frame. The location is included as a red coloured seal in the following images.

Wrap Around Opening Face Detail:



Wrap Around Closing Face Detail:



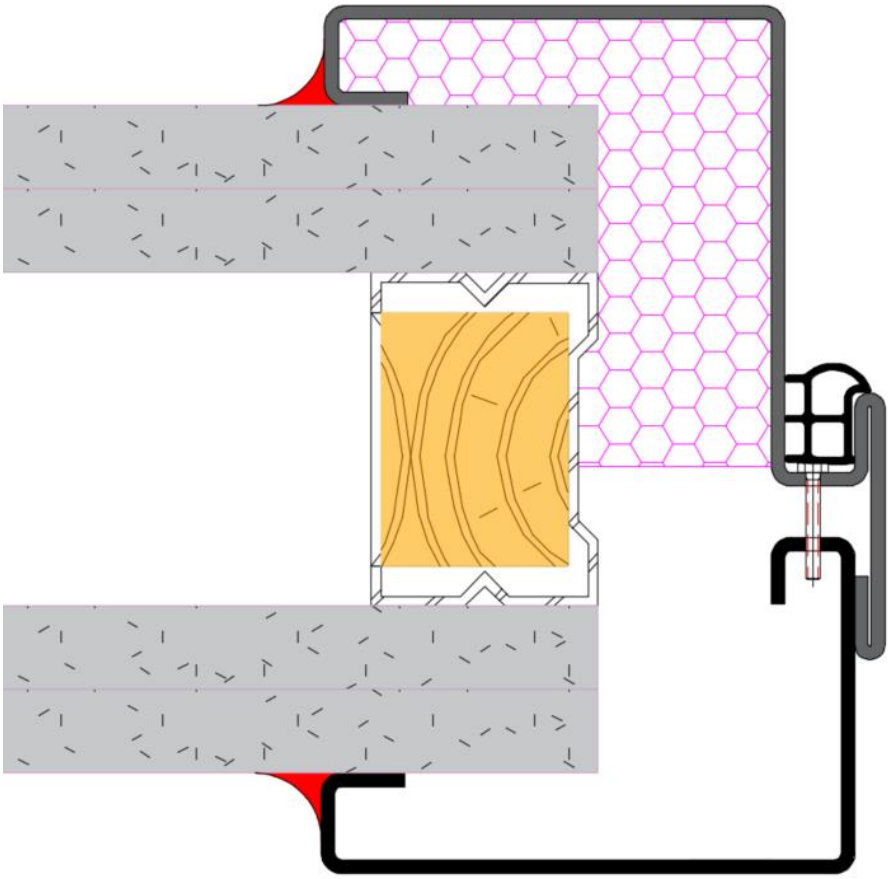
11.3.3 Frame M4

Frame M4 requires the rear of the frame element which the door leaf is hung from to be fully back filled with Sealed Tight Solutions Ltd, ST99 FR Foam. The gap between the rear of the frame profile and the supporting structure must be between 11mm and 26mm.

Once completed no further fire stopping materials are required to be applied.

Optionally the junction between the frame and supporting construction may be additionally sealed with an intumescent acrylic mastic which has been tested in accordance with BS 476-22: 1987. The location is included as a red coloured seal in the following images.

Wrap Around Detail:



11.4 Wall Types, Structural Opening & Fixity

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

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

Frame		Supporting Construction		
Reference	Material	Timber Stud	Flexible (steel stud)	Masonry
M1	Steel	×	×	✓
M3	Steel	×	×	✓
M4	Steel	✓	✓	✓

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

11.4.1 Wall Types

The following wall types are approved for this doorset design as detailed above:

a) Plasterboard clad timber stud partitions
b) Plasterboard clad steel stud partitions including timber lining.
c) Masonry constructions

Wall types a & b above must have supporting fire resistance test evidence which demonstrates that it is capable of staying in place and intact for a minimum of 60 minutes supporting a doorset design.

Wall type c above must be determined to be able to provide at least the same level of fire resistance of the doorset design.

All wall types detailed above shall provide a suitable medium to permit adequate fixity, it is anticipated that for:

- Plasterboard clad timber stud partitions, the timber stud will be of sufficient dimensions such that the fixing for the door frame penetrates into solid timber.
- Plasterboard clad steel stud partitions will include a timber lining of sufficient dimensions such that the fixing for the door frame penetrates into solid timber.
- Masonry constructions are anticipated to be constructed of a solid block or brickwork to receive the fixings.

Note: Other tested solutions to achieve adequate fixity may be detailed within the above noted supporting fire resistance test evidence.

11.4.2 Structural Opening

For all wall types the structural opening shall 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.

11.4.3 Fixity & Fixing Frequency

In all instances the fixing position must be such that it provides adequate restraint to the element of construction throughout the exposure to fire. Each of the frames considered within this assessment have test evidence which define the required fixity for the frame to the supporting structure that shall be followed:

Frame M1

The frame must be fixed into the supporting construction using a minimum of Ø4.5mm wide x 50mm long steel masonry screws, the use of polymeric wall plugs are optionally permitted. The fixings shall be applied at no greater than 150mm from corners and at maximum of 500 centres to the head and jambs.

Fixings are to be positioned such that they interact with the required steel 'U' bracket to the rear of the frame.

Frame M3

The frame must be fixed into the supporting construction using a minimum of Ø4.5mm wide x 80mm long steel masonry screws, the use of polymeric wall plugs are optionally permitted. The fixings shall be applied at no greater than 150mm from corners and at maximum of 500 centres to the head and jambs.

Fixings are to be positioned such that they interact with the required steel 'U' bracket to the rear of the frame.

Frame M4

The frame section to which the door is hung, must be fixed to the supporting construction using a minimum of Ø6mm x 100mm long steel screws appropriate to the supporting construction, the use of polymeric wall plugs are optionally permitted for use within masonry constructions. The fixings shall be applied at no greater than 150mm from corners and at maximum of 600 centres to the head and jambs.

Fixings are to be positioned such that they interact with the required steel bracketry to the rear of the frame.

11.5 Packers (Solid Padding)

Packers are not required for frame options M1 and M3 on the basis that the frame designs include 'U' brackets which are to be fixed tight to the supporting construction.

Packers are required within frame option M4 at all times (as tested in CFR2002051) and shall consist of magnesium oxide board with minimum dimensions of 90mm deep x 150mm high. Packers are to be positioned local to fixing locations only.

11.6 Post Production (Onsite) Leaf Size Adjustment

The Prima 60 range of doorsets in steel frames may be altered as follows:

Leaf Size Adjustment Specification	
Element	Reduction
Lipping	The post-production lipping thickness for flat timber based lippings may be reduced by 1mm for fitting purposes, providing that the door gaps and intumescent conditions (See section 4.5.4.1) remain as required by this assessment and the minimum limitation in terms of lipping thickness is still maintained. Otherwise, no modification can be made.

11.7 Door Gaps

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

Door Gap & Alignment Tolerance Specification	
Location	Dimension
Door edge gaps	A minimum of 2mm and a maximum of 4mm
Alignment tolerances	Leaves must not be proud of each other or from the door frame by more than 1mm.
Threshold / Bottom edge of the leaf This is the maximum tolerance for fire resistance only.	5mm between bottom of leaf and top of floor covering.

12 Insulation Performance

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

Insulation Performance Criteria	
Type	Details
Non-insulating	Doorsets including frame option M3 and M4. Doorsets including frame option M1 and incorporating greater than 20% of non-insulating glazing
Partially insulating	Doorsets including frame option M1 and incorporating up to 20% of non-insulating glazing
Fully insulating	Doorsets including frame option M1 which are unglazed doorsets or doorsets including 60-minute insulating glazing

13 Conclusion

If Prima 60 doorsets with steel-based frames 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 60 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: DocuSigned by: A. Davies 8295EF8349144CB...

Name: Andy Davies

Position: Technical Manager

Date: 30-May-2024

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 for five years after which time it is recommended to be submitted to Warringtonfire for re-appraisal.
2) This assessment report is not valid unless it incorporates the declaration given in Section 14 duly signed by the applicant.

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

* For and on behalf of Warringtonfire

Appendix A: Revisions

Rev.	WF Ref.	Date	Description
D		23.5.2000	5 year revalidation and update to include Halspan 60 steel/aluminium frame doorsets and all additional test evidence
E	Chilt/A01207	14.12.2001	5 year revalidation and update including additional test evidence
F	Chilt/A03031	18.6.2003	Incorporation of additional test data to justify the use of Sureguard edge protectors and sheet facing, increase the glazing options, allow the use of wireways and MDF frames and to appropriately amend the maximum leaf dimensions. Extra ironmongery items were also incorporated.
G	Chilt/ A05007	24.01.2005	Update to include new test data covering lippings, ironmongery, glazing, intumescent seals and framing.
H	Chilt/ A10028	19.07.2010	Update to include new test data covering hardware, glazing, intumescent seals and fire stopping details. The report has been technically reviewed and revalidated for a further 5 year period.
I	Chilt/ A10028	21.10.2010	Update to include grooves with hardwood inserts, reinstate security viewers, new sealing to structural opening section, recessed push/kick plates, 25mm thick Pyrobel glass added and larger doorset sizes assessed
J	Chilt/ A11177	5.10.2011	Update to include test evidence for Prima Plus design. Scope of application for Prima Plus design is contained in appendix G
K	Chilt/ A12065	9.05.2012	Update to include large leaf sizes based on test RF07128 and inclusion of Pilkington Pyroshield 2 scope
L	Chilt/ A12292	23.11.2012	Update to include Pyroguard FD60 glass based on test RF10080
M	WF387440	08.08.2017	Technical review and 5 year revalidation; update to Exova branding; inclusion of STS perimeter and glazing seal intumescents. Use of beech removed.
N	WF404746	12.09.2018	Amendment to correct Primary Data table and Data Sheet graph for Sealed Tight Solutions perimeter intumescents.
O	WF518301	22.06.2022	Revision of scope for overhead concealed closers.

			Summary of change: (1). Updated scope for Dorma IT96 concealed overhead closer. (2). Updated scope for Rutland IT11204 concealed overhead closer
P	WF530657	23.05.2024	Full revision and reappraisal of assessment scope in new report layout based on BSEN15725 and reformatting of report in the new Warringtonfire brand and layout. Review and revalidation for 5 years. Revised assessment to cover steel based frames with Prima 60 (54mm core), as Part 2. The suite of FEA/F96103 field of applications for the Prima 60 product family is intended to comprise the following separate assessments: • Part 1 – Prima 60 in Timber Frames • Part 3 – Prima 60 with bond up designs • Part 4 – Prima 60 with PVC products • Part 5 – Prima Plus 60