
Title

Supplementary Field of Application
for:

The Installation of Timber Based
Doorsets using Sealed Tight
Solutions ST99 Foam and ST88
acrylic mastic for:

30 or 60 Minutes Fire Resistance

Report No.:

WF419831 Revision A

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1 Foreword

This Supplementary Field of Application report has been commissioned by Sealed Tight Solutions Ltd and relates to the application of fire stopping products and methods intended to maintain the fire resistance integrity performance of 30 and 60 minute, timber based, 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 Supplementary 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 and therefore cannot be used as supporting documentation for either a UKCA or CE marking application, nor can the conclusion be used to establish a formal classification against EN13501-2.

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

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.

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

This supplementary assessment has been specifically written only to consider the fire resistance performance of timber-based fire resisting doorsets when installed using Sealed Tight Solutions ST99 foam and/or ST88 mastic and will not be accepted by BM Trada Q-Mark for inclusion within doorset fabricators scope documents.

2 Proposal

It is proposed to consider the fire resistance performance of timber based doorsets installed utilising Sealed Tight Solutions Ltd ST88 intumescent mastic and ST99 Fire Foam, as described in the technical specification in section 4 of this report, for 30 and 60 minutes integrity performance, if the design was to be tested to the requirements of BS 476: Part 22:1987, *Fire tests on building materials and structures – Part 22: Method for determination of the fire resistance of non-load bearing elements of construction*.

The Supplementary Field of Application defined in this report is based on the fire resistance test evidence for the Sealed Tight Solutions products which are 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.

Sealed Tight Solutions ST99 foam has been included as the gap sealing medium in doorset smoke and acoustic testing, however, 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.

Sealed Tight Solutions can, separately to this report, provide independent test data for both smoke control and acoustic performance upon direct request

2.1 Assumptions

- All timber 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 Sealed Tight Solutions products 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 $\pm 2\%$ except where minimum, maximum or a range of dimensions are given.
- Where morticed items of hardware are used (within the leaf or frame) it is assumed that the preparation for such items are tight to the item (and where applicable intumescent protection) as tested with no excessive gaps, unless stated otherwise within a particular section of this report.

3 Test Data

The test evidence summarised below has been generated to support the fire resistance performance of the door designs that are the subject of this Supplementary 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 Supplementary Field of Application.

Note:

1. Dimensions are in mm unless otherwise stated.
2. Abbreviations: (h) = height; (w) = width; (t) = thickness; (d) = deep; (l) = long.
3. 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.

All 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.

It is therefore the opinion of Warringtonfire that the evidence cited 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 doorset designs when installed using Sealed Tight Solutions ST99 Foam and ST88 acrylic mastic, if tested in accordance with BS 476: Part 22: 1987.

3.1 Primary Test Evidence

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

3.1.1 Test Report WF391843

The referenced test report, the essential details of which are summarised below, is supporting data for the use of ST88 mastic in timber door frames for up to 30 minutes integrity performance.

Date of Test	11 th November 2017	
Identification of Test Body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Ltd. UKAS Notified Body 1762.	
Sponsor:	Falcon Panel Products Ltd, Clock House Station approach, Shepperton, Middlesex, TW17 8AN	
Tested Product:	2No Falcon Panel Products Ltd Strebord44 based, latched, single acting, single leaf, timber based flush and glazed doorsets.	
Summary of Test Specimen (mm):	<p>Specimens A & B comprised: a particleboard core with integral facings. All leaf edges were lipped with 6(t) Sapele of nominal density 640kg/m³. Leaves were glazed, apertures were 784 (h) x 234 (w).</p> <p>Leaf Size: A: 2235(h) x 1050(w) x 44(t); B: 2140(h) x 916(w) x 44(t).</p> <p>Leaf Edge Intumescent Seals: 2No STS STS104FO perimeter intumescent seals were centrally fitted in the frame reveals of the head and jambs.</p> <p>Door frame: European Redwood of nominal density 510kg/m³ 29mm wide with 18 thick Redwood architraves on both faces.</p> <p>Hardware – both doorsets:</p> <p>The doorset was hung on 3No H101 lift of type steel hinges; an Astra 4000 series jamb mounted closer was fitted at approximately mid height of the door leaf with an ERA Surefire MPL multipoint latch with a 1630mm high forend (engaged at all 3 points for the test).</p> <p>Installation:</p> <p>The doorsets were oriented to open in towards the furnace, installed within a plasterboard clad, timber stud partition. A bead of ST88 mastic 10-15 deep and 12.5mm wide was installed to both faces leaving a void between the beads.</p>	
Test Standard:	BS 476: Part 22: 1987	
Performance	Specimen A	Specimen B
	Integrity: 51 minutes Insulation: 36 minutes	Integrity: 47 minutes Insulation: 39 minutes

3.1.2 Test Report WF391545 Revision A

The referenced test report, the essential details of which are summarised below, is primary data for the use of ST88 mastic in timber door frames for up to 30 minutes integrity performance.

Date of Test	3 rd November 2017
Identification of Test Body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Ltd. UKAS Notified Body 1762.
Sponsor:	Sealed Tight Solutions Ltd
Tested Product:	A VicaimaFD30 based, latched, single acting, single leaf, timber based flush doorset.
Summary of Test Specimen (mm):	<p>Specimen B comprised: a flaxboard core with 3 thick MDF facings. Vertical leaf edges, only, were lipped with 6(t) Oak of nominal density 770kg/m³.</p> <p>Leaf Size: 2040 (h) x 926 (w) x 45 (t).</p> <p>Leaf Edge Intumescent Seals: 1No STS ST154FO perimeter intumescent seal was centrally fitted in the frame reveals of the head and jambs with a ST1009 environmental seals on the upstand of the stop and a ST422 drop seal in the threshold of the leaf.</p> <p>Door frame: Engineered softwood of nominal density 510kg/m³ 32mm wide with 18 thick engineered softwood architrave on exposed face only.</p> <p>Hardware: The doorset was hung on 3No bearing butt steel hinges; a Rutland TS9205 overhead closer was fitted with a Winkhaus AV2 multipoint latch with a 1770mm high forend (engaged for the test) and a Winkhaus cable loop mounted in the leaf hanging edge.</p> <p>Installation: The doorset was oriented to open in towards the furnace, installed within a plasterboard clad, timber stud partition. Tightly packed mineral fibre was capped with a 10-15 deep bead of ST88 mastic filling the full depth of the structural opening.</p>
Test Standard:	BS 476: Part 22: 1987
Performance	<p>Integrity: 42 minutes</p> <p>Insulation: 42 minutes</p>

3.1.3 Test Report WF384630 Revision A

The referenced test report, the essential details of which are summarised below, is primary data for the use of ST88 mastic in timber door frames for up to 30 minutes integrity performance.

Date of Test	15 th June 2017
Identification of Test Body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Ltd. UKAS Notified Body 1762.
Sponsor:	Falcon Panel Products Ltd
Tested Product:	A Strebord 44 based, latched, single acting, double leaf, timber based flush doorset.
Summary of Test Specimen (mm):	<p>Specimen A comprised: a flaxboard core with 3 thick MDF facings. All leaf edges were lipped with 8(t) Sapele of nominal density 640kg/m³.</p> <p>Leaf Size: 2440 (h) x 1050/400 (w) x 44 (t).</p> <p>Leaf Edge Intumescent Seals: 2No STS ST104FO perimeter intumescent seals were centrally fitted in the reveal of the frame head and 2No STS ST1504FO perimeter intumescent seals were centrally fitted in the frame jambs.</p> <p>Door frame: Engineered softwood of nominal density 510kg/m³ 32mm wide with 18 thick engineered softwood architrave on exposed face only.</p> <p>Hardware: The doorset was hung on 4No H101 lift off steel hinges; a Rutland TS5204 overhead closer was fitted to one leaf with an Arrone AR1500 to the other. A Laidlaw DIN latch with a 235 high forend was fitted and engaged for the test with an electric strike plate.</p> <p>Installation: The doorset was oriented to open in towards the furnace, installed within a plasterboard clad, timber stud partition. Tightly packed mineral fibre was capped with a 10 x 10 bead of ST88 mastic filling the full depth of the structural opening.</p>
Test Standard:	BS 476: Part 22: 1987
Performance	<p>Integrity: 43 minutes</p> <p>Insulation: 43 minutes</p>

3.1.4 Test Report WF385685

The referenced test report, the essential details of which are summarised below, is primary data for the use of ST99 Fire Foam in timber door frames for up to 30 minutes integrity performance.

Date of test	13 th July 2017
Identification of test body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Ltd. UKAS Notified Body 1762.
Sponsor:	Sealed Tight Solutions Ltd
Tested Product:	An, unlatched, single acting, double leaf, timber based flush doorset.
Summary of test specimen (mm):	<p>Specimen comprised: a 3 layer plywood lamel core with 8 thick MDF facings. All leaf edges were lipped with 6(t) Sapele of nominal density 640kg/m³.</p> <p>Leaf Size: 2400 (h) x 950/950 (w) x 44 (t).</p> <p>Leaf Edge Intumescent Seals: 2No STS ST104FO perimeter intumescent seals were centrally fitted in the reveal of the frame head and 1No STS ST1504FO perimeter intumescent seal was centrally fitted in the frame jambs.</p> <p>Door frame: Engineered softwood of nominal density 510kg/m³ 32mm wide with 15 thick engineered softwood architrave on both faces.</p> <p>Hardware: The doorset was hung on 3No H101 lift off steel hinges; an Arrone AR1500 face fitted closer was installed on both leaves. A Zoo Hardware steel latch with a 235 high forend was fitted disengaged for the test.</p> <p>Installation: The doorset was oriented to open in towards the furnace, installed within a plasterboard clad, steel stud partition. 10mm thick ST99 Fire Foam was installed filling the full depth of the structural opening. Un-named plastic packers were installed at all frame fixing points, the full width of the frame with no protection applied to the faces of the packers.</p>
Test Standard:	BS 476: Part 22: 1987
Performance	<p>Integrity: 40 minutes</p> <p>Insulation: 40 minutes</p>

3.1.5 Test Report WF396750 AR1

The referenced test report, the essential details of which are summarised below, is primary data for the use of ST99 Fire Foam in timber door frames for up to 60 minutes integrity performance.

Date of Test	28 th February 2018
Identification of Test Body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Ltd. UKAS Notified Body 1762.
Sponsor:	Sealed Tight Solutions Ltd
Tested Product:	A Falcon Panel Products Ltd Strebord60 based, unlatched, single acting, single leaf, timber based flush and glazed doorset.
Summary of Test Specimen (mm):	<p>Specimen B comprised: a particleboard core with integral facings. Vertical leaf edges, only, were lipped with 6(t) Sapele of nominal density 640kg/m³. Leaf was glazed, aperture was 1142 (h) x 445 (w).</p> <p>Leaf Size: 2040 (h) x 929 (w) x 54 (t).</p> <p>Leaf Edge Intumescent Seals: 2No STS ST1504 perimeter intumescent seals were centrally fitted in the frame reveals of the head and jambs.</p> <p>Door frame: Sapele of nominal density 640kg/m³ 32mm wide with 15 thick MDF architraves on both faces.</p> <p>Hardware: The doorset was hung on 3No bearing butt steel hinges; an Arrone AR1500 overhead closer was fitted with a Zoo hardware latch with a 234mm high forend (disengaged for the test).</p> <p>Installation: The doorset was oriented to open in towards the furnace, installed within a plasterboard clad, steel stud partition. ST99 Fire Foam was installed filling the 15mm wide gap behind the door frame jambs and head for the full width of the gap between architraves. TiMco plastic packers were installed at all frame fixing points, the full width of the frame with no protection applied to the faces of the packers.</p>
Test Standard:	BS 476: Part 22: 1987
Performance	<p>Integrity: 62 minutes</p> <p>Insulation: 32 minutes</p>

3.1.6 Test Report WF392155

The referenced test report, the essential details of which are summarised below, is primary data for the use of ST99 Fire Foam in timber door frames for up to 60 minutes integrity performance.

Date of Test	24 th November 2017
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS Notified Body 1762.
Sponsor:	Falcon Panel Products Ltd
Tested Product:	A Falcon Stredor FD60 based, unlatched, single acting, double leaf, timber based flush doorset.
Summary of Test Specimen (mm):	<p>Specimen comprised: a 3 layer plywood lamel core with 10 thick plywood facings. All leaf edges were lipped with 8(t) Sapele of nominal density 640kg/m³.</p> <p>Leaf Size: 2400 (h) x 952/952 (w) x 54 (t).</p> <p>Leaf Edge Intumescent Seals: 2No STS ST154FO perimeter intumescent seals were centrally fitted in the reveal of the frame head, jambs and one meeting edge.</p> <p>Door frame: Sapele of nominal density 640kg/m³ 32mm wide with 18 thick MDF architrave on both faces.</p> <p>Hardware: The doorset was hung on 4No H101 lift off steel hinges; a Rutland Size 3 11352 cam action slide arm overhead closer was installed on both leaves. An Arrone steel latch with a 235 high forend was fitted disengaged for the test.</p> <p>Installation: The doorset was oriented to open in towards the furnace, installed within a plasterboard clad, timber stud partition. 7 – 14 mm thick ST99 Fire Foam was installed filling the full depth of the structural opening. TiMco plastic packers were installed at all frame fixing points, the full width of the frame with no protection applied to the faces of the packers.</p>
Test Standard:	BS 476: Part 22: 1987
Performance	<p>Integrity: 57 minutes*</p> <p>Insulation: 57 minutes</p>

* Initial integrity failure was recorded 300mm up from the threshold on the meeting edges. No further failures were recorded prior to 68 minutes. It is the opinion of Warringtonfire that the initial failure is remote from the installation details herein and may therefore be ignored

3.1.7 Test Report WF386959

The referenced test report, the essential details of which are summarised below, is supporting data for the use of ST88 mastic capping ST99 Fire Foam in timber door frames for up to 60 minutes integrity performance.

Date of Test	18 th August 2017	
Identification of Test Body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Ltd. UKAS Notified Body 1762.	
Sponsor:	Falcon Panel Products Ltd	
Summary of Test Specimens (mm):	<p>Specimen A comprised: a single leaf Strebord 44 particleboard core with integral facings. All leaf edges were lipped with 8(t) Sapele of nominal density 640kg/m³.</p> <p>Leaf Size: 2438(h) x 950(w) x 44(t).</p> <p>Leaf Edge Intumescent Seals: 1No STS STS154FO perimeter intumescent seals were centrally fitted in the frame reveals of the head and jambs.</p> <p>Door frame: European Redwood of nominal density 510kg/m³ 31mm wide with 15 thick MDF architraves on both faces.</p> <p>Hardware: The doorset was hung on 4No H101 lift of type steel hinges; a Rutland ITS11024 concealed head mounted closer with a Porta DIN sashlock with a 230mm high forend (disengaged for the test) and an Abloy EA280 cable loop in the hanging edge.</p> <p>Specimen B comprised: a double leaf Strebord FD60 particleboard core with integral facings, a 10mm diameter hole was drilled horizontally across the full width of the core. All leaf edges were lipped with 8(t) Sapele of nominal density 640kg/m³.</p> <p>Leaf Size: 2438(h) x 1050/400(w) x 54(t).</p> <p>Leaf Edge Intumescent Seals: 2No STS STS154FO perimeter intumescent seals were centrally fitted in the frame reveals of the head and jambs and one meeting edge.</p> <p>Door frame: Sapele of nominal density 640kg/m³ 31mm wide with 15 thick MDF architraves on both faces.</p> <p>Hardware: The doorset was hung on 4No H101 lift of type steel hinges; a Rutland TS52014 surface mounted closer with a Winkhaus mortice latch with a 310mm high forend (disengaged for the test) and GEM electric strike and an Abloy EA280 cable loop in the hanging edge.</p> <p>Installation A & B: The doorsets were oriented to open in towards the furnace, installed within a plasterboard clad, timber stud partition. A bead of ST88 mastic 15 deep and 12.5mm wide was installed to both faces capping a full depth of ST99 Fire Foam. Broadfix plastic packers were installed at all frame fixing points with their faces capped by ST88 mastic.</p>	
Test Standard:	BS 476: Part 22: 1987	
Performance	Specimen A	Specimen B
	Integrity: 32 minutes Insulation: 32 minutes	Integrity: 61 minutes Insulation: 61 minutes

3.1.8 Test Report WF372245

The referenced test report, the essential details of which are summarised below, is supporting data for the use of ST99 Fire Foam in timber door frames for up to 60 minutes integrity performance.

Date of test	11 th November 2016
Identification of Test Body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Ltd. UKAS Notified Body 1762.
Sponsor:	Sealed Tight Solutions Ltd
Tested Product:	A Falcon Panel Products Ltd Strebord60 based, unlatched, single acting, double leaf, timber based flush and glazed doorset.
Summary of Test Specimen:	<p>Specimen comprised: a particleboard core with integral facings. Vertical leaf edges, only, were lipped with 6(t) sapele of nominal density 640kg/m³. Both leaves were glazed, both apertures were 998 (h) x 195 (w).</p> <p>Leaf Size: 1310 (h) x 635/640 (w) x 54 (t).</p> <p>Leaf Edge Intumescent Seals: 2No STS ST1504 perimeter intumescent seals were centrally fitted in the frame reveals of the hanging edges and head, and within one closing jamb, together with a 10 x 3 ST1009 environmental seal against the upstand of the frame stops.</p> <p>Door frame: Sapele of nominal density 640kg/m³ 32mm wide with 18 thick Sapele architraves on both faces.</p> <p>Hardware: The doorset was hung on 2No bearing butt steel hinge per leaf; an Arrone AR1500 overhead closer was fitted to both leaves. Zoo hardware flush bolts were fitted top and bottom of one leaf.</p> <p>Installation: The doorset was oriented to open in towards the furnace, installed within a plasterboard clad, timber stud partition. ST99 Fire Foam was installed filling the 20mm wide gap behind the door frame jambs and head for the full width of the gap behind one architrave.</p>
Test Standard:	Principles of BS 476: Part 22: 1987
Performance	<p>Integrity: 44 minutes ¹</p> <p>Insulation: 0 minutes ²</p>

¹ The initial failure at 44 minutes due to continuous flaming at the meeting edges is considered to be remote to the effects of the installation method of the door frame. No failures at the hanging edges, leaf head or the rear of the frame were recorded prior to termination the test at 65 minutes.

² In accordance with Section 8.6.1 of BS 476: Part 22: 1987, the specimen was not evaluated for insulation.

3.1.9 Test Report RF14207 Revision B

The referenced test report, the essential details of which are summarised below, is supporting data for the use of ST422 drop seal in timber based door leaves for up to 60 minutes integrity performance.

Date of test	14 th August 2014
Identification of Test Body:	BMTRADA, now trading as Warringtonfire Testing and Certification Ltd. UKAS Notified Body 1762.
Sponsor:	Sealed Tight Solutions Ltd
Tested Product:	A Falcon Panel Products Ltd Strebord60 based, latched, single acting, single leaf, timber based flush doorset.
Summary of Test Specimen:	<p>Specimen A comprised: a particleboard core with integral facings. All leaf edges were lipped with 8(t) Oak of nominal density 720kg/m³. Specimen was unglazed.</p> <p>Leaf Size: 2040 (h) x 922 (w) x 54 (t).</p> <p>Leaf Edge Intumescent Seals: 2No STS ST15x4 perimeter intumescent seals were centrally fitted in the frame reveals of the hanging edges and head, together with a 10 x 3 ST1009 environmental seal against the upstand of the frame stops and an ST422 drop seal fitted centrally in the leaf threshold.</p> <p>Door frame: MDF of nominal density 750kg/m³ 32mm wide with 18 thick MDF architrave on fire exposed face only.</p> <p>Hardware: The doorset was hung on 3No bearing butt steel hinges; a Rutland TS3204 overhead closer was fitted and a Winkhaus AV2 lockset was installed.</p> <p>Installation: The doorset was oriented to open in towards the furnace, installed within a plasterboard clad, timber stud partition. Rockwool mineral fibre was installed filling the 10-15mm wide gap behind the door frame jambs and head capped with intumescent mastic.</p>
Test Standard:	Principles of BS 476: Part 22: 1987
Performance	Integrity: 65 minutes Insulation: 65 minutes

3.1.10 Test Report WF173658A

The referenced test report, the essential details of which are summarised below, is supporting data for the use of ST88 mastic as required by reference to BS8214: 2016 '*Timber-based fire door assemblies – Code of practice*'. See section 6.4 for additional installation options.

Date of test	22 nd May 2008						
Identification of Test Body:	Bodycote, now trading as Warringtonfire Testing and Certification Ltd. UKAS Notified Body 0249.						
Sponsor:	Held in confidence						
Tested Product:	ST88 mastic utilised as a linear gap seal product in an autoclaved blockwork wall						
Summary of Test Specimen:	<p>Supporting Construction: Autoclaved blockwork wall with overall dimensions 3050mm wide x 3035mm high x 200mm thick incorporating 12No gaps, 6 of which utilised the ST88 mastic product as a linear gap seal. Each aperture was nominally 1000mm long and for specimens they were:</p> <p>A & B 30mm wide C & D 10mm wide I & K 20mm wide.</p> <p>ST88 Installation details:</p> <p>A – 30 x 25, exposed face only B – 30 x 20, both faces C – 10 x 10, exposed face only D – 10 x 10, both faces I – 20 x 20, exposed face only K – 20 x 10, both faces</p>						
Test Standard:	BS EN 1366-3: 2004 and BS EN 1366-4: 2006						
Seal Reference		A	B	C	D	I	K
Test Results (minutes)	Cotton Pad	252	264	257	264	264	264
	Sustained Flaming	264	264	264	264	264	264
	Insulation	71	264	216	264	114	264

4 Sealed Tight Solutions Ltd - Gap Filling Materials

Sealed Tight Solutions Ltd sealing products ST88 and ST99 Fire Foam are manufactured utilising proprietary compounds, which expand multi directionally in volume when exposed to elevated temperatures, thereby forming a fire resistant seal for door frame installations in 30 & 60 minute, timber based, fire resisting doorsets.

5 Timber Based Doorsets

The installation details herein may only be applied to timber based door leaves mounted in timber based door frames which have:

- been previously successfully fire tested at a UKAS accredited laboratory, for a minimum of 30 or 60 minutes integrity performance, as appropriate, to BS476: Part22: 1987 or BSEN 1634-1
- been assessed by Warringtonfire as suitable to provide a minimum of 30 or 60 minutes integrity performance, as appropriate, to BS476: Part22: 1987 or BSEN 1634-1.

Other than for the specific installation requirements detailed herein, the relevant supporting documentation for the specified doorset must be referred to for all construction details.

6 Sealing to The Structural Opening

The door frame to structural opening gap must be protected using one of the following methods. Door frame material must be as required by reference to the supporting documentation for the specified doorset.

Sealed Tight Solutions ST99 when installed, expands during the initial reaction phase before curing as a 'set' mass of material. On the basis of this installation characteristic, the foam has the potential to expand beyond the face of the frame/supporting construction. It is considered acceptable to remove any surplus foam material once cured, using a sharp bladed instrument, provided the limitations of this assessment are maintained with respect to minimum foam depth and width requirements. Furthermore, the installation of the product must provide a consistent mass of material. Care should therefore be taken to ensure this is achieved. Any air pockets must be filled with additional Sealed Tight Solutions ST99, if found during installation.

6.1 Sealing Options - 30 Minute Applications

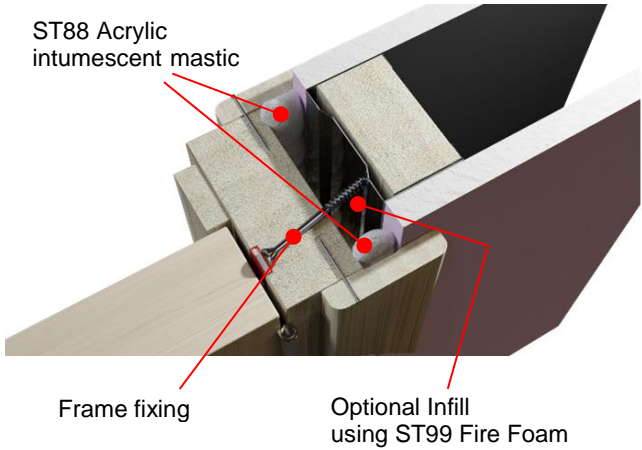
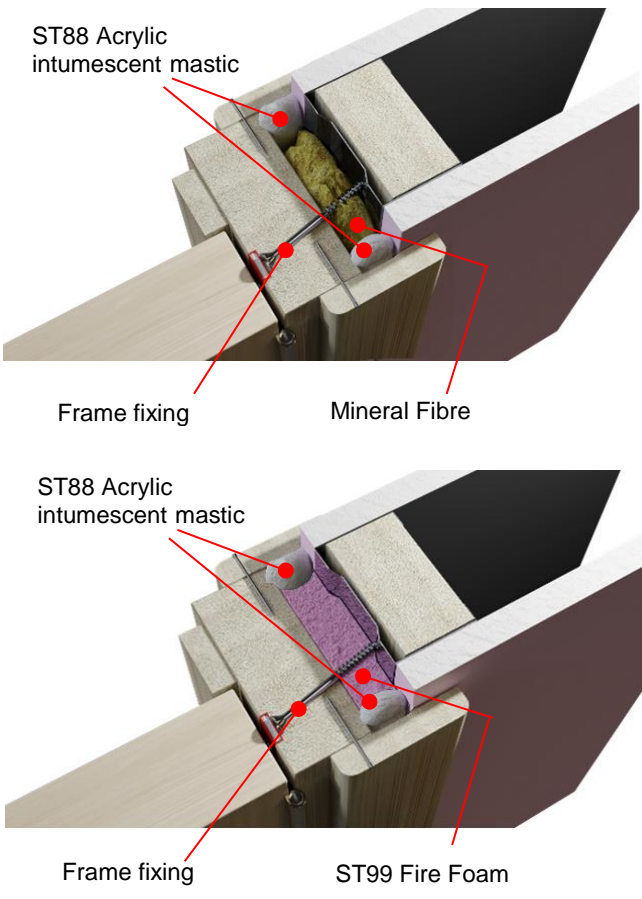
For 30 minutes integrity performance, gaps up to a maximum of 20mm between the frame and structural opening may be protected as illustrated below.

Architrave material in all cases may be MDF, softwood or hardwood, of a minimum density of 510kg/m³, irrespective of the door frame material. Where fitted, architraves must overlap at least 15mm each side. Architraves may always be fitted to both faces if required.

For option 1 and 2 an architrave may be installed on the fire exposed face only, if required. See section 6.4 for further options.

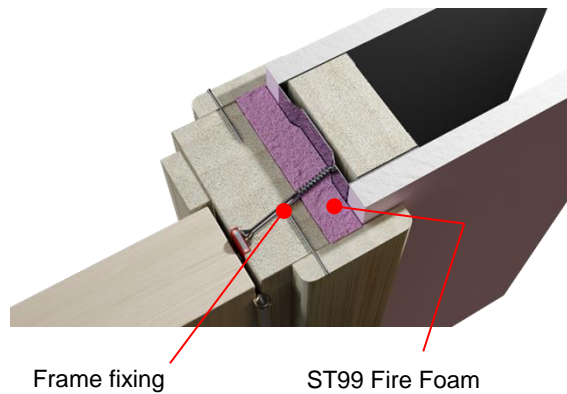
Very small gaps, i.e. ≤5mm between the rear of frame and supporting construction may be protected as follows:

A bead of mastic must be gunned into the gap, pushed into the gap as far as practicable - aiming to achieve a 10mm deep bead of mastic which must then be protected by architraves on both faces.

<p>1. Gaps up to 10mm must be sealed on both sides with a minimum 10mm depth of ST88 intumescent mastic. The use of mineral fibre or ST99 Fire Foam between the mastic beads is optional</p> <p>Joint must be fitted with architraves</p>	 <p>ST88 Acrylic intumescent mastic</p> <p>Frame fixing</p> <p>Optional Infill using ST99 Fire Foam</p>
<p>2. Gaps between 10mm and 20mm must be tightly packed with mineral fibre or ST99 Fire Foam, capped on both sides with a minimum, 10mm depth of ST88 acrylic intumescent mastic.</p> <p>Joint must be fitted with architraves</p>	 <p>ST88 Acrylic intumescent mastic</p> <p>Frame fixing</p> <p>Mineral Fibre</p> <p>ST88 Acrylic intumescent mastic</p> <p>Frame fixing</p> <p>ST99 Fire Foam</p>

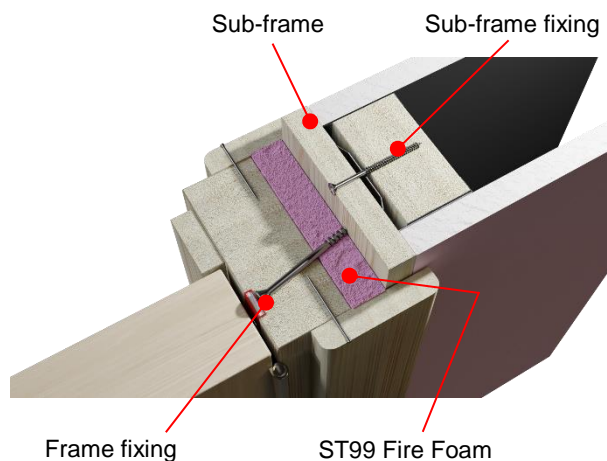
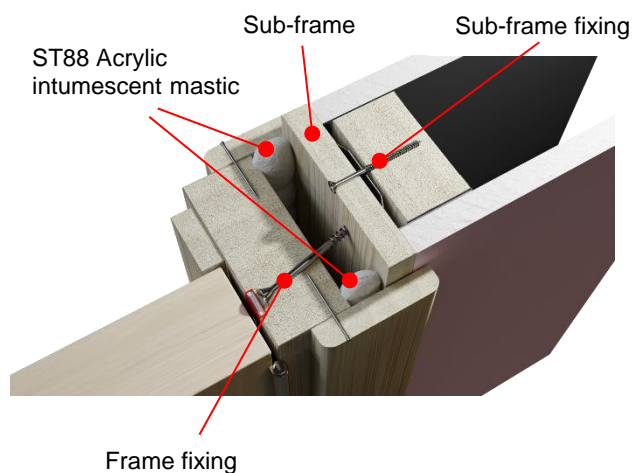
3. Gaps up to 20mm may be filled with proprietary fire stopping product (i.e. ST99 Fire Foam), additional mastic capping is not required.

Joint must be fitted with architraves



4. Timber based or non-combustible sub-frame up to 50mm thick, with remaining gaps up to a maximum of 10mm between the components filled on both sides with 10mm depth of acrylic intumescent mastic (i.e. ST88) or full depth expanding PU foam (i.e. ST99 Fire Foam).

Joint must be fitted with minimum 8mm thick architraves overlapping at least 15mm each side.



6.2 Sealing Options - 60 Minute Applications

For 60 minutes integrity performance, gaps up to a maximum of 20mm between the frame and structural opening may be protected as illustrated below.

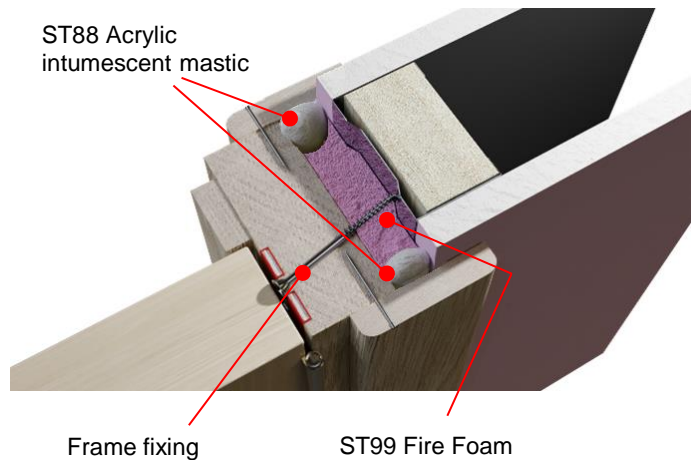
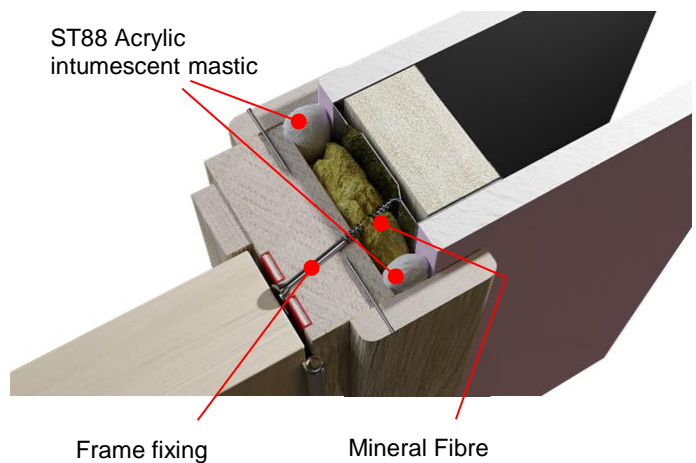
Architrave material in all cases may be MDF, softwood or hardwood, of a minimum density of 510kg/m³, irrespective of the door frame material. Architraves must overlap at least 15mm each side. Architraves must always be fitted to both faces. See section 6.4 for further options.

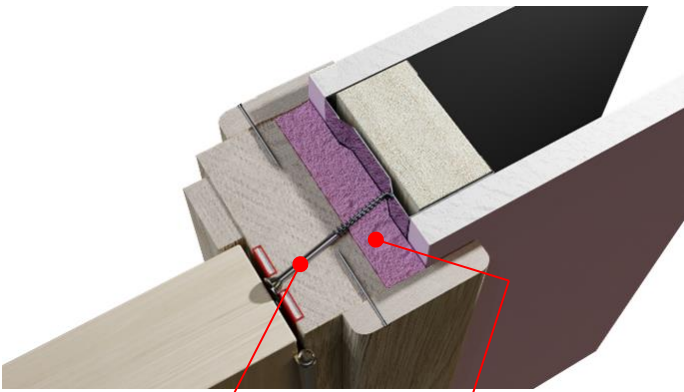
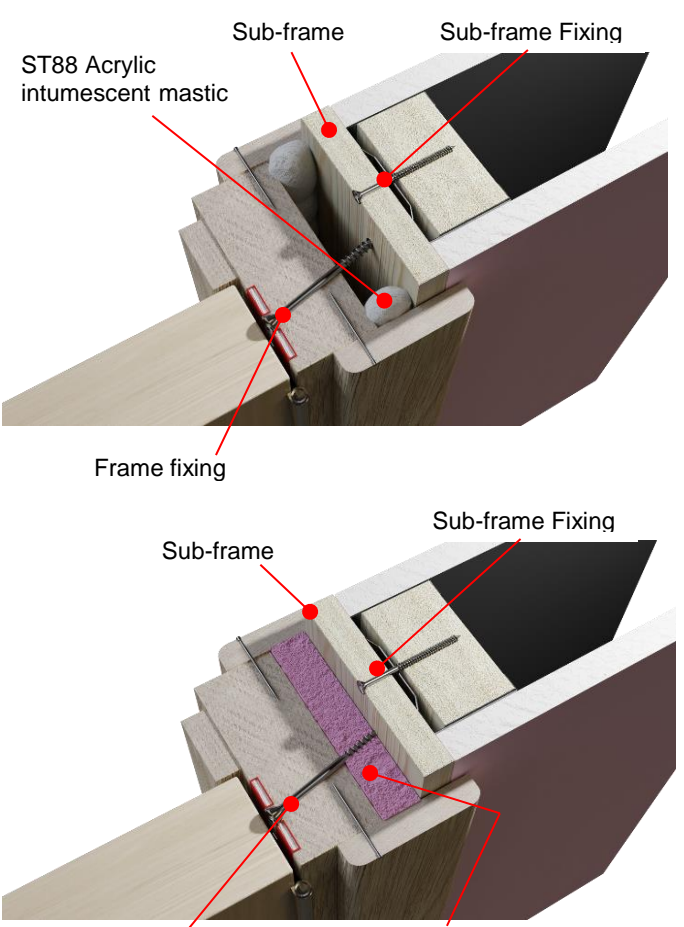
Very small gaps, i.e. ≤5mm between the rear of frame and supporting construction may be protected as follows:

A bead of mastic must be gunned into the gap, pushed into the gap as far as practicable - aiming to achieve a 10mm deep bead of mastic which is then protected by architraves.

1. Gaps up to 20mm must be tightly packed with either mineral fibre or ST99 Fire Foam, capped on both sides with a minimum, 10mm depth of ST88 acrylic intumescent mastic.




Joint must be fitted with architraves



<p>2. Gaps up to 20mm must be filled with proprietary fire stopping product (i.e. ST99 Fire Foam), additional mastic capping is not required.</p> <p>Joint must be fitted with architraves</p>	 <p>Frame fixing</p> <p>ST99 Fire Foam</p>
<p>3. Timber based or non-combustible sub-frame up to 50mm thick, with remaining gaps up to a maximum of 10mm between the components filled on both sides with 10mm depth of acrylic intumescent mastic (i.e. ST88) or full depth expanding PU foam (i.e. ST99 Fire Foam).</p> <p>Joint must be fitted with architraves</p>	 <p>ST88 Acrylic intumescent mastic</p> <p>Sub-frame</p> <p>Sub-frame Fixing</p> <p>Frame fixing</p> <p>Sub-frame</p> <p>Sub-frame Fixing</p> <p>Frame fixing</p> <p>ST99 Fire Foam</p>

6.3 Door Frame Installation

The following figures indicate the acceptable door frame installations. Please note that the firestopping element is provided in the below 3D models as a generic red or purple coloured seal. For further clarification of the approved firestopping systems see sections 6.1 and 6.2.

Permitted Installations	
	<p>Instances where the door frame and the wall of the same depth such that architraves are fitted flush to both faces. Note that the minimum door frame section size (width and depth) must be as per the requirements noted in this report – see door frame section.</p> <p>Architraves requirements are documented in the firestopping section of this report.</p>
	<p>Instances where the wall thickness is greater than the door frame depth.</p> <p>In this scenario timber architraves of minimum 18mm thick must be fitted to both faces, fitted with a minimum 15mm overlap to the door gap, other than when the architrave abuts the wall.</p>
	<p>Split frames are permitted providing that both frame sections are secured to the wall in accordance with section 6.7. Furthermore, the main frame section (from which the door is hung) must be constructed to at least the minimum door frame section size (width and depth) as per the requirements noted in this report – see door frame section. The extension piece may be constructed from any material permitted for the door frame types within the primary field of application document for the doorsets.</p>

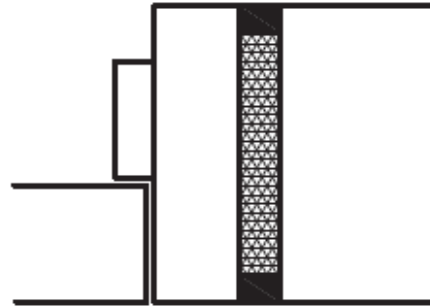
Note:

1. The drawings are provided as a generalised illustration of the door frame installation only; actual installation must be as per the text within this document specifies.
2. When fitted within a masonry construction as detailed in section 6.7 the entire thickness of the leaf shall be within the thickness of the masonry element.

6.4 Additional Installation Details

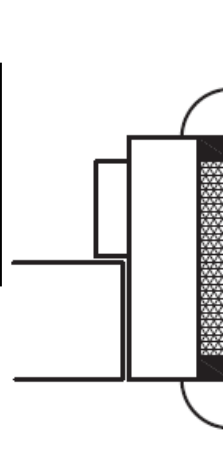
In line with the requirements of section 9.4.2 of BS8214: 2016 '*Timber-based fire door assemblies – Code of practice*', the ST88 mastic product has been tested in accordance with the requirements of BS EN 1366-4 within test WF173658A as a linear gap seal in addition to the testing undertaken in accordance with the requirements of BS476: Part22: 1987 as detailed in the test reports in section 3 (specifically section 3.8 for test WF372245). Therefore the option below from BS8214: 2016 for installation of door frames without architraves is permitted in both 30 and 60 minute applications. Installation is permitted into all wall types permitted by reference to section 8 herein, whether they are likely to exhibit significant distortion or not.

Gaps up to 15mm must be tightly packed with mineral fibre and capped on both sides with a, minimum, 10mm depth of ST88 acrylic intumescent mastic.



Frames may also be installed as illustrated below. Gaps up to 20mm are permitted provided the supporting construction to frame gap is protected as required in section 6.1 or 6.2.

Quadrant beads as shown must be installed. They must be hardwood of minimum density 640kg/m³ and must overlap the frame by a minimum of 15mm and be a minimum of 10mm thick.



6.5 Packers

The use of plastic packers has been proven in the testing cited in section 3 at both 30 and 60 minutes integrity performance (WF385685, WF396750AR1, WF392155 & WF386959).

The packers:

- May also be from timber or plywood of equal density to the frame.
- Must be present local to each fixing position.
- May be installed with their faces exposed (i.e. it is not necessary to hide the edges of the packers with mastic or foam), prior to installation of any architraves.

6.6 Wall Types, Structural Opening & Fixity

Door assemblies discussed herein are approved for installation within standard rigid and flexible supporting constructions (masonry, steel stud and timber stud variations) that have demonstrated a minimum of 30 or 60 minutes fire resistance, as appropriate, when tested to BS 476: Part 22: 1987, these are further detailed in the following sections.

6.6.1 Wall Types

The following wall types are approved for this doorset design:

- a. Plasterboard clad timber stud partitions
- b. Plasterboard clad steel stud partitions including timber lining
- c. Blockwork, Masonry or homogenous concrete 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 as required, 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.
- Blockwork, Masonry or homogenous concrete constructions are anticipated to be constructed in accordance with section 7.2.2 of BS EN 1363-1:2020.

6.6.2 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.

6.6.3 Fixity

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

For single leaf doorset without sidepanels, the frame jambs only are to be fixed to the supporting construction using steel fixings at 600mm maximum centres and maximum of 150mm from corner. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm. It is not necessary to fix the frame head, although packers must be inserted.

For all other configurations of doorset, the upper horizontal framing section abutting the structural opening must also be secured to the wall using steel fixings at 600mm maximum centres and maximum of 150mm from corner. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm.

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

7 Conclusion

This Supplementary Field of Application considers the installation of timber based doorsets as defined in section 5, utilising Sealed Tight Solutions products to be fitted protecting the installation of timber based doorset designs.

Providing that the installation details given in this Supplementary Field of Application document, and all other details as given in the relevant supporting doorset documentation are followed, it is the opinion of Warringtonfire that the relevant doorsets, if tested in accordance with BS 476 Part 22:1987 would provide a minimum of 30 or 60 minutes fire integrity.

8 Declaration by the Applicant

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

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

Signed:  Signed by:
4A3A6274724343D...

Name: Jim Kelly

Position: Technical Manager

Date: 07-May-2025

For and on behalf of: Sealed Tight Solutions Ltd.

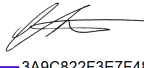
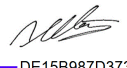
9 Limitations

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.

10 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 8 duly signed by the applicant.

Position:	Assessor	Reviewer
Signature:	<div>Signed by:  3A9C822F3E7F487...</div>	<div>Signed by:  DE15B987D373423...</div>
Name:	C Newton*	A M Winning*
Title:	Senior Product Assessor	Senior Product Assessor

* For and on behalf of Warringtonfire

Appendix A Revisions

Rev.	WF Ref.	Date	Description
-	WF419831	11/03/2020	First Issue
A	WF549767	24/04/2025	Five year revalidation and update to current Warringtonfire template. Smoke control section removed