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Title

Field of Application for:

The Warm Springs Composite Products Range of Doorsets

For 60, 90 and 120 minutes Fire Resistance

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The version/revision stated on the front of this Field of Application supersedes all previous versions/revisions and must be used to manufacture doorsets from the stated validity date on this front cover. Previous revisions of the Field of Application cannot be used once an updated Field of Application has been issued under a new revision.

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1 Foreword

This Field of Application report has been commissioned by Falcon Panel Products Ltd and relates to the fire resistance of 60, 90 and 120 minute fire resisting doorset designs.

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

This Field of Application (scope) uses established empirical methods of extrapolation and experience of fire testing similar doorsets, in order to extend the scope of application by determining the limits for the designs based on the tested constructions and performances obtained. The scope is an evaluation of the potential fire resistance performance, if the variations specified herein were to be tested in accordance with BS 476-22: 1987.

This Field of Application has been written using appropriate test evidence generated at UKAS accredited laboratories, 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.

2 Proposal

It is proposed to consider the fire resistance performance of the specified proprietary Warm Springs Composite Products (WSCP) doorset designs, for 60, 90 and 120 minutes fire resistance integrity performance, for Falcon Panel Products Ltd, 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.

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.

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.

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 higher 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 Warm Springs Composite Products doorset designs if tested in accordance with BS 476: Part 22: 1987.

3.1 Primary Test Evidence

3.1.1 Test Report CFR1410311

The referenced test report, the essential details of which are summarised below.

Date of Test:	31.OCT.2014
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Warm Springs Composite Products
Tested Product:	Unlatched, Single Acting, Double Leaf, Flush Doorset – ULSADD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf: Overall Size: 2289 (h) x 1068/1069 (w) x 58mm (t) Core: Warm Springs WSCP-412 Mineral 3 part core with PVA (288 ± 30 kg/m^3), 51mm thick Lipping: American White Oak (640kg/m^3), vertical edges only, 4mm thick. Facing: 3mm thick, 3 ply plywood (640kg/m^3) Top Rail: Tectonite (990kg/m^3), 51 x 51mm thick Bottom Rail: Tectonite (990kg/m^3), 51 x 51mm thick Stiles: Tectonite (990kg/m^3), 26 x 52mm (measured at 52 in report) thick Frame: Head & Jambs: Overall size 104 x 47mm thick. Tectonite (minimum 990kg/m^3), 71 x 43mm thick, with 4mm white Oak (715/763 kg/m^3) facing to the reveal face of the frame, and 33 x 47 thick white Oak (715/763 kg/m^3) at the closing side of the frame, with 42 x 11mm thick American White Oak planted stop. Frame Fixing: 5No 8 x 100mm frame fixings per jamb Intumescent: Frame Reveal (Head and Jambs): 2No 22x4mm WSCP PVC-seal, PVC encased graphite type, 7mm and 37mm from the opening face, with the strip at 7mm from the opening face fully interrupted by hinges. Leaf Edge (Meeting edge – Master leaf): 1No 22x4mm WSCP PVC-seal, PVC encased graphite type, 7mm from the opening face, partially interrupted by latch forend. Leaf Edge (Meeting edge – Slave leaf): 1No 22x4mm WSCP PVC-seal, PVC encased graphite type, 8mm from the closing face, partially interrupted by latch strike and flushbolts. Bottom Leaf Edge: 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf, partially interrupted by flush bolt. Hardware: Hinges: 4No Union JH603BU per jamb

	Closer: 1No Dorma TS72 per leaf Lock/Latch: 1No Zoo ZDL CE1121 Lock/Latch Size: Lockcase: 165 x 87 x 15mm, Forend: 235 x 22 x 3mm, Keep: 180 x 24 x 1.5mm. Lock/Latch Status: disengaged for test Handle: Turentek Architectural Ironmongers Ovation OV 75.001 Steel on rose lever type. Flush Bolt: 2No Zoo ZAS03SS, to top & bottom of slave leaf. Engaged for test. <u>Hardware Protection:</u> Under Hinges: 2mm thick WSCP Strip-seal, ammonium phosphate based Around Lockcase: None fitted Under Forend, in the recesses in strike box and under strike: 2mm thick WSCP Flex-seal raw graphite type Under Flushbolts: 1mm thick WSCP Flex-seal raw graphite type (1No 53 x 19 x 1mm and 2No 55 x 6 x 1mm)
Test Standard:	BS EN 1634-1:2014
Performance:	**Integrity:** Sustained flaming: 200 minutes Cotton pad test: 200 minutes Gap gauge: 200 minutes **Insulation:** Average set: 91 minutes

3.1.2 Test Report CFR1103111

The referenced test report, the essential details of which are summarised below.

Date of Test:	11.MAR.2011
Identification of Test Body:	Cambridge Fire Research Ltd – UKAS No. 4319
Sponsor:	Warm Springs Composite Products
Tested Product:	Unlatched, Single Acting, Double Leaf, Flush Doorset – ULSADD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf (Both Leaves): Overall Size: 2292 (h) x 1068 (w) x 57mm (t) Core: Warm Springs mineral core (3 pieces) (288kg/m^3 ±30), 51mm thick Lipping: American Oak (640kg/m^3), 3mm thick to vertical edges. Facing: 3mm thick, Ply Birch Veneer Oversailing Lippings Top Rail: Tectonite (Min 990kg/m^3), 51 x 51mm thick Bottom Rail: Tectonite (Min 990kg/m^3), 51 x 51mm thick Stiles: Tectonite (Min 990kg/m^3), 25 x 51mm thick Frame: Head & Jambs: White Oak (860-879kg/m^3), 102 x 39mm thick, with 39 x 13mm thick White Oak (783kg/m^3) planted stop. Frame Fixing: 5No Number 8 x 100mm masonry fixings per jamb 150mm from edges and equidistance between, the head was fixed with 2No. Number 8 x 100mm masonry fixings positioned 500mm from the jambs respectively. Architrave: White Oak (860kg/m^3), 51 x 13mm thick Threshold: Non-combustible Intumescent: Frame Reveal (Head and Jambs): 1No 20x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type seal, 7mm from the opening face, fully interrupted by hinges; and 1No 25x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type 33mm from the opening face. Bottom Leaf Edge: 1No. 47 x 1mm thick Intumescent Seals, Therm-A-Flex, raw graphite type intumescent, fitted centrally (self adhesive & Arrow T50 staples 1/4” staples at 100mm centres Meeting Stiles: 1No. 20x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type seal, applied to each leaf edge, positioned 5mm from the opening face of the left leaf and 5mm from the closing face of the right leaf, partially interrupted by latch and strike as appropriate. Hardware: Hinges: 4No Royde and Tucker H105 HI-LOAD Closer: Dorma TS86 Surface mounted overhead type closer. Lock/Latch: Dale 97170 tubular mortice latch

	Lock/Latch Size: Lockcase: 20 x 17 x 64mm, Forend: 57 x 25 x 1.2mm, Keep: 57 x 37 x 1.2mm. Fitted 1000mm from bottom of leaf. Lock/Latch Status: disengaged for test Handle: Dale SAA sandal DH005706 <u>Hardware Protection:</u> Under Hinges: 2mm thick Intumescent Seals, Therm-A-Strip. Under Forend, Keep & lining latch bolt rebate: 1mm thick Intumescent Seals, Therm-A-Flex
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 151 minutes **Insulation:** 98 minutes

3.1.3 Test Report RF12178 Doorset A

The referenced test report, the essential details of which are summarised below.

Date of Test:	09.FEB.2013
Identification of Test Body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd). UKAS No. 1762
Sponsor:	HOPPE (UK) Ltd
Tested Product:	Unlatched, Single Acting, Single Leaf, Flush Doorset – ULSASD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf: Overall Size: 2036 (h) x 916 (w) x 57mm (t) Core: Warm Springs mineral core (240kg/m^3), 51mm thick Lipping: Sapele (640kg/m^3), 4mm thick to all edges. Facing: 3mm thick, MDF (750kg/m^3) Top Rail: Tectonite (1000kg/m^3), 60 x 51mm thick Bottom Rail: Tectonite (1000kg/m^3), 60 x 51mm thick Stiles: Tectonite (1000kg/m^3), 30 x 51mm thick Frame: Head & Jambs: Sapele (640kg/m^3), 90 x 38mm thick, with 20 x 12mm thick Sapele (640kg/m^3) planted stop. Frame Fixing: 4No Number 10 x 80mm masonry fixings per jamb Architrave: Sapele (640kg/m^3), 45 x 18mm thick Threshold: Non-combustible Intumescent: Frame Reveal (Head and Jambs): 1No 20x4mm WSCP PVC encased graphite type 7mm from the opening face, fully interrupted by hinges and keep and partially interrupted by closer slide arm; and 1No 25x4mm WSCP PVC encased graphite type 33mm from the opening face, partially interrupted by hinges, keep and closer slide arm. Bottom Leaf Edge: 1No. 47 x 1mm thick WSCP Flex raw graphite type, fitted centrally Hardware: Hinges: 3No Arrone AR8680 Closer: 1No Arrone concealed overhead closer AR7383, body rebated into head of leaf and slide arm rebated into frame head. Lock/Latch: 1No Arrone mortice sashlock AR910 Lock/Latch Size: Lockcase: 165 x 92mm, Forend: 235 x 24mm, Keep: 170 x 24mm. Fitted 1000mm from bottom of leaf. Lock/Latch Status: disengaged for test Handle: Arrone Steel lever type AR361/10 Escutcheon: Arrone lock escutcheon plate AR361/27

	Hardware Protection: Under Hinges: 2mm thick interdens Around Lockcase: None fitted Under Forend and under Keep: 2mm thick interdens Encasing slide arm body and closer body: 2mm thick interdens
Test Standard:	BS EN 1634-1:2008
Performance:	**Integrity:** Sustained flaming: 121 minutes Cotton pad test: 125 minutes Gap gauge: 127 minutes **Insulation:** Maximum set (≥ 100mm): 90 minutes Average set: 82 minutes

3.1.4 Test Report RF12178 Doorset B

The referenced test report, the essential details of which are summarised below.

Date of Test:	09.FEB.2013
Identification of Test Body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd). UKAS No. 1762
Sponsor:	HOPPE (UK) Ltd
Tested Product:	Unlatched, Single Acting, Single Leaf, Flush Doorset – ULSASD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf: Overall Size: 2040 (h) x 918 (w) x 57mm (t) Core: Warm Springs mineral core (240kg/m^3), 51mm thick Lipping: Sapele (640kg/m^3), 4mm thick to all edges. Facing: 3mm thick, MDF (750kg/m^3) Top Rail: Tectonite (1000kg/m^3), 60 x 51mm thick Bottom Rail: Tectonite (1000kg/m^3), 60 x 51mm thick Stiles: Tectonite (1000kg/m^3), 30 x 51mm thick Frame: Head & Jambs: Tectonite (1000kg/m^3), 94 x 43mm thick, with 4mm Sapele facings (640 kg/m^3) to all faces of the frame, with 20 x 12mm thick Sapele (640kg/m^3) planted stop. Frame Fixing: 4No Number 10 x 80mm masonry fixings per jamb Architrave: Sapele (640kg/m^3), 45 x 18mm thick Threshold: Non-combustible Intumescent: Frame Reveal (Head and Jambs): 1No 20x4mm WSCP PVC encased graphite type 7mm from the opening face, fully interrupted by hinges and keep and partially interrupted by closer slide arm; and 1No 25x4mm WSCP PVC encased graphite type 33mm from the opening face, partially interrupted by hinges, keep and closer slide arm. Bottom Leaf Edge: 1No. 47 x 1mm thick WSCP Flex raw graphite type, fitted centrally Hardware: Hinges: 3No Arrone AR8680 Closer: 1No Arrone concealed overhead closer AR7383, body rebated into head of leaf and slide arm rebated into frame head. Lock/Latch: 1No Arrone mortice sashlock AR910 Lock/Latch Size: Lockcase: 165 x 92mm, Forend: 235 x 24mm, Keep: 170 x 24mm. Fitted 1000mm from bottom of leaf. Lock/Latch Status: disengaged for test Handle: Arrone Steel lever type AR361/10

	Escutcheon: Arrone lock escutcheon plate AR361/27 Hardware Protection: Under Hinges: 2mm thick interdens Around Lockcase: 2mm thick interdens Under Forend and under Keep: 2mm thick interdens Encasing slide arm body and closer body: 2mm thick interdens
Test Standard:	BS EN 1634-1:2008
Performance:	**Integrity:** Sustained flaming: 148 minutes Cotton pad test: 151 minutes Gap gauge: 151 minutes **Insulation:** Maximum set (≥ 100mm): 111 minutes Average set: 82 minutes

3.2 Supplementary Test Evidence

3.2.1 Test Report CFR1007071

The referenced test report, the essential details of which are summarised below, is included as supplementary evidence for multi-core leaf construction.

Date of Test:	07.JUL.2010
Identification of Test Body:	Cambridge Fire Research Ltd – UKAS No. 4319
Sponsor:	Warm Springs Composite Products
Tested Product:	Latched, Single Acting, Double Leaf, Flush Doorset – LSADD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf (Both Leaves): Overall Size: 2265 (h) x 1050 (w) x 57mm (t) Core: Warm Springs mineral core (6 pieces) (288kg/m^3 ±30), 51mm thick Lipping: White Oak (640kg/m^3), 3mm thick to vertical edges. Facing: 3mm thick, Ply Birch Veneer Oversailing Lippings Top Rail: 5 Ply Tectonite (Min 820kg/m^3), 102 x 51mm thick Bottom Rail: 5Ply Tectonite (Min 820kg/m^3), 102 x 51mm thick Stiles: Tectonite (Min 990kg/m^3), 25 x 51mm thick Frame: Head & Jambs: White Oak (640kg/m^3), 104 x 45mm thick, with 41 x 11mm thick White Oak (680kg/m^3) planted stop. Frame Fixing: 5No Number 8 x 100mm masonry fixings per jamb 200mm from edges and equidistance between, the head was fixed with 2No. Number 8 x 100mm masonry fixings positioned 500mm from the jambs respectively. Architrave: White Oak (680kg/m^3), 51 x 13mm thick Threshold: Non-combustible Intumescent: Frame Reveal (Head and Jambs): 1No 20x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type seal, 7mm from the opening face, fully interrupted by hinges; and 1No 25x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type 33mm from the opening face. Bottom Leaf Edge: 1No. 47 x 1mm thick Intumescent Seals, Therm-A-Flex, raw graphite type intumescent, fitted centrally (self adhesive & Arrow T50 staples 1/4” staples at 100mm centres Meeting Stiles: 1No. 20x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type seal, applied to each leaf edge, positioned 5mm from the opening face of the left leaf and 5mm from the closing face of the right leaf, interrupted by latch and strike as appropriate. Hardware:

	Hinges: 4No Royde and Tucker H105 HI-LOAD Closer: Briton 2003SES Surface mounted overhead type closer. Lock/Latch: Dale 97170 tubular mortice latch Lock/Latch Size: Lockcase: 20 x 17 x 64mm, Forend: 57 x 25 x 1.2mm, Keep: 57 x 37 x 1.2mm. Fitted 1000mm from bottom of leaf. Lock/Latch Status: engaged for test Handle: Dale SAA sandal DH005706 Barrel Bolt: Necked barrel bolt Code 5528 <u>Hardware Protection:</u> Under Hinges: 2mm thick Intumescent Seals, Therm-A-Strip. Under Forend, Keep & lining latch bolt rebate: 1mm thick Intumescent Seals, Therm-A-Flex
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 115 minutes **Insulation:** 95 minutes

The above summarised test report details that an integrity failure was observed after 115 minutes of test duration. The failure recorded is detailed as sustained flaming local to the head of the right leaf. Upon evaluation of the tested construction the door leaf included laminated rails formed of "5 Ply Tectonite "M-$_B$" with a minimum density of 820kg/m^3". Further review of the performance of the tested element indicates that the door leaf deflected at the centre of the right leaf head 24mm into the furnace at a time of 110 minutes of exposure to test conditions. It is the opinion of Warringtonfire that the laminated construction of the rails has influenced the performance of the doorset and therefore it has been necessary to restrict the construction of the door leaf such that this type of laminated rail construction is not permitted within this field of application.

3.2.2 Test Report CFR1007081 Right hand doorset

The referenced test report, the essential details of which are summarised below, is included as supplementary evidence for multi-core leaf construction..

Date of Test:	08.JUL.2010
Identification of Test Body:	Cambridge Fire Research Ltd – UKAS No. 4319
Sponsor:	Warm Springs Composite Products
Tested Product:	Latched, Single Acting, Single Leaf, Flush Doorset – LSASD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf: Overall Size: 2340 (h) x 1075 (w) x 57mm (t) Core: Warm Springs mineral core (7 pieces) (288kg/m^3 ±30), 51mm thick Lipping: White Oak (Min 680kg/m^3), 3mm thick to vertical edges. Facing: 3mm thick, Ply Birch Veneer Oversailing Lippings Top Rail: 5 Ply Tectonite "M-$_B$" (Min 820kg/m^3), 102 x 51mm thick Bottom Rail: 5 Ply Tectonite "M-$_B$" (Min 820kg/m^3), 102 x 51mm thick Stiles: Tectonite (Min 990kg/m^3), 25 x 51mm thick Frame: Head & Jambs: White Oak (Min 680kg/m^3), 104 x 45mm thick overall, with 41 x 11mm thick White Oak (Min 680kg/m^3) planted stop. Frame Fixing: 5No Number 8 x 100mm masonry fixings per jamb 200mm from edges and equidistance between. Architrave: White Oak (804-825kg/m^3), 51 x 13mm thick Threshold: Non-combustible Intumescent: Frame Reveal (Head and Jambs): 1No 20x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type seal, 7mm from the opening face, fully interrupted by hinges; and 1No 25x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type 33mm from the opening face. Bottom Leaf Edge: 1No. 47 x 1mm thick Intumescent Seals, Therm-A-Flex, raw graphite type intumescent, fitted centrally (self adhesive & Arrow T50 staples 1/4" staples at 100mm centres Hardware: Hinges: 4No Royde and Tucker H105 HI-LOAD Closer: Briton 2003SES Surface mounted overhead type closer. Lock/Latch: Dormer 752F Lock/Latch Size: Lockcase: 165x14x82mm, Forend: 235x20x3mm, Keep: 165x45x1.5mm. Fitted 1000mm from bottom of leaf. Lock/Latch Status: engaged for test Cylinder: Dale NP30/10/30 Double Cylinder 7200

	Handle: Dale 3670 Escutcheon: Dale Karcher EP Nr 0942121 <u>Hardware Protection:</u> Under Hinges: 2mm thick Intumescent Seals, Therm-A-Strip. Under Forend, Keep & lining latch bolt rebate: 1mm thick Intumescent Seals, Therm-A-Flex Encasing Lock Case: 1mm thick Intumescent Seals, Therm-A-Strip.
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 91 minutes **Insulation:** 84 minutes

The above summarised test report details that an integrity failure was observed after 91 minutes of test duration. The failure recorded is detailed as the application of a cotton pad test local to the centre of the head of the leaf. Upon evaluation of the tested construction the door leaf included laminated rails formed of "5 Ply Tectonite "M-$_B$" with a minimum density of 820kg/m^3". Further review of the performance of the tested element indicates that the door leaf deflected 27mm into the furnace at a time of 90 minutes of exposure to test conditions at the top closing corner. It is the opinion of Warringtonfire that the laminated construction of the rails has influenced the performance of the doorset and therefore it has been necessary to restrict the construction of the door leaf such that this type of laminated rail construction is not permitted within this field of application.

3.2.3 Test Report CFR1007081 Left hand doorset

The referenced test report, the essential details of which are summarised below, is included as supplementary evidence for multi-core leaf construction.

Date of Test:	08.JUL.2010
Identification of Test Body:	Cambridge Fire Research Ltd – UKAS No. 4319
Sponsor:	Warm Springs Composite Products
Tested Product:	Latched, Single Acting, Single Leaf, Flush Doorset – LSASD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf: Overall Size: 2341 (h) x 1075 (w) x 57mm (t) Core: Warm Springs mineral core (7 pieces) (288kg/m^3 ±30), 51mm thick Lipping: White Oak (Min 680kg/m^3), 3mm thick to vertical edges. Facing: 3mm thick, Ply Birch Veneer Oversailing Lippings Top Rail: 5 Ply Tectonite "M-$_B$" (Min 820kg/m^3), 102 x 51mm thick Bottom Rail: 5 Ply Tectonite "M-$_B$" (Min 820kg/m^3), 102 x 51mm thick Stiles: Tectonite (Min 990kg/m^3), 25 x 51mm thick Frame: Head & Jambs: White Oak (Min 680kg/m^3), 104 x 38mm thick overall, with 41 x 11mm thick White Oak (Min 680kg/m^3) planted stop. Frame Fixing: 5No Number 8 x 100mm masonry fixings per jamb 200mm from edges and equidistance between. Architrave: White Oak (804-825kg/m^3), 51 x 13mm thick Threshold: Non-combustible Intumescent: Frame Reveal (Head and Jambs): 1No 20x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type seal, 7mm from the opening face, fully interrupted by hinges; and 1No 25x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type 33mm from the opening face. Bottom Leaf Edge: 1No. 47 x 1mm thick Intumescent Seals, Therm-A-Flex, raw graphite type intumescent, fitted centrally (self adhesive & Arrow T50 staples 1/4" staples at 100mm centres Hardware: Hinges: 4No Royde and Tucker H105 HI-LOAD Closer: Briton 2003SES Surface mounted overhead type closer. Lock/Latch: Dale 97170 Tubular mortise latch Lock/Latch Size: Lockcase: 20x17x64mm, Forend: 57x25x1.2mm, Keep 57x37x1.2mm. Fitted 1000mm from bottom of leaf. Lock/Latch Status: engaged for test Handle: Dale SAA sandal DH005706

	Hardware Protection: Under Hinges: 2mm thick Intumescent Seals, Therm-A-Strip. Under Forend, Keep & lining latch bolt rebate: 1mm thick Intumescent Seals, Therm-A-Flex
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 105 minutes **Insulation:** 93 minutes

The above summarised test report details that an integrity failure was observed after 105 minutes of test duration. The failure recorded is detailed as sustained flaming across the head of the leaf. Upon evaluation of the tested construction the door leaf included laminated rails formed of "5 Ply Tectonite "M-$_B$" with a minimum density of 820kg/m^3". Further review of the performance of the tested element indicates that the door leaf deflected 29-35mm into the furnace at a time of 100 minutes of exposure to test conditions at the top closing corner & centre of the head respectively. It is the opinion of Warringtonfire that the laminated construction of the rails has influenced the performance of the doorset and therefore it has been necessary to restrict the construction of the door leaf such that this type of laminated rail construction is not permitted within this field of application.

3.2.4 Test Report CFR1009081 Revision 2

The referenced test report, the essential details of which are summarised below, is included as supplementary evidence for multi-core leaf construction.

Date of Test:	08.SEP.2010
Identification of Test Body:	Cambridge Fire Research Ltd – UKAS No. 4319
Sponsor:	Warm Springs Composite Products
Tested Product:	Latched, Single Acting, Double Leaf, Flush Doorset – LSADD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf (Both Leaves): Overall Size: 2236 (h) x 1037/1036 (w) x 57mm (t) Core: Warm Springs mineral core (6 pieces) (288kg/m^3 ±30), 51mm thick Lipping: White Oak (Min 680kg/m^3), 3mm thick to vertical edges. Facing: 3mm thick, Ply Birch Veneer Oversailing Lippings Top Rail: Tectonite (Min 990kg/m^3), 101 x 51mm thick Bottom Rail: Tectonite (Min 990kg/m^3), 101 x 51mm thick Stiles: Tectonite (Min 990kg/m^3), 43 x 51mm thick Frame: Head & Jambs: White Oak (830-833kg/m^3) & Tectonite (Min 990kg/m^3), 112 x 47mm thick overall, Tectonite 72 x 43mm, White Oak 2No. layers 20 x 47mm, with 41 x 11mm thick White Oak (666-668kg/m^3) planted stop. Frame Fixing: 5No Number 8 x 100mm masonry fixings per jamb 200mm from edges and equidistance between, the head was fixed with 2No. Number 8 x 100mm masonry fixings positioned 500mm from the jambs respectively. Architrave: White Oak (804-825kg/m^3), 70 x 18mm thick Threshold: Non-combustible Intumescent: Frame Reveal (Head and Jambs): 1No 20x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type seal, 7mm from the opening face, fully interrupted by hinges; and 1No 25x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type 33mm from the opening face. Bottom Leaf Edge: 1No. 47 x 1mm thick Intumescent Seals, Therm-A-Flex, raw graphite type intumescent, fitted centrally (self adhesive & Arrow T50 staples 1/4" staples at 100mm centres Meeting Stiles: 1No. 20x4mm Intumescent Seals, Therm-A-Seal, PVC encased graphite type seal, applied to each leaf edge, positioned 5mm from the opening face of the left leaf and 5mm from the closing face of the right leaf, interrupted by latch and strike as appropriate. Hardware: Hinges: 4No Royde and Tucker H105 HI-LOAD

	Closer: Briton 2003SES Surface mounted overhead type closer. Lock/Latch: Dale 97170 tubular mortice latch Lock/Latch Size: Lockcase: 20 x 17 x 64mm, Forend: 57 x 25 x 1.2mm, Keep: 57 x 37 x 1.2mm. Fitted 1000mm from bottom of leaf. Lock/Latch Status: engaged for test Handle: Dale SAA sandal DH005706 Barrel Bolt: Necked barrel bolt Code 5528 Hardware Protection: Under Hinges: 2mm thick Intumescent Seals, Therm-A-Strip. Under Forend, Keep & lining latch bolt rebate: 1mm thick Intumescent Seals, Therm-A-Flex
Test Standard:	BS 476: Part 22: 1987
Performance:	**Integrity:** 131 minutes **Insulation:** 90 minutes

3.2.5 Test Report CFR1504141

The referenced test report, the essential details of which are summarised below, is included as supplementary evidence for glazing and maximum aperture size.

Date of Test:	14.APR.2015
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsor:	Falcon Panel Products Ltd
Tested Product:	Unlatched, Single Acting, Single Leaf, Flush Doorset, with Glazed Aperture – ULSASD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf: Overall Size: 2284 (h) x 1068 (w) x 58mm (t) Core: Warm Springs WSCP-412 Mineral 3 part core with crosslinked PVA (288 ± 30 kg/m^3), 51mm thick Lipping: Sapele (640kg/m^3), vertical edges only, 4mm thick to closing edge, 2mm thick to hanging edge. Facing: 3mm thick, 3 ply plywood (640kg/m^3) Top Rail: Tectonite (990kg/m^3), 51 x 51mm thick Bottom Rail: Tectonite (990kg/m^3), 51 x 51mm thick Stiles: Tectonite (990kg/m^3), 25 x 52mm thick Frame: Head & Jambs: Overall size 108 x 46mm thick. Tectonite (minimum 990kg/m^3), 102x 43mm thick, with 3mm MDF facing to the visible faces of the frame, with 31 x 12mm thick Sapele planted stop. Frame Fixing: 5No 8 x 100mm nylon frame fixings per jamb Intumescent: Frame Reveal (Head and Jambs): 2No 22x4mm WSCP PVC-seal, PVC encased graphite type, 7mm and 33mm from the opening face, with the strip at 7mm from the opening face fully interrupted by hinges and strike and the other partially interrupted by hinges and strike. Bottom Leaf Edge: 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. Hardware: Hinges: 4No Cooke Brothers 7740 Closer: 1No face fixed overhead closer. Report states brand and product reference are on CFR file. Lock/Latch: 1No Hoppe AR910-S-60SSS Lock/Latch Size: Lockcase: 165 x 85 x 16mm, Forend: 235 x 24 x 3mm, Keep: 170 x 24 x 1.5mm. Lock/Latch Status: disengaged for test Eurocylinder Escutcheon: 1No Hoppe E42S Handle: Hoppe E138Z/42 Steel on rose lever type.

	Hardware Protection: Under Hinges: 2mm thick Hoppe AR/INT/818, ammonium phosphate based Around Lockcase and under forend: 1mm Hoppe AR/INT-DIN-LOCKS, ammonium phosphate based Under strike: 1mm Hoppe AR/INT-DIN-LOCKS, ammonium phosphate based Glazing (Leaf): Glass: Pilkington Pyrostop 30-20, 18mm thick Aperture Size: 1450 x 200mm wide Beading: 2mm thick Stainless steel two part cassette with glass oriented to the closing face of the leaf. Bead Fixing: 4 x 30mm long steel screws, at 20 degrees, 140mm centres. Glazing System: Glazing Perimeter: 15 x 4mm thick (2No layers 15 x 2mm) Therm-A-Glaze, graphite based between glass & bead. Glazing Aperture Liner: 2 x 52mm Therm-A-Glaze, graphite based
Test Standard:	Generally in accordance with BS EN 1634-1:2014
Performance:	**Integrity:** Sustained flaming: 136 minutes Cotton pad test: 136 minutes Gap gauge: 117 minutes (this occurred at the glazing, no other integrity failures at 136 minutes, when the test was terminated). **Insulation:** Average set: 76 minutes

The above summarised test report has been undertaken on a reduced scale furnace, due to the size of the sample and the minimum requirements outlined within the test standard, for supporting construction housing the doorset it has been tested generally in accordance with the EN 1634-1 :2014 test standard. The BS 476: Part 22: 1987 test standard does not include the same requirements for minimum supporting construction dimensions and therefore, when considered with the narrative on the use of EN data in support of performance against BS 476: Part 22: 1987 found within section 3 this report has been considered suitable for use.

A failure was observed after 117 minutes of exposure to the fire test conditions. Upon review it is established that this failure is local to the top of the glazing within the door leaf. No further failure was recorded until the test's termination at 136 minutes. Due to the observation of this failure, it is necessary to restrict the use of this glazing system to 60 and 90 minutes only and it also demonstrates that the leaf can accommodate an aperture of up to 0.29m2 with suitable margins.

3.2.6 Test Report Warres 63295

The referenced test report, the essential details of which are summarised below, is included as supplementary evidence for glazing.

Date of Test:	21.MAR.1995
Identification of Test Body:	Warrington Fire Research Centre Ltd (now trading as: Warringtonfire Testing & Certification Ltd).
Sponsor:	Lorient Polyproducts Limited
Tested Product:	Sample Unlatched, Single Acting, Double Leaf, Flush Doorset – ULSADD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf (Both leaves): Overall Size: 2040 (h) x 826 (w) x 44mm (t) Core: Non-combustible based core including stiles, rails and closer reinforcement. Lipping: Hardwood. all edges, 3mm thick. Facing: 3mm thick, Ash Plywood Frame: Head & Jambs: Non-combustible based frame, 106 x 25mm thick, including 3mm Hardwood facing to the visible faces of the frame & a 0.7mm thick veneer, with 16 x 36mm thick including 3mm Hardwood facing to the visible faces of the stop & a 0.7mm thick veneer, planted stop. Frame Fixing: 10mm x 100mm HT anchors at 600mm centres to vertical jambs only Threshold: Non-combustible Intumescent: Frame Reveal (Head and Jambs): 1No 35x6mm Lorient LP3506/OSS seal fitted within the frame reveal partially interrupted at hinge positions. Meeting Edge: Left Leaf: 2No. 10x6 Lorient LP1006/SS sealed were fitted in the meeting edge partially interrupted at keep position. Right Leaf: 2No. 10x6 Lorient LP1006 sealed were fitted in the meeting edge partially interrupted at lock position. Bottom Edge of Leaves: 2No. 10x6 Lorient LP1006 sealed were fitted in the bottom edge. Hardware: Hinges: Cooke Bros. 7531 Class 9 Hinges Closer: Dryad Class 4 fitted to exposed face of both leaves. Lock/Latch: Dryad Simplan mortice lever handle. Hardware Protection: Under Hinges: 2mm thick Lorient LX Palusol Lock/Latch: 1mm thick interdens Glazing (Right Leaf):

	Glass: Firelite ceramic glass, 5mm thick Sight Size: 248 x 248mm wide Beading: 1.6mm thick mild steel 'Z' section beading 25x11x22mm. Bead Fixing: 8No.stainless steel sleeve bolts Ø6mm. <u>Glazing System:</u> Glazing Perimeter: Lorient System 90 intumescent glazing channel Glazing Aperture Liner: Lorient LX4402 44x2mm intumescent seal
Test Standard:	BS 476 Part 22: 1987
Performance:	**Integrity:** 149 minutes **Insulation:** 70

3.2.7 Test Report Chilt/IF12047 Revision A

The referenced test report, the essential details of which are summarised below, is included as supplementary evidence for glazing.

Date of Test:	30.MAY.2012
Identification of Test Body:	Chiltern International Fire (now trading as: Warringtonfire Testing & Certification Ltd). UKAS No. 1762
Sponsor:	Norsound Ltd
Tested Product:	Sample Unlatched, Single Acting, Single Leaf, Flush Doorset – ULSASD.
Tested Orientation:	Opening in towards heating condition
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf: Overall Size: 1040 (h) x 996 (w) x 58mm (t) Core: Warm Springs FD120 core with PVA (240kg/m^3), 51mm thick Lipping: Sapele (640kg/m^3), all edges, 3mm thick. Facing: 3mm thick, Plywood Top Rail: Tectonite (1000kg/m^3), 101 x 51mm thick Bottom Rail: Tectonite (1000kg/m^3), 51 x 51mm thick Stiles: Tectonite (1000kg/m^3), 43 x 51mm thick Frame: Head & Jambs: Tectonite (1000kg/m^3), 106 x 45mm thick, including 2mm Sapele (640kg/m^3) facing to the visible faces of the frame, with 32 x 12mm thick Sapele (640kg/m^3) planted stop. Frame Fixing: Not reported Threshold: Non-combustible Intumescent: Frame Reveal (Head and Jambs): 1No 20x4mm WSCP FO8600 4mm from the opening face; and 1No 25x4mm WSCP FO8600 24mm from the opening face. Leaf Edges: None fitted Hardware: Hinges: 2No EuroSpec Stainless steel (CF339) Closer: None fitted – tested wired closed for initial 10 mins Lock/Latch: None fitted Hardware Protection: Under Hinges: None fitted Glazing (Leaf): Glass: Schott Pyran S, 6mm thick Aperture Size: 690 x 640mm wide, with 3mm expansion allowance all round Steel fixing pad: 50 x 20 x 3 thick, 3No fitted on each face nominally 50mm from corners and one central in height/width, fixed with 2No. 15mm long steel screw per clip to the Tectonite aperture liner.

	Beading: Tectonite bead, 22 x 12mm high. Bead Fixing: 15mm long screw, parallel with glass, fixed into the tectonite aperture lining, avoiding fixing pad positions. Profiled cover trim: Aluminium 26 x 24mm high overall Cover trim fixing tabs: 12No. aluminium fixing tabs, 30 x 10 x 1.9mm, fitted through the cover trim into slot in fixing pads. <u>Glazing System:</u> Glazing Perimeter: 25 x 3mm Norsound Universal 90, between glass & bead. Glazing Aperture Liner: Tectonite (1000kg/m^3), 43 x 51mm thick
Test Standard:	Principles of BS 476 Part 22: 1987
Performance:	**Integrity:** 108 minutes

A failure was observed after 108 minutes of exposure to the fire test conditions. Upon review it is established that this failure is local to the top of the glazing within the door leaf. No further failure was recorded until the test's termination at 110 minutes. Due to the observation of this failure, it is necessary to restrict the use of this glazing system to 60 and 90 minutes only.

3.2.8 Test Report CFR1806192 Revision 1

The referenced test report, the essential details of which are summarised below, is included as supplementary evidence for glazing.

Date of Test:	30.MAY.2012
Identification of Test Body:	Cambridge Fire Research Ltd. UKAS No. 4319
Sponsors:	Dixon International Group Ltd and Falcon Panel Products Ltd
Tested Product:	Fixed leaf sample
Tested Orientation:	N/A
Sampling information:	None detailed in test report
Summary of Test Specimen:	Leaf Sample: Overall Size: 2038 (h) x 527 (w) x 55mm (t) Core: Warm Springs Composite products core Lipping: None fitted Facing: 3mm thick, MDF Top Rail: Tectonite (1000kg/m^3), 101 x 48mm thick Bottom Rail: Tectonite (1000kg/m^3), 101 x 48mm thick Stiles: Tectonite, 43 x 48mm thick Intumescent: Leaf Edges: Dixon International Group Limited, GRS54, raw graphite, 54 x 1mm Hardware: None fitted, held in position by face fixed brackets at mid height and width of each edge. Glazing (Leaf): Glass: Pilkington Pyrodur EW60-10, 11mm thick Aperture Size: 1450 x 150mm wide, 5mm expansion allowance all round Setting blocks: GL60 liner Beading: American Oak (770kg/m3), 24.5 x 33mm high, including 26 degree chamfer and 7 x 8mm high bolection. Bead Fixing: 4.5 x 74mm long steel screws with screw cups, at 32 degrees, 150mm centres on vertical beads and 50mm centres on horizontal beads. Glazing System: Glazing Perimeter: Dixon International Group Ltd, Sealmaster Fireglaze 2000, 25 x 5mm uncompressed, between glass and bead. Glazing Liner: Dixon International Group Ltd, Sealmaster GL60 Liner, 54 x 2mm thick. Glazing Aperture Liner: Tectonite, 51 x 49mm thick
Test Standard:	Principles of BS 476 Part 22: 1987
Performance:	**Integrity:** 132 minutes

3.2.9 Test Report WF504475

The referenced test report, the essential details of which are summarised below, is included as supplementary evidence for the fire resistance of the design when tested opening away from the heating conditions of the test.

Date of Test:	26.MAY.2021
Identification of Test Body:	Warringtonfire Testing & Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	Latched, Single Acting, Double Leaf, Flush Doorset – LSADD.
Tested Orientation:	Opening away from heating condition
Sampling information:	BM Trada, Notified Body ID: 1224 Date of sampling: 24.MAY.2021 Unique sampling document reference number: SC21083
Summary of Test Specimen:	Leaf: Overall Size: 2235 (h) x 1040 (w) x 57mm (t) Core: Warm Springs Mineral core (341 kg/m^3), 2034 x 945 x 51mm thick Lipping: American White Oak (610 kg/m^3), vertical edges only, 3mm thick Facing: 3mm thick, MDF (700 kg/m^3) Top Rail: Tectonite (1051 kg/m^3), 101 x 51mm thick Bottom Rail: Tectonite (1051 kg/m^3), 101 x 51mm thick Stiles: Tectonite (1051 kg/m^3),43 x 51mm thick Frame: Head & Jambs: Overall size 112 x 47mm thick. Tectonite (1051kg/m^3), 72x 43mm thick, with 4mm white Oak facing to the reveal face of the frame, and two layers of 20 x 47 thick white Oak at the closing side of the frame, with 41 x 12mm thick White Oak planted stop. Frame Fixing: 100mm long steel wood screws, 4No per jamb, 2No. across head Architrave: White Oak, 70 x 18mm thick, on opening face only Intumescent: Frame Reveal (Head and Jambs): 1No 20x4mm Intumescent Seals Ltd Therm-A-Seal PVC encased graphite type 7.5mm from the opening face, fully interrupted by hinges; and 1No 25x4mm Intumescent Seals Ltd Therm-A-Seal PVC encased graphite type 34mm from the opening face, partially interrupted by hinges. Leaf Edge (Meeting edge – Master leaf): 1No 20x4mm Intumescent Seals Ltd Therm-A-Seal, PVC encased graphite type, 5mm from the opening face, partially interrupted by latch forend. Leaf Edge (Meeting edge – Slave leaf): 1No 20x4mm Intumescent Seals Ltd Therm-A-Seal, PVC encased graphite type, 5mm from the closing face, partially interrupted by latch strike. Bottom Leaf Edge: 1No. 47 x 1mm thick Intumescent Seals Ltd Therm-A-Flex raw graphite type, fitted centrally in a rebate in bottom of leaf.

	Hardware: Hinges: 4No Royde and Tucker, H101 per jamb Closer: 1No Rutland TS11205 face fixed overhead closer Lock/Latch: 1No Altro 684791 Heavy Duty tubular latch, Altro 148355 Strike Lock/Latch Size: Lockcase: 23 x 62 x 16mm, Forend: 60 x 25 x 1.2mm, Strike: 60 x 22 x 1.4mm. Lock/Latch Status: Engaged for test Handle: RL-RTD-121-SS Aluminium lever type on backplate Barrel Bolt: 1No Hampton 5528 Necked Barrel Bolt, brass to top of slave leaf. Engaged for test. Hardware Protection: Under Hinges: 2mm thick Therm-A-Strip Around Lockcase, under forend and under decorative faceplate: 1mm Therm-A-Flex, graphite based Under strike: 1mm Therm-A-Flex, graphite based
Test Standard:	BS 476 Part 22: 1987
Performance:	**Integrity:** 141 minutes **Insulation:** 90 minutes

4 Technical Specification

4.1 General

The technical specification for the proposed door doorset is given in the following sections and is based on the test evidence for the doorset 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 Warm Springs Composite Products (WSCP) door design can include various design features:

1. Glazing
2. Various hardware options
3. Decorative facings
4. Decorative feature grooving

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

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

4.4 Door Frames

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

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

4.4.1 Frame 1 – Tectonite based

The construction of Frame 1 is tectonite with minimum frame dimensions and two options (1a and 1b) for timber cladding. For further information on the specification and construction of the door frames see section 7.

4.4.2 Frame 2 – Hardwood – 640 kg/m^3

The construction of Frame 2 is hardwood with minimum frame dimensions. For further information on the specification and construction of the door frames see section 7.

4.4.3 Frame 3 – White Oak – 860 kg/m^3

The construction of Frame 3 is White Oak with minimum frame dimensions. 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 the door design and 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, 90 and 120 minutes integrity for the design as appropriate
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 the harder it becomes to pass. 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.
3. A doorset with transomed overpanel is considered to perform comparably to a similar doorset without an overpanel. This is because the transom structurally separates the overpanel from the doorset.

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

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 (Warm Springs Composite Products) doorset design, with the abbreviation and full description of each configuration.

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

Doorset Configurations			
Config Ref,	Depiction	Abbreviation	Description
A		LSASD	Latched Single Acting Single Doorset
B		ULSASD	Unlatched Single Acting Single Doorset
C		LSADD	Latched Single Acting Double Doorset
D		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. Test references CFR1009081 and WF504475 were undertaken with similar doorsets tested both opening in towards the furnace heating conditions and out away from the heating conditions respectively. The doorset opening in achieved 131 minutes integrity and the doorset opening out achieved 141 minutes integrity performance, therefore validating the point made above. 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.

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 must be fitted as detailed herein.

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 leaf and frame types 1, 2 and 3. Each envelope is linked to a specific perimeter intumescent which is given a unique reference and is based directly on test evidence.

The leaf sizes have been established utilising 3No. tests (one for each frame type). The three tests referenced CFR1410311, CFR1103111 & RF12178 Doorset A utilised 2No. intumescent specification across the tests. At the request of the sponsor a standardised single intumescent specification has been considered herein as tested in CFR1410311, as a result of the change in intumescent specification the leaf sizes permitted have been calculated to take this into consideration. It has been considered necessary to limit frame option 2 to 90 minutes when changing to a standardised intumescent specification because there was insufficent overrun at 120 minutes, in the opinion of Warringtonfire.

The envelopes are presented as follows:-

- for LSASD increasing in configuration complexity up to ULSADD
- for each configuration, each frame type is considered separately

4.5.4.3 Summary of Permitted Configuration for Warm Springs Composite Products Leaf & Frame Options

Permitted Configurations with Leaf (Warm Springs Composite Products) and Frame 1-3 (60 minutes)							
Frame		Configuration					
		LSASD	ULSASD	DASD	LSADD	ULSADD	DADD
1	Tectonite frame*	Yes	Yes	No	Yes	Yes	No
2	Hardwood frame*	Yes	Yes	No	Yes	Yes	No
3	White Oak*	Yes	Yes	No	Yes	Yes	No

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

Permitted Configurations with Leaf (Warm Springs Composite Products) and Frame 1-3 (90 minutes)							
Frame		Configuration					
		LSASD	ULSASD	DASD	LSADD	ULSADD	DADD
1	Tectonite frame*	Yes	Yes	No	Yes	Yes	No
2	Hardwood frame*	Yes	Yes	No	No	No	No
3	White Oak*	Yes	Yes	No	Yes	Yes	No

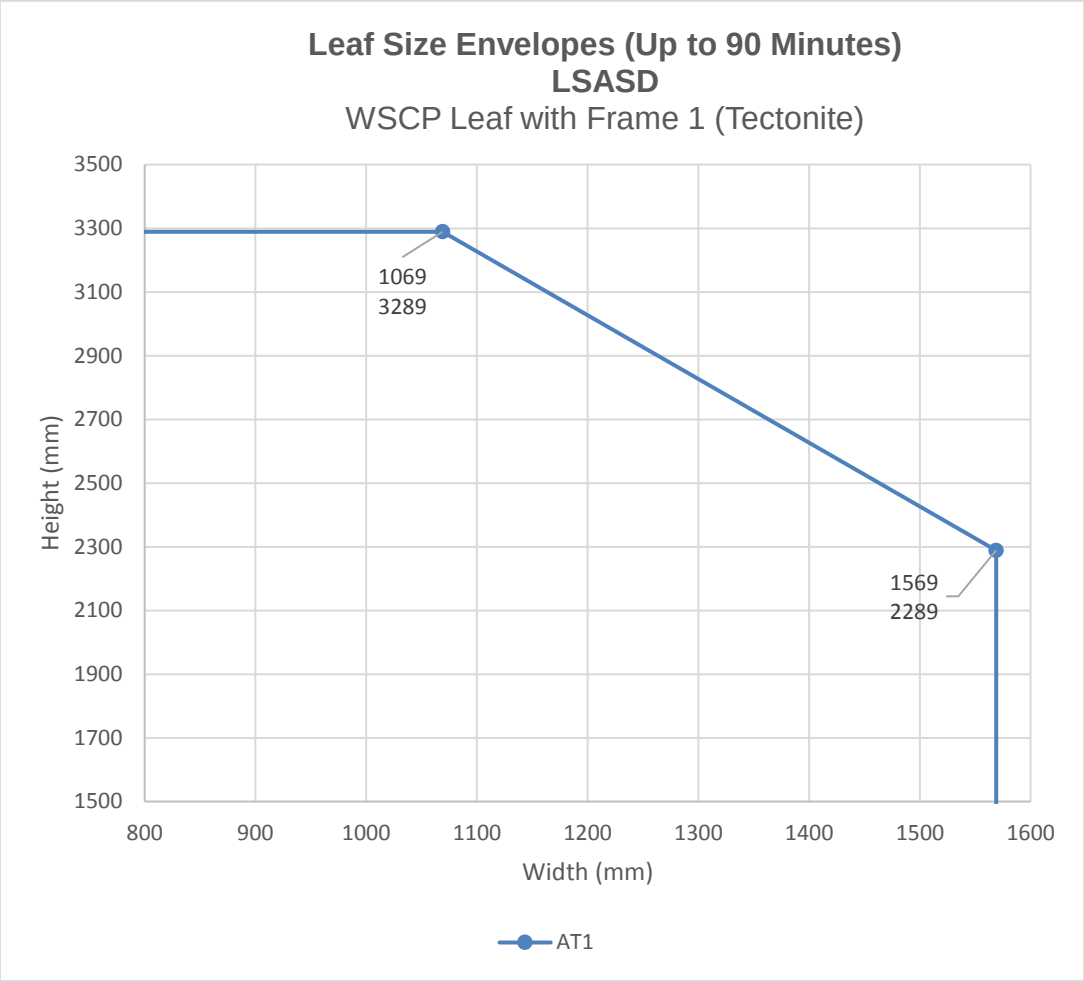
* See Section 7 for specific limitations with respect to the framing types

Permitted Configurations with Leaf (Warm Springs Composite Products) and Frame 1-3 (120 minutes)							
Frame		Configuration					
		LSASD	ULSASD	DASD	LSADD	ULSADD	DADD
1	Tectonite frame*	Yes	Yes	No	Yes	Yes	No
2	Hardwood frame*	No	No	No	No	No	No
3	White Oak*	Yes	Yes	No	Yes	Yes	No

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

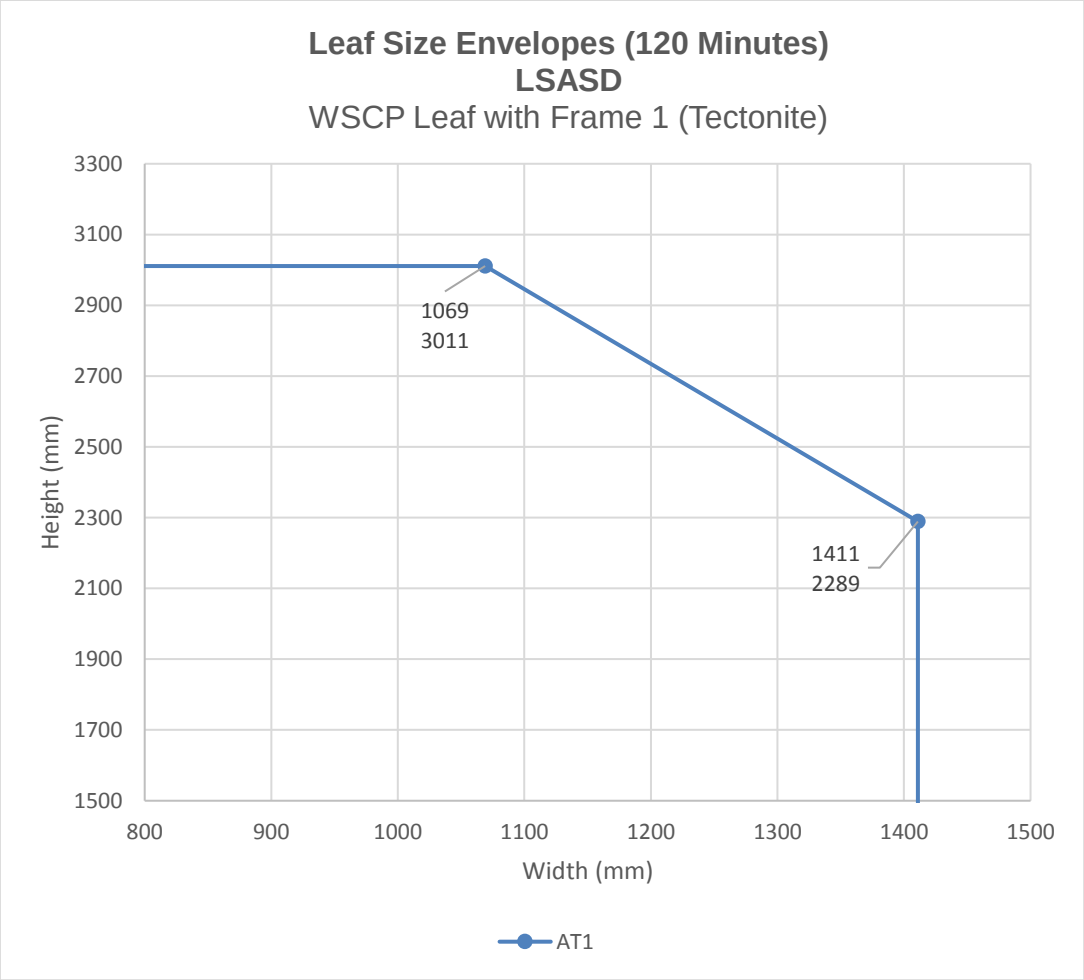
4.5.5 LSASD Configuration: Leaf Sizes & Intumescent Specification

4.5.5.1 Up to 90 minutes doorset with Frame 1



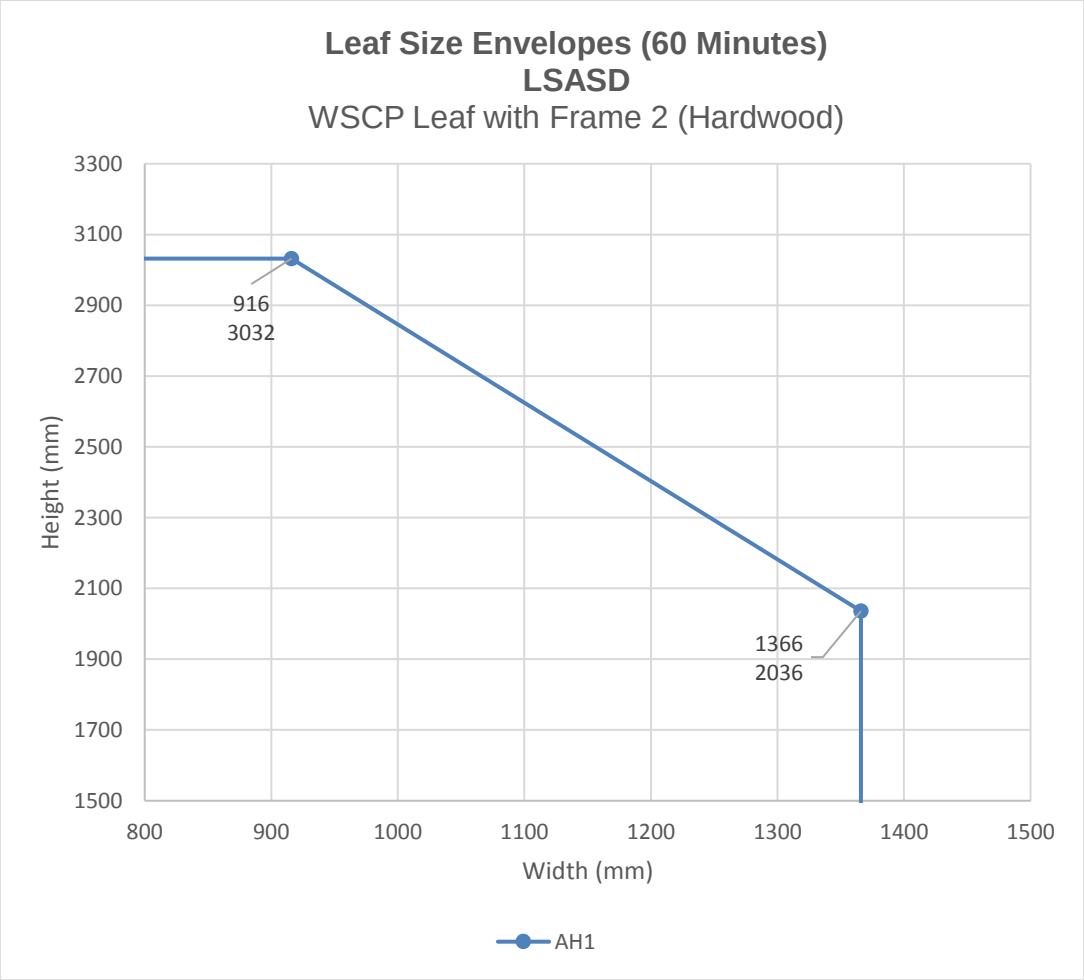
Intumescent Specification for LSASD – Up to 90 minutes Warm Springs Composite Products Leaf with Frame 1 (Tectonite)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AT1 (**CFR1410311**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.5.2 120 minutes doorset with Frame 1



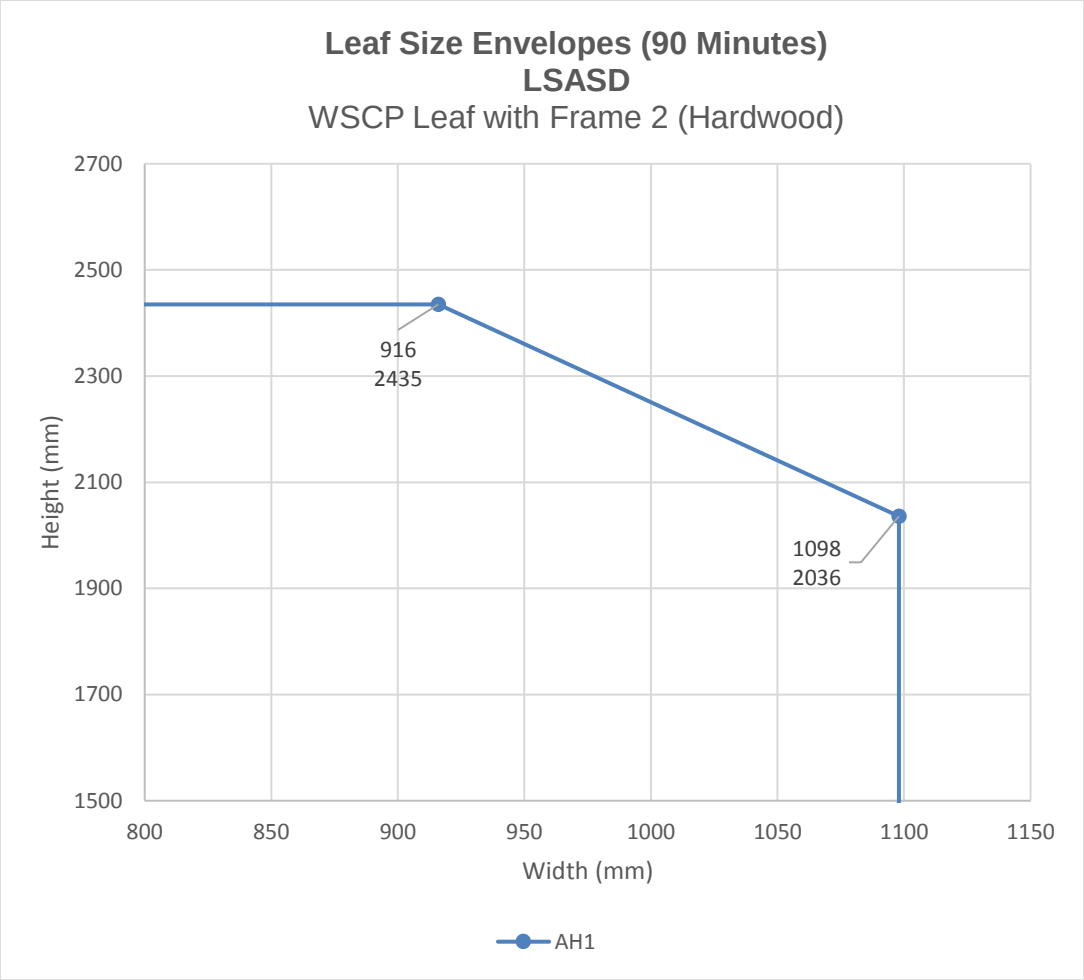
Intumescent Specification for LSASD – 120 minutes Warm Springs Composite Products Leaf with Frame 1 (Tectonite)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AT1 (**CFR1410311**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.5.3 60 minutes doorset with Frame 2



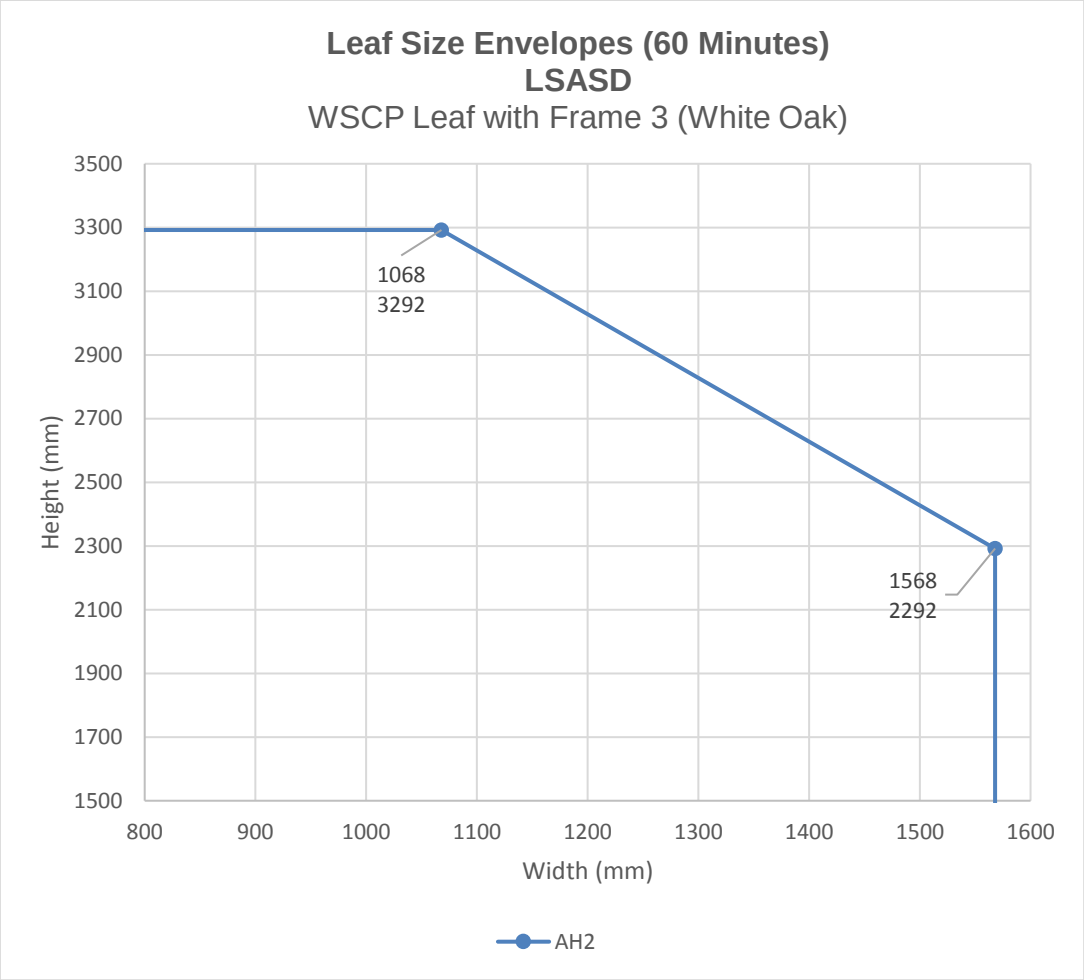
Intumescent Specification for LSASD – 60 minutes Warm Springs Composite Products Leaf with Frame 2 (Hardwood)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AH1 **(RF12178 Doorset A)**	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.5.4 90 minutes doorset with Frame 2



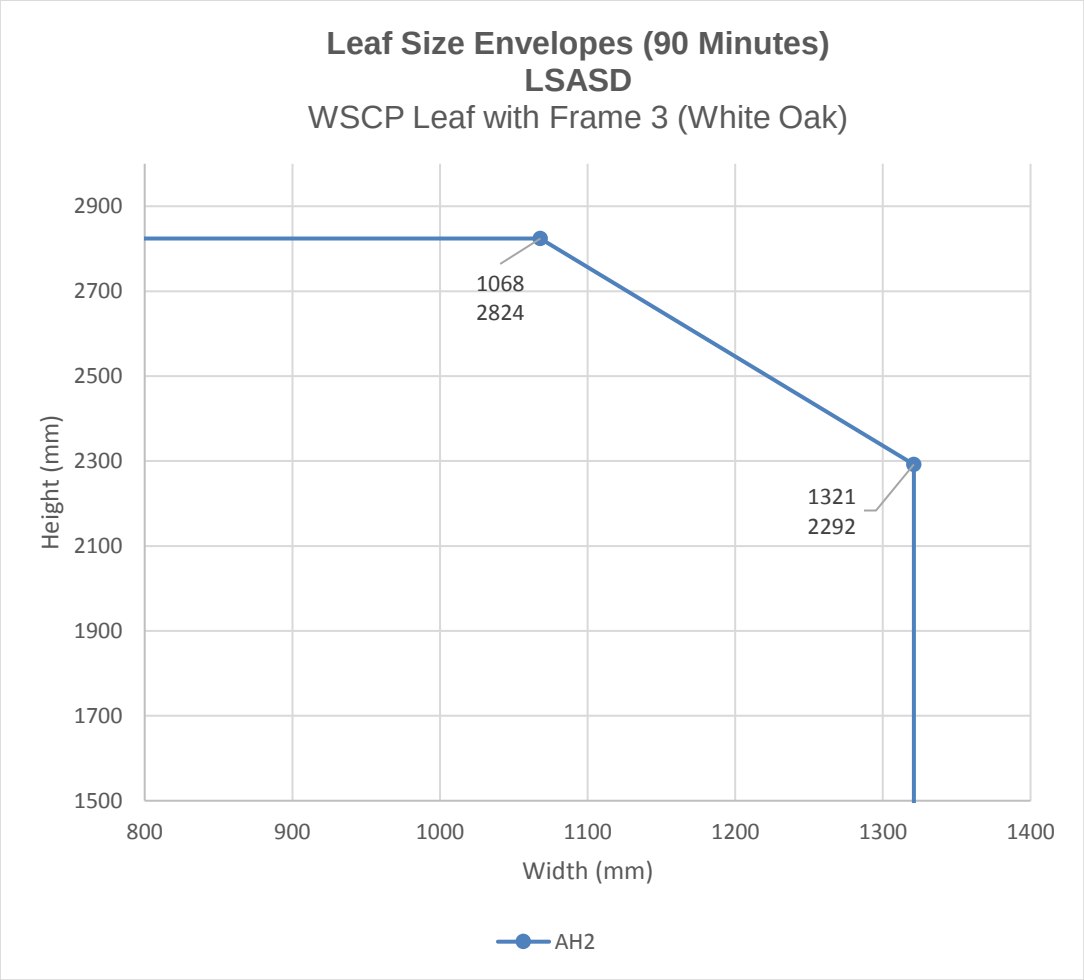
Intumescent Specification for LSASD – 90 minutes Warm Springs Composite Products Leaf with Frame 2 (Hardwood)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AH1 **(RF12178 Doorset A)**	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.5.5 60 minutes doorset with Frame 3



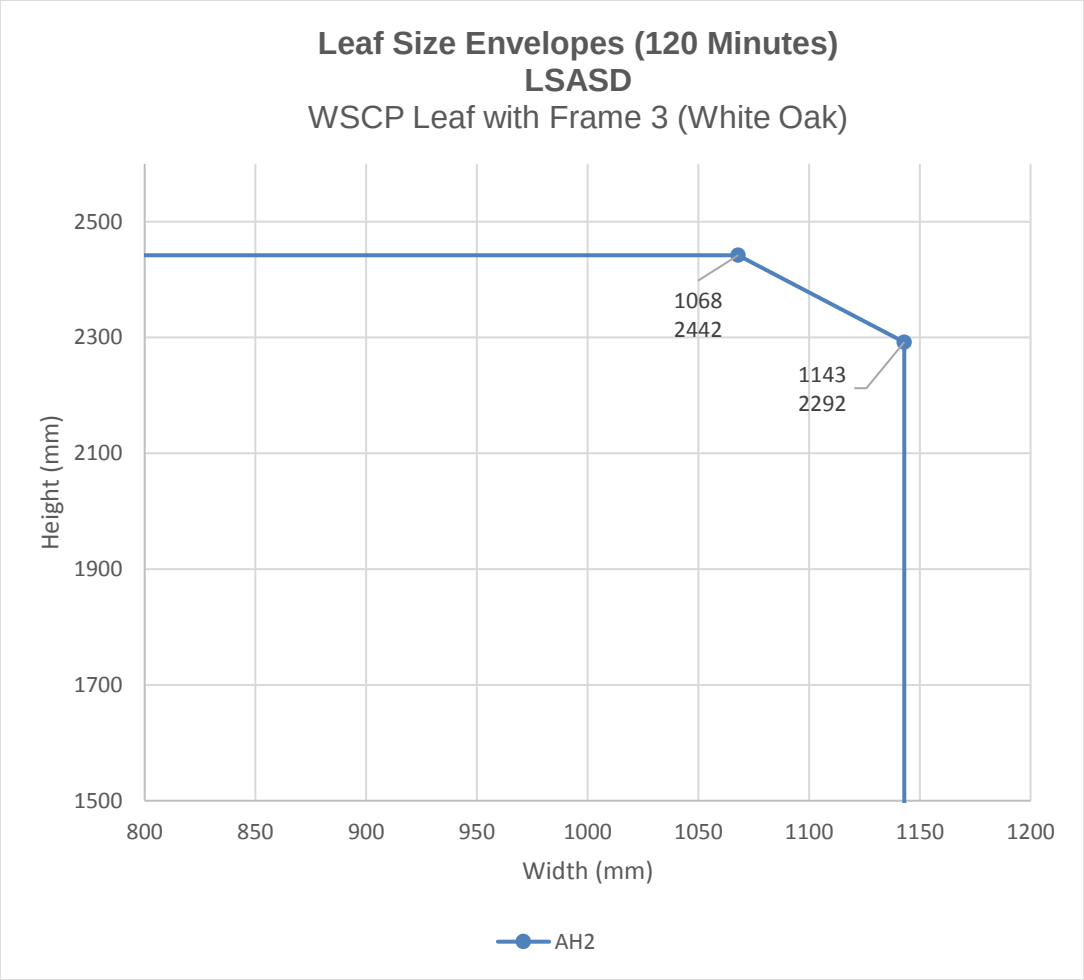
Intumescent Specification for LSASD – 60 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.5.6 90 minutes doorset with Frame 3



Intumescent Specification for LSASD – 90 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

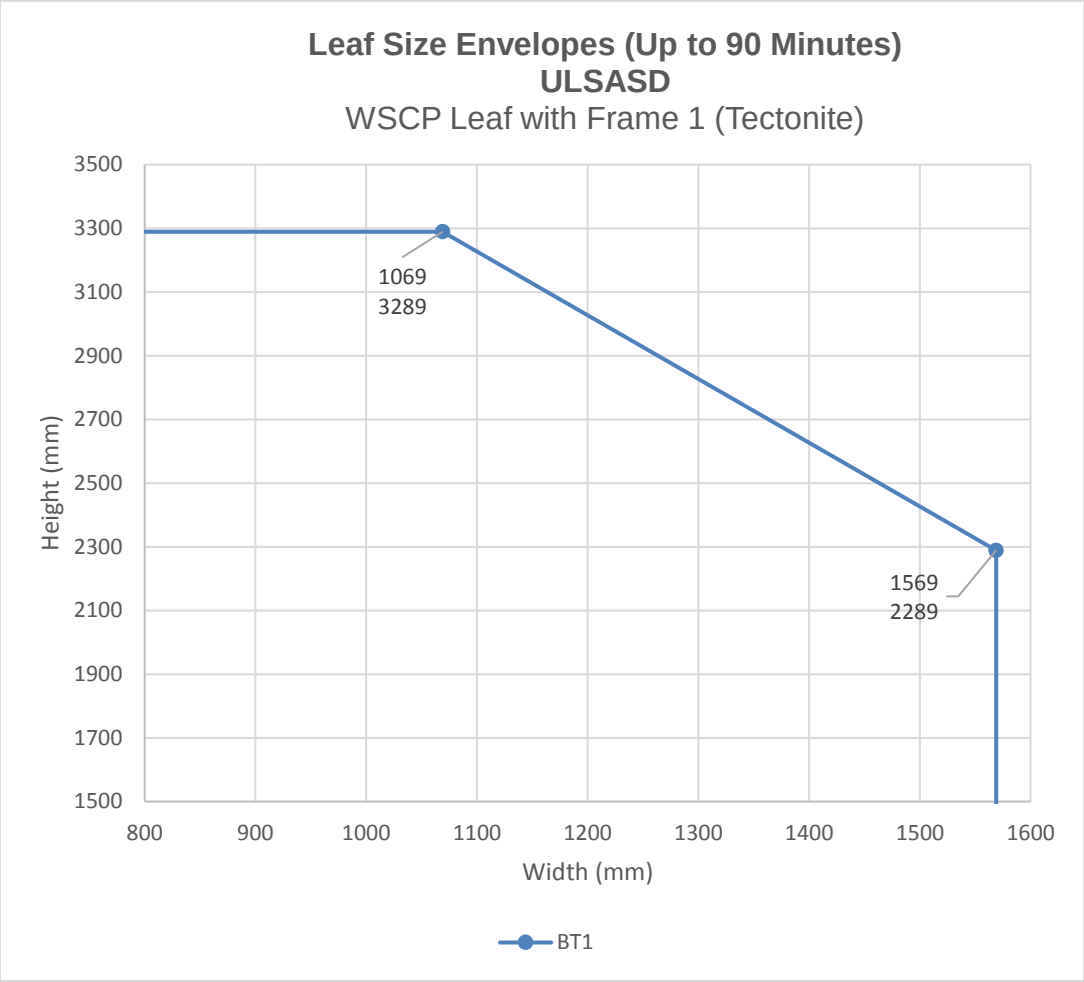
4.5.5.7 120 minutes doorset with Frame 3



Intumescent Specification for LSASD – 120 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
AH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

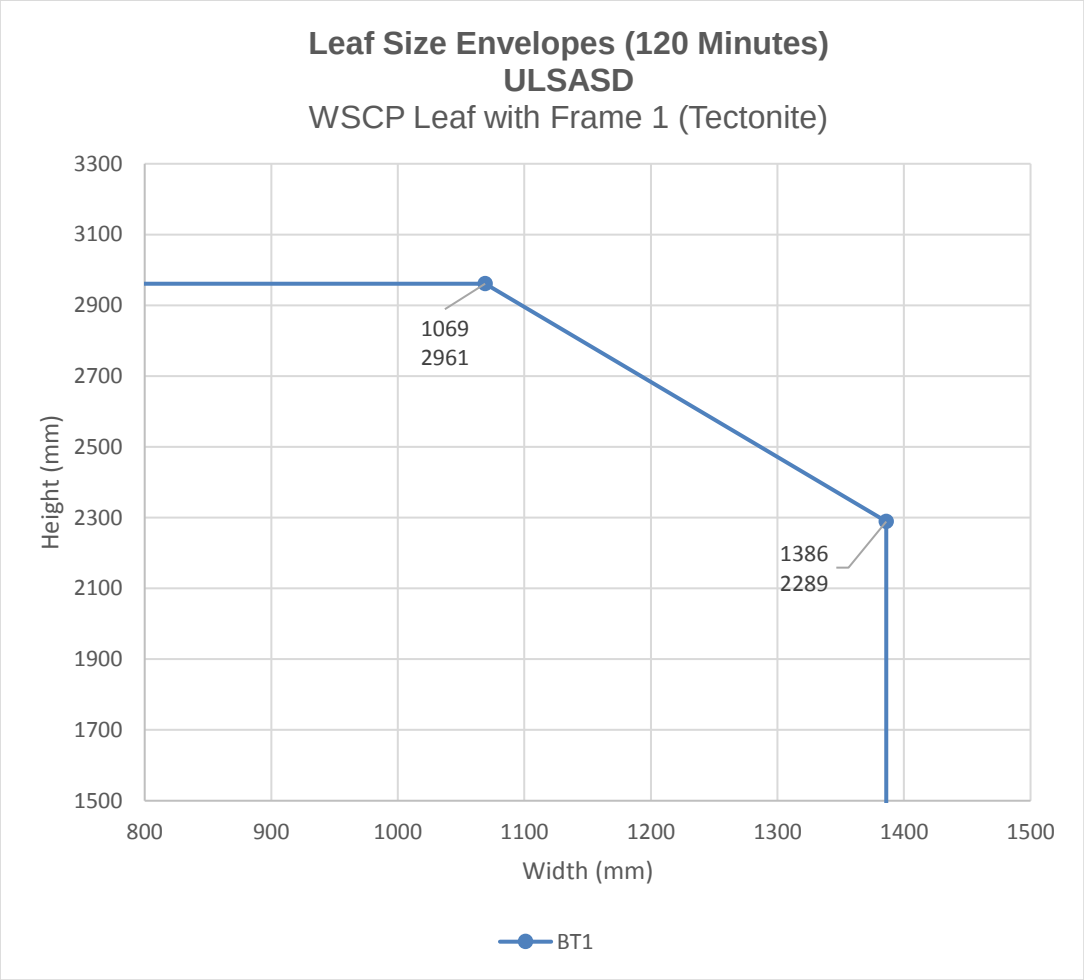
4.5.6 ULSASD Configuration: Leaf Sizes & Intumescent Specification

4.5.6.1 Up to 90 minutes doorset with Frame 1



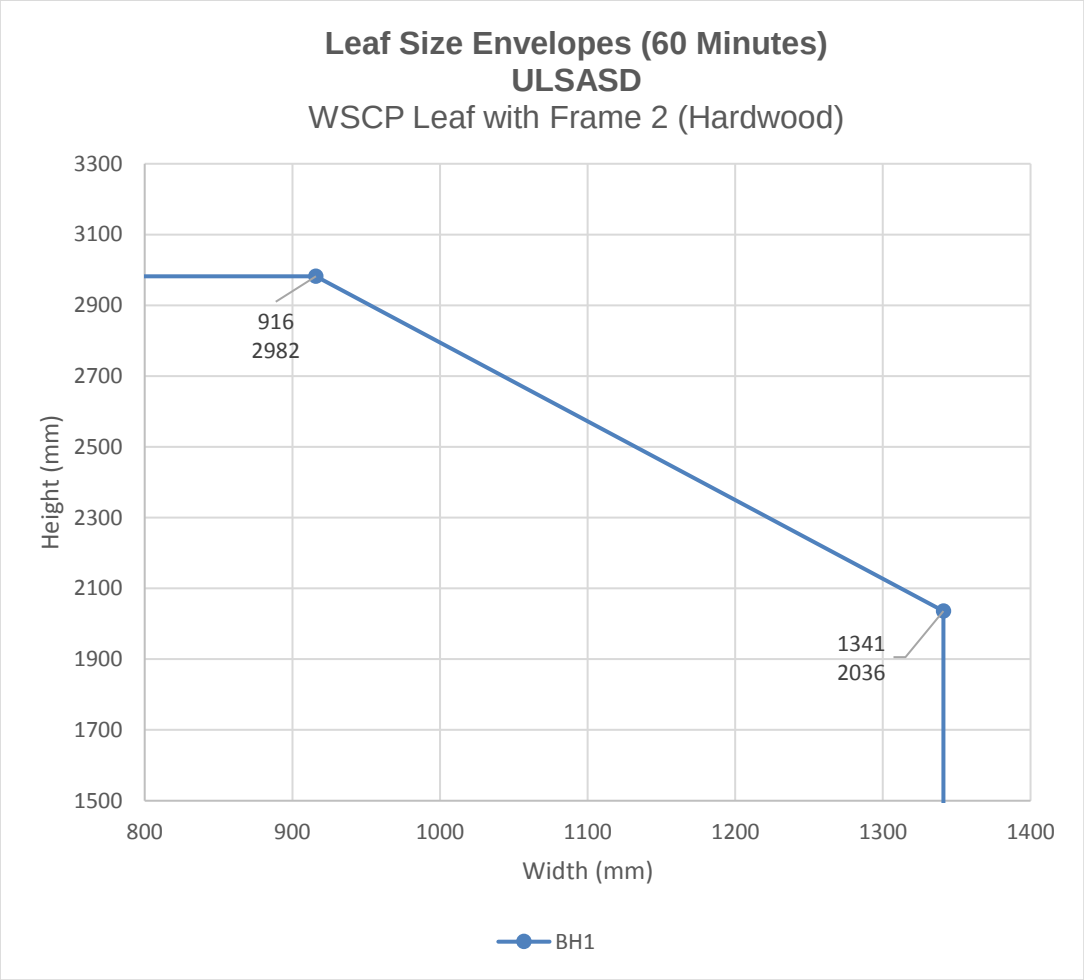
Intumescent Specification for ULSASD – Up to 90 minutes Warm Springs Composite Products Leaf with Frame 1 (Tectonite)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BT1 (**CFR1410311**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.6.2 120 minutes doorset with Frame 1



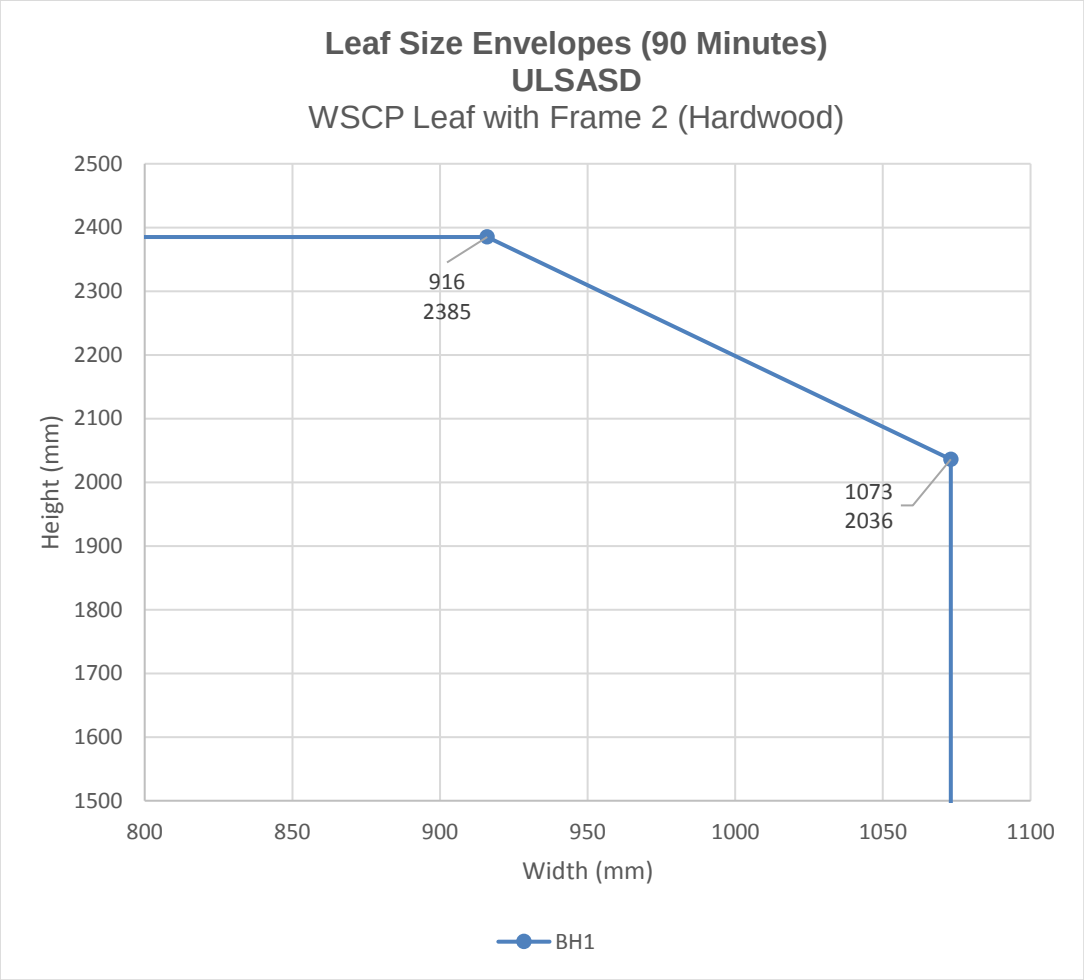
Intumescent Specification for ULSASD – 120 minutes Warm Springs Composite Products Leaf with Frame 1 (Tectonite)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BT1 (**CFR1410311**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.6.3 60 minutes doorset with Frame 2



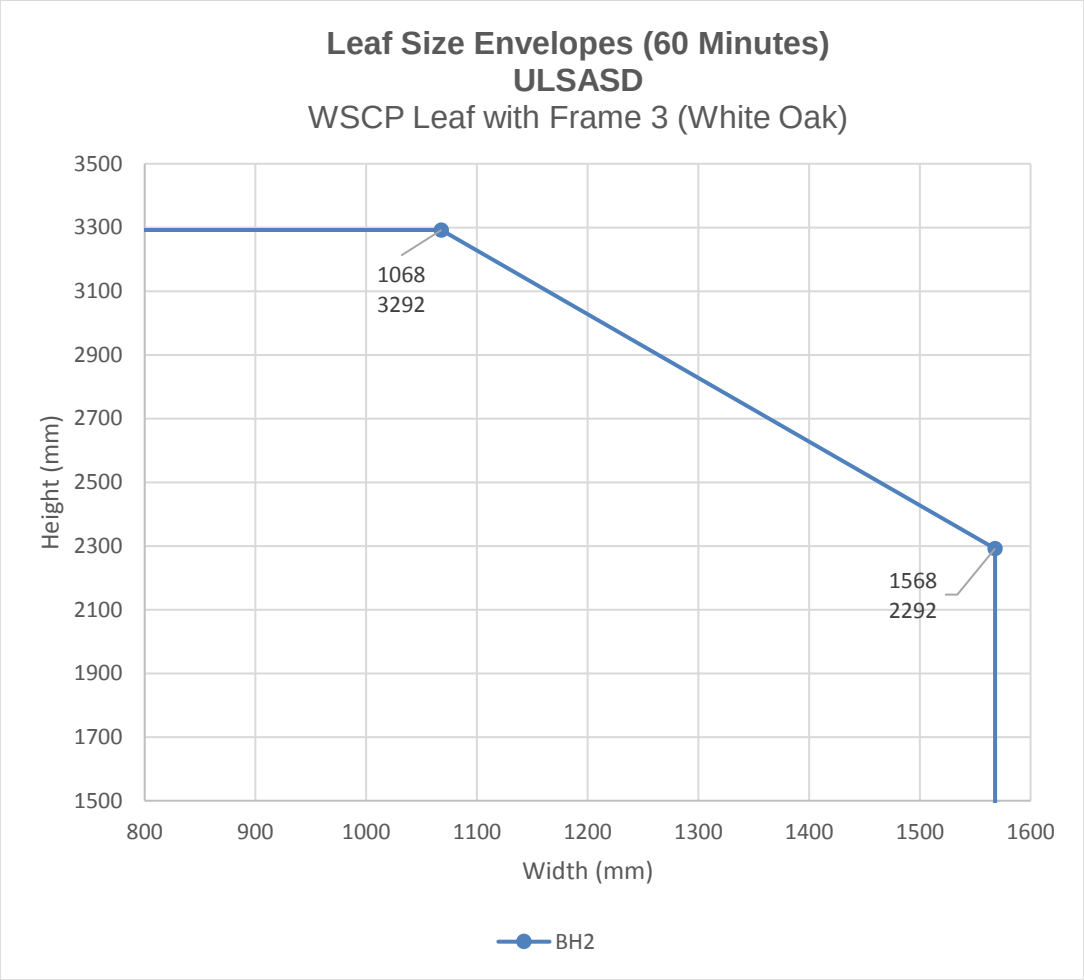
Intumescent Specification for ULSASD – 60 minutes Warm Springs Composite Products Leaf with Frame 2 (Hardwood)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BH1 **(RF12178 Doorset A)**	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.6.4 90 minutes doorset with Frame 2



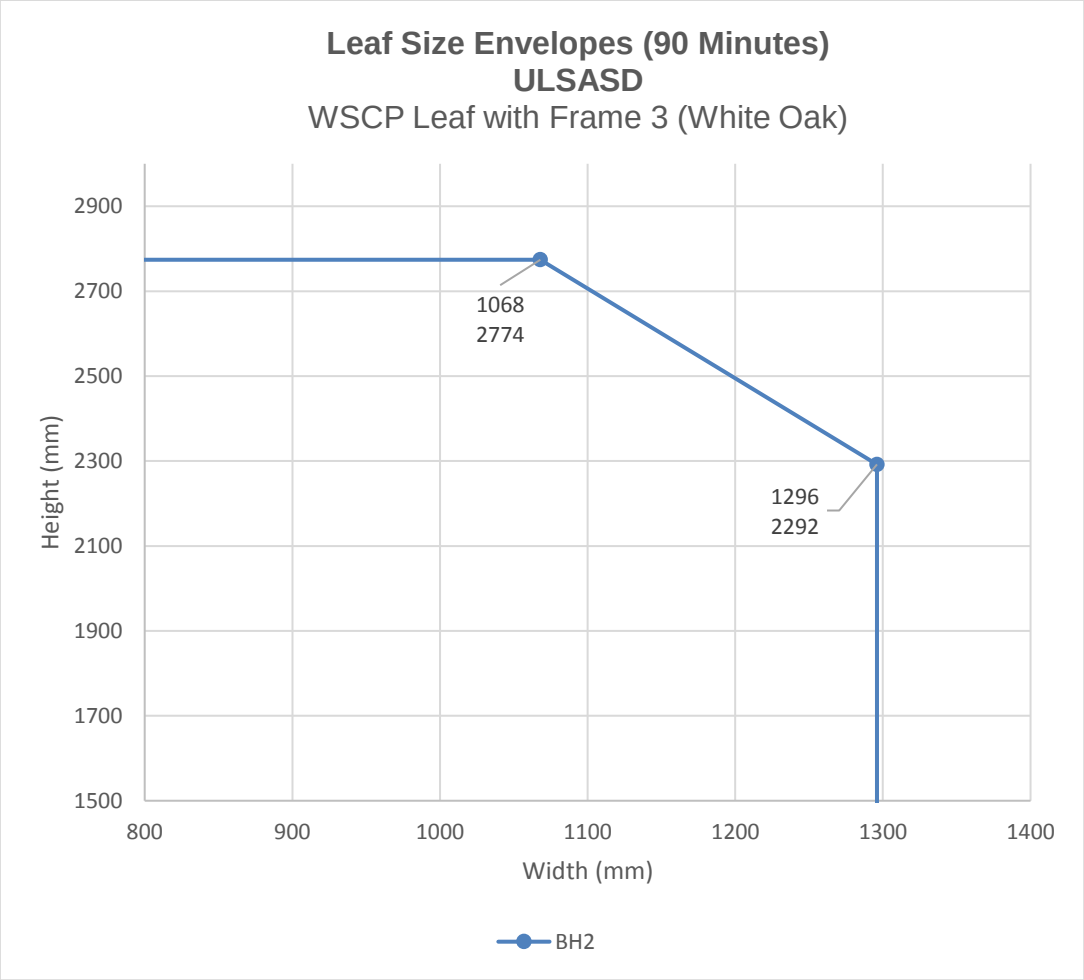
Intumescent Specification for ULSASD – 90 minutes Warm Springs Composite Products Leaf with Frame 2 (Hardwood)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BH1 **(RF12178 Doorset A)**	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.6.5 60 minutes doorset with Frame 3



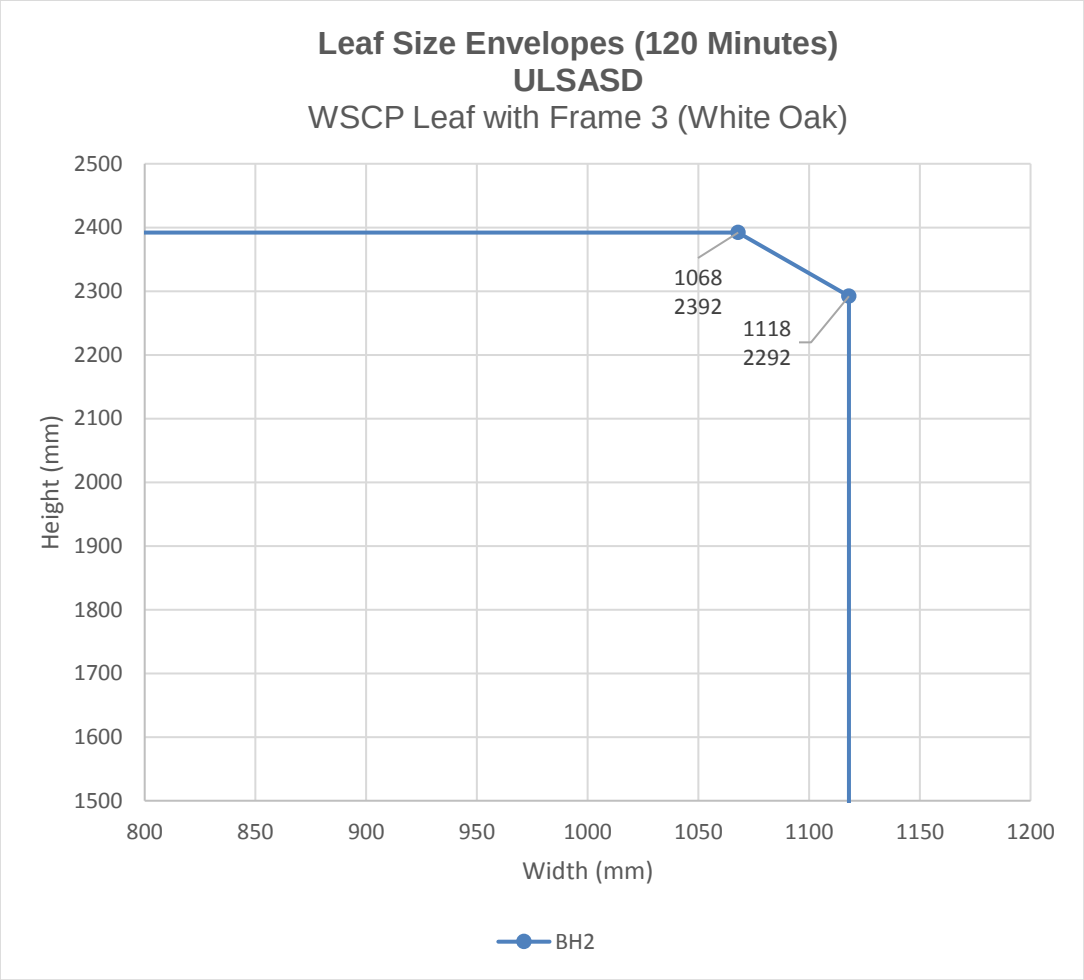
Intumescent Specification for ULSASD – 60 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

4.5.6.6 90 minutes doorset with Frame 3



Intumescent Specification for ULSASD – 90 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

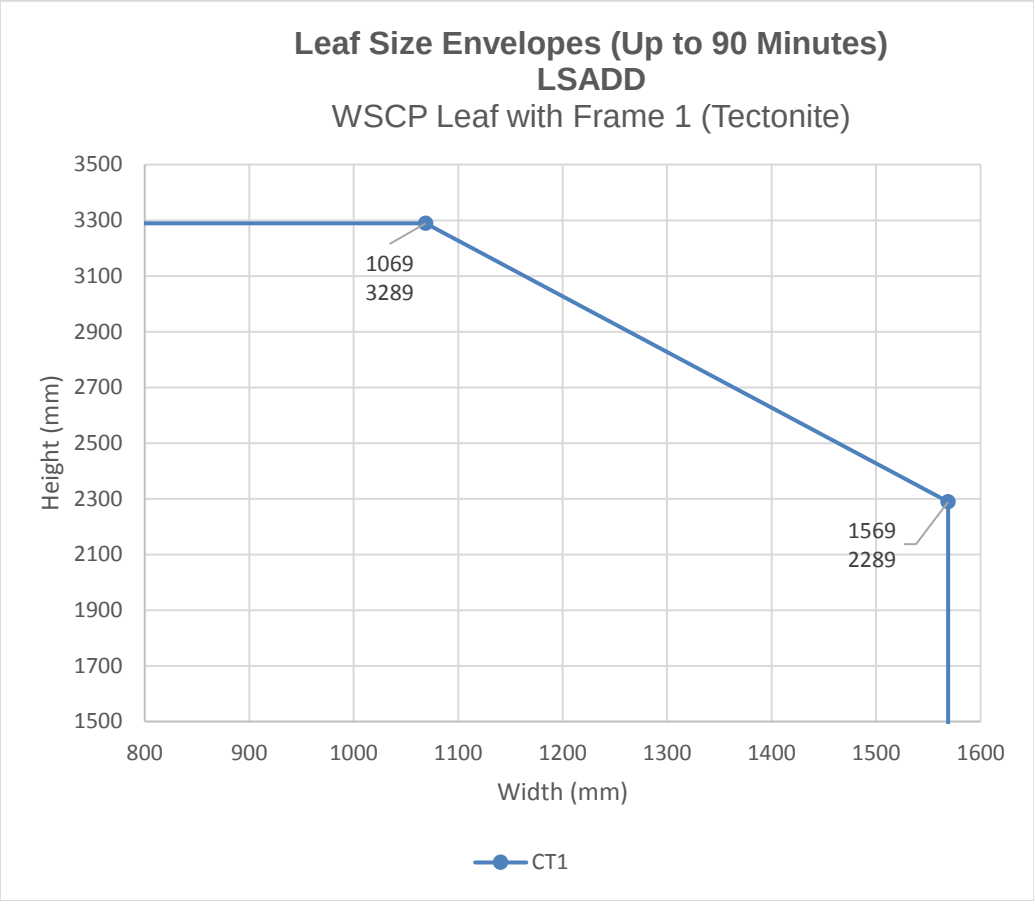
4.5.6.7 120 minutes doorset with Frame 3



Intumescent Specification for ULSASD – 120 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
BH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf.

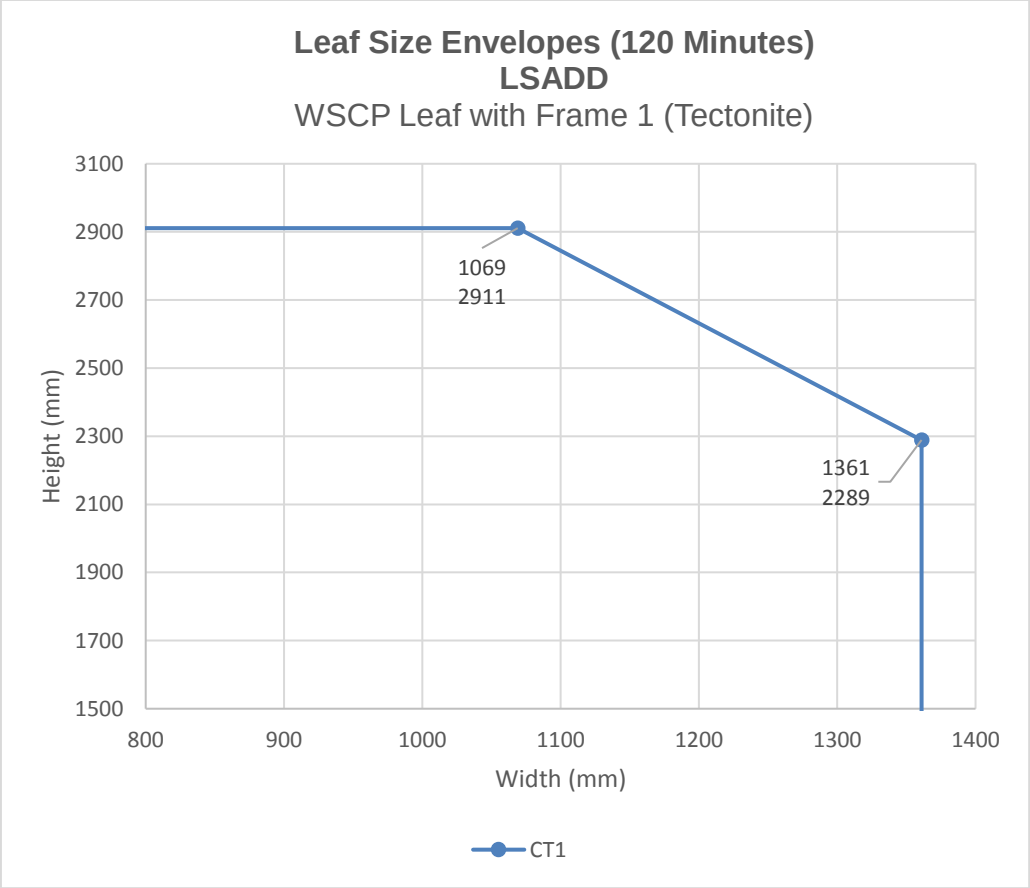
4.5.7 LSADD Configuration: Leaf Sizes & Intumescent Specification

4.5.7.1 Up to 90 minutes doorset with Frame 1



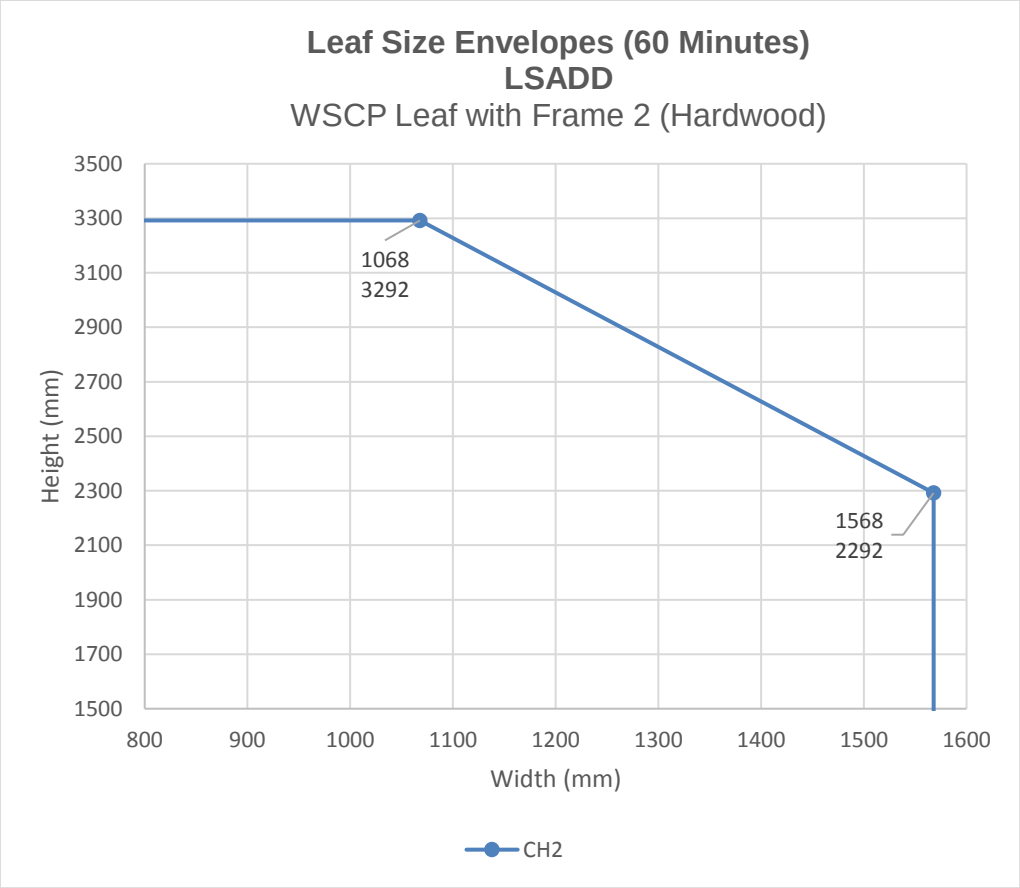
Intumescent Specification for LSADD – Up to 90 minutes Warm Springs Composite Products Leaf with Frame 1 (Tectonite)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
CT1 (**CFR1410311**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.7.2 120 minutes doorset with Frame 1



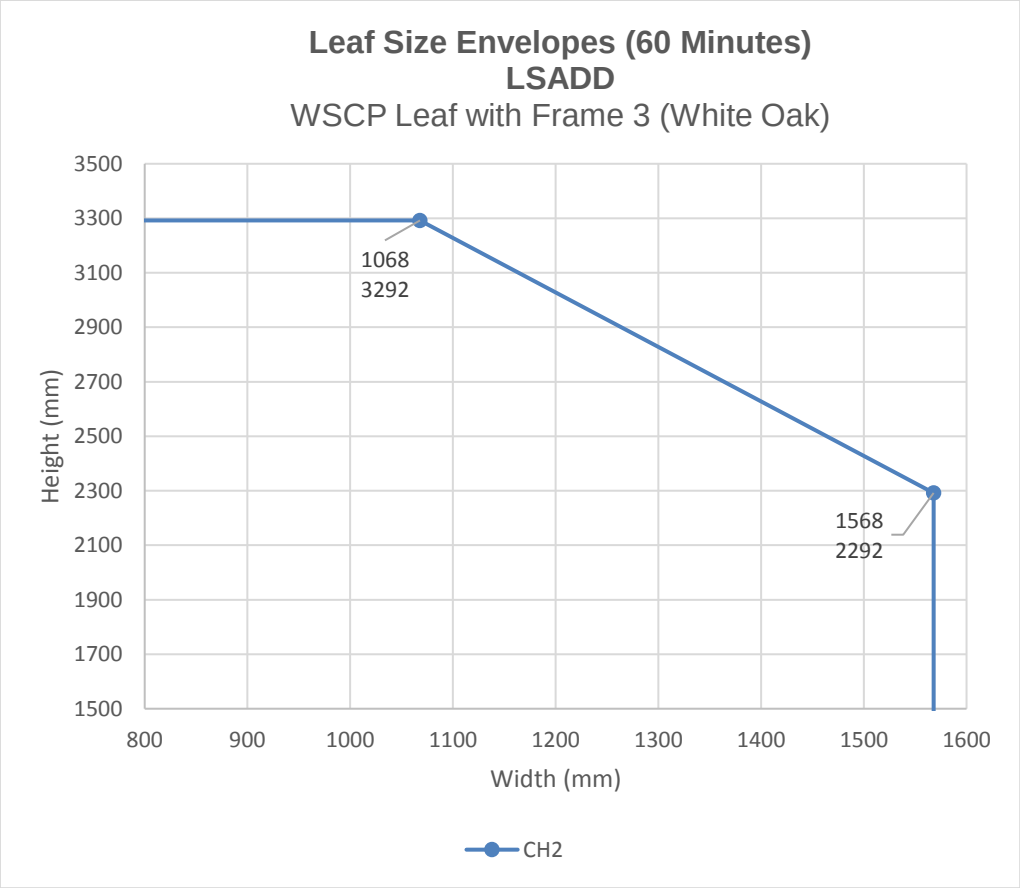
Intumescent Specification for LSADD – 120 minutes Warm Springs Composite Products Leaf with Frame 1 (Tectonite)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
CT1 (**CFR1410311**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.7.3 60 minutes doorset with Frame 2



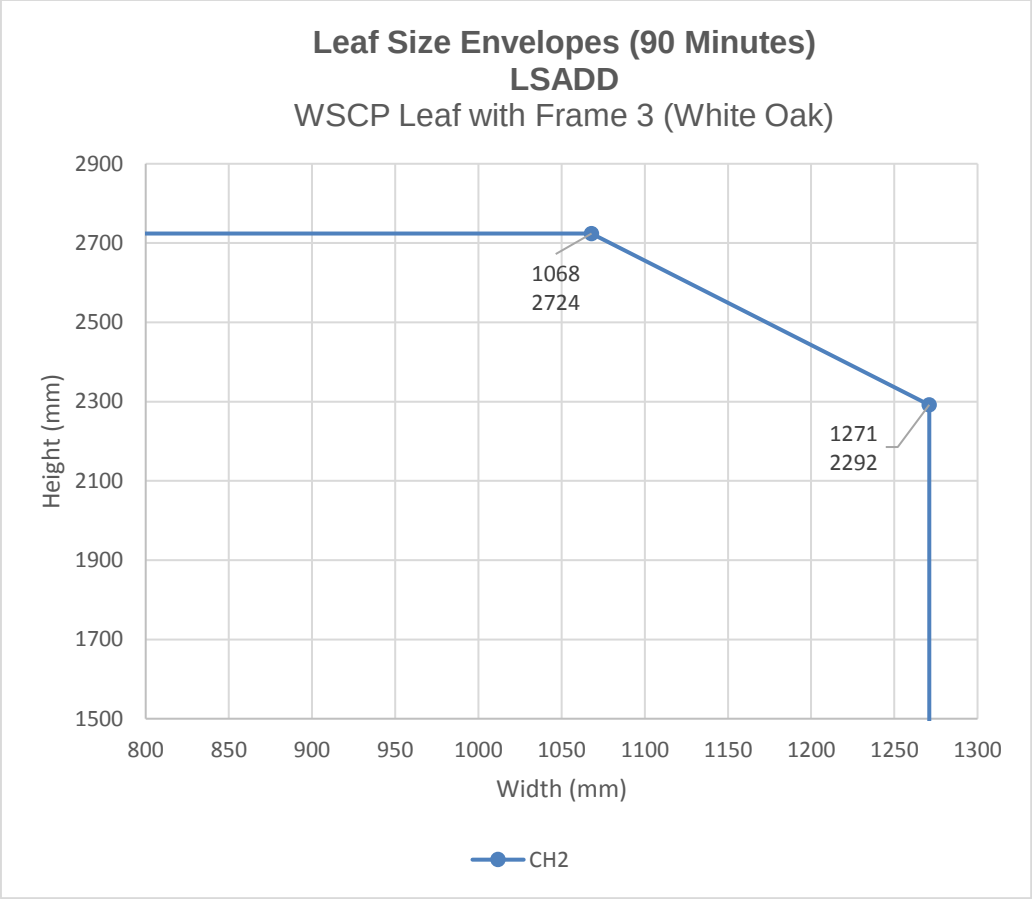
Intumescent Specification for LSADD – 60 minutes Warm Springs Composite Products Leaf with Frame 2 (Hardwood)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
CH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.7.4 60 minutes doorset with Frame 3



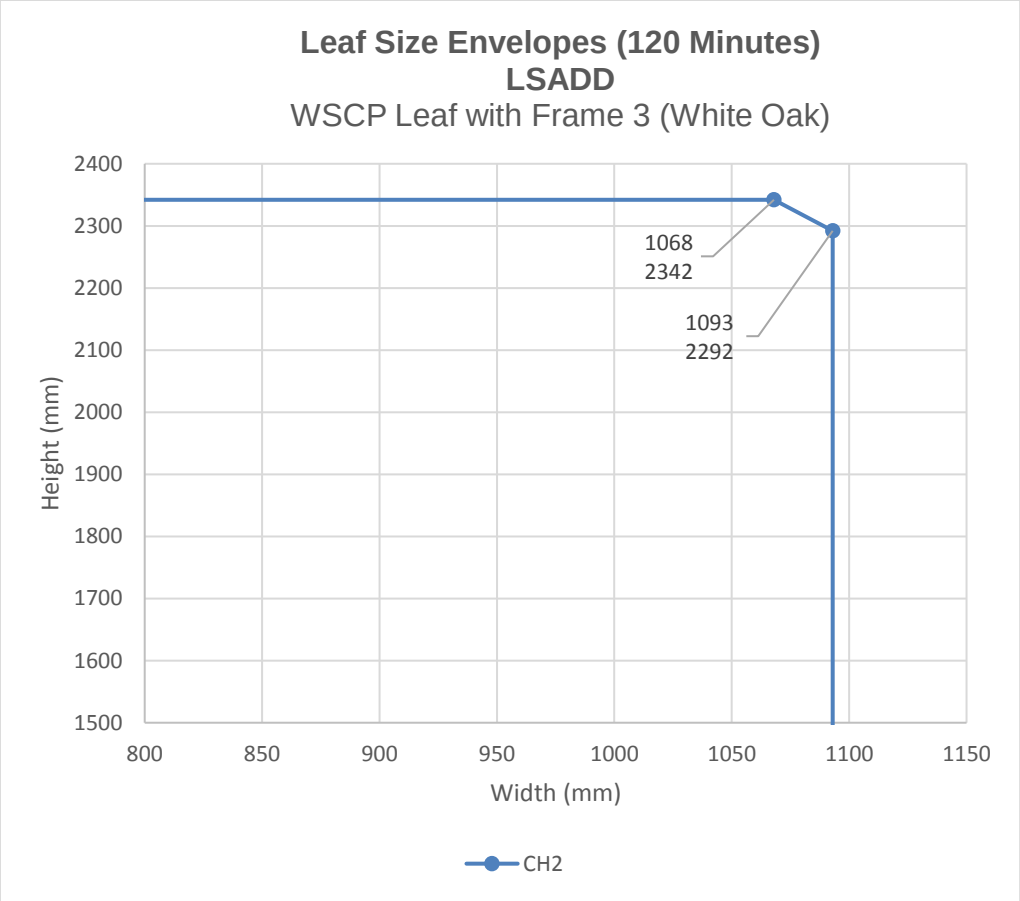
Intumescent Specification for LSADD – 60 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
CH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.7.5 90 minutes doorset with Frame 3



Intumescent Specification for LSADD – 90 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
CH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

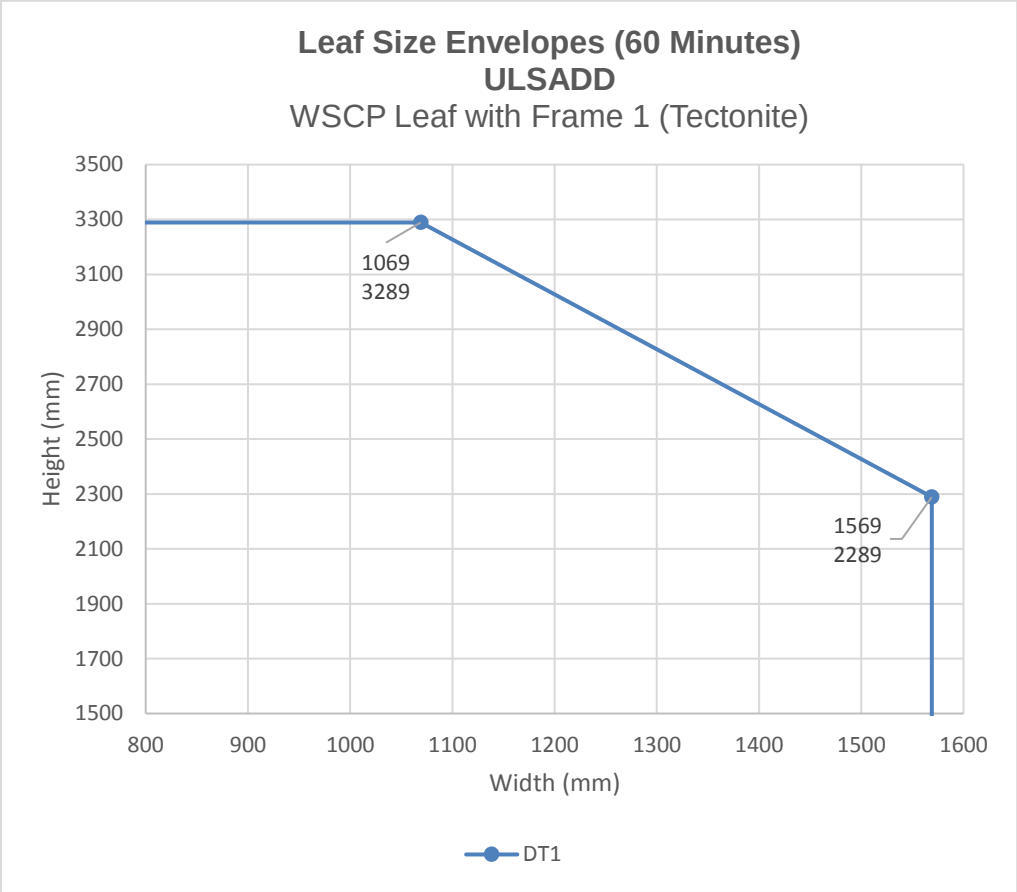
4.5.7.6 120 minutes doorset with Frame 3



Intumescent Specification for LSADD – 120 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
CH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

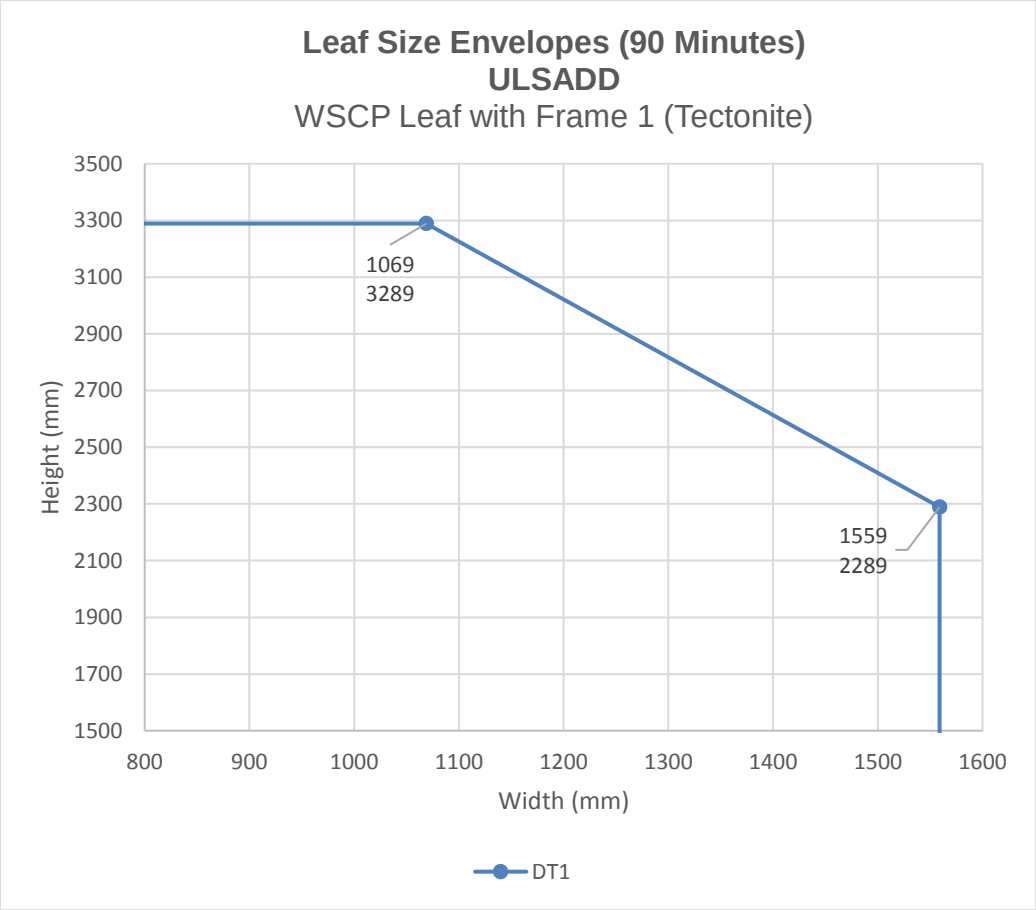
4.5.8 ULSADD Configuration: Leaf Sizes & Intumescent Specification

4.5.8.1 60 minutes doorset with Frame 1



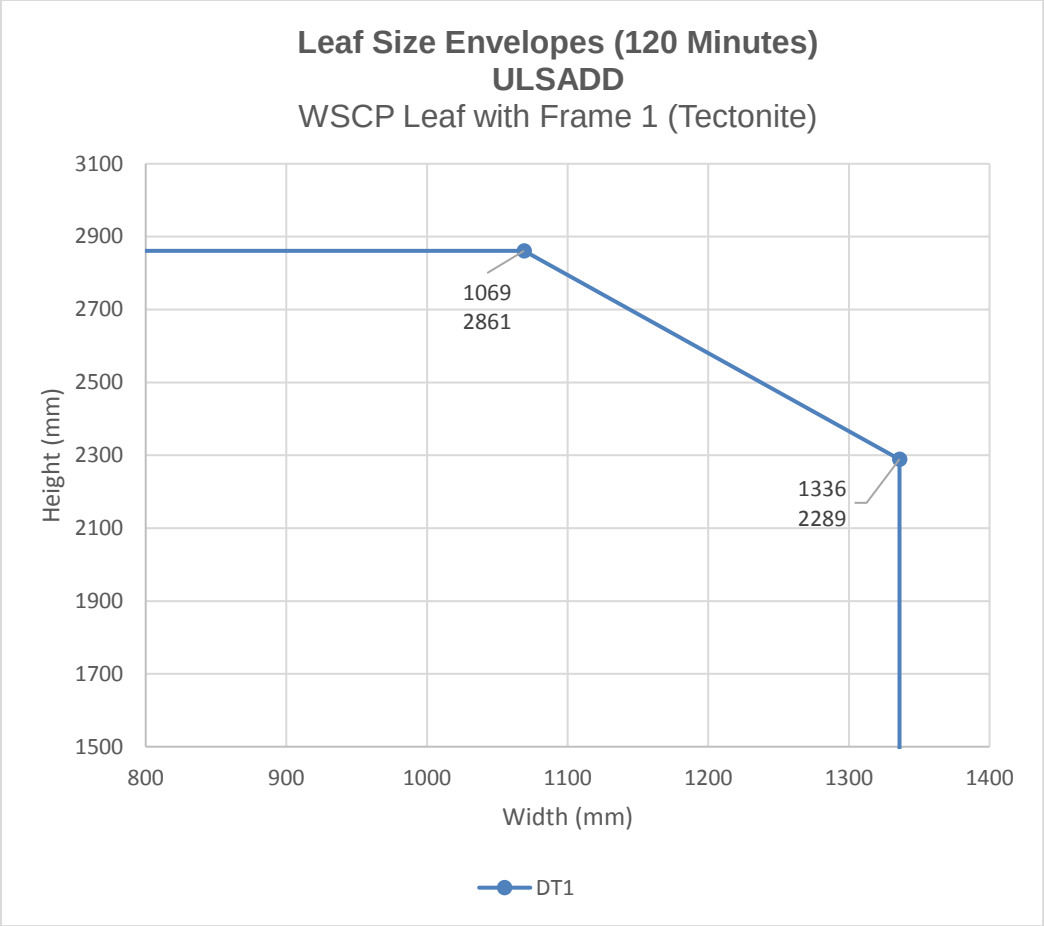
Intumescent Specification for ULSADD – 60 minutes Warm Springs Composite Products Leaf with Frame 1 (Tectonite)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
DT1 (**CFR1410311**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.8.2 90 minutes doorset with Frame 1



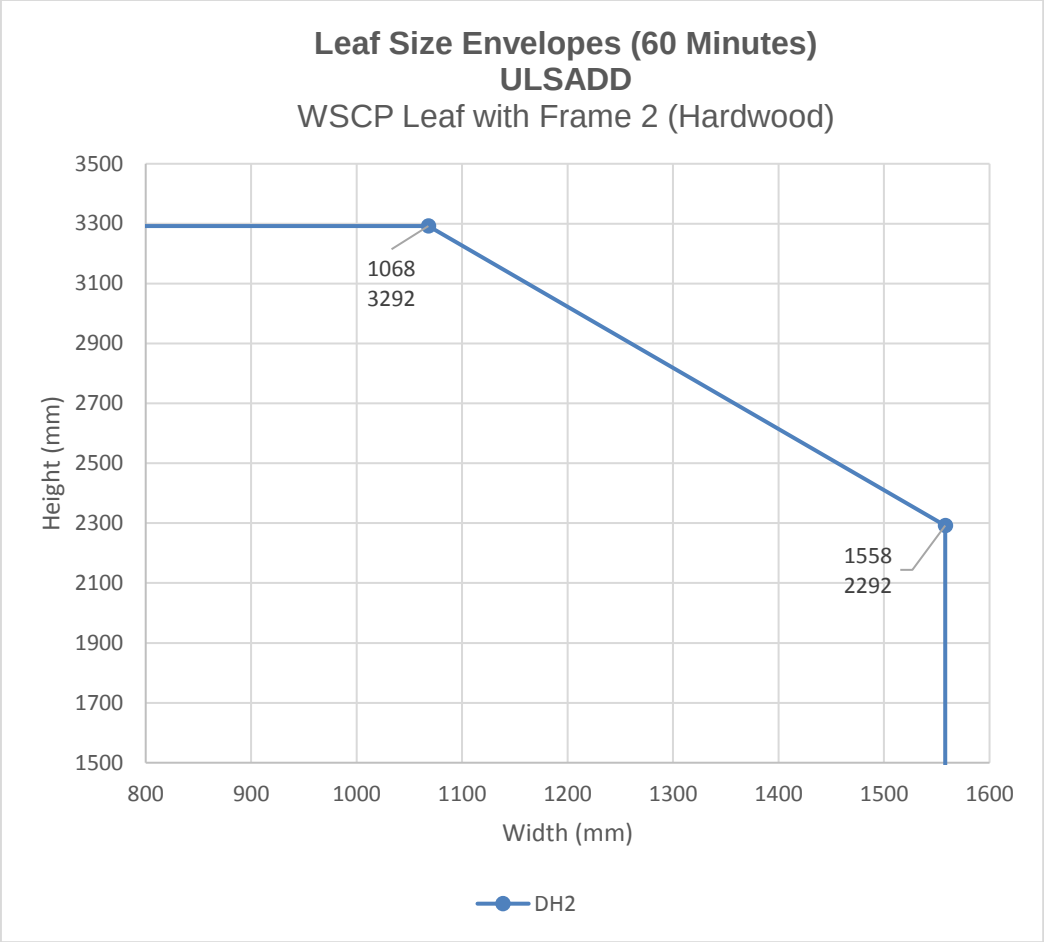
Intumescent Specification for ULSADD – 90 minutes Warm Springs Composite Products Leaf with Frame 1 (Tectonite)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
DT1 (**CFR1410311**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.8.3 120 minutes doorset with Frame 1



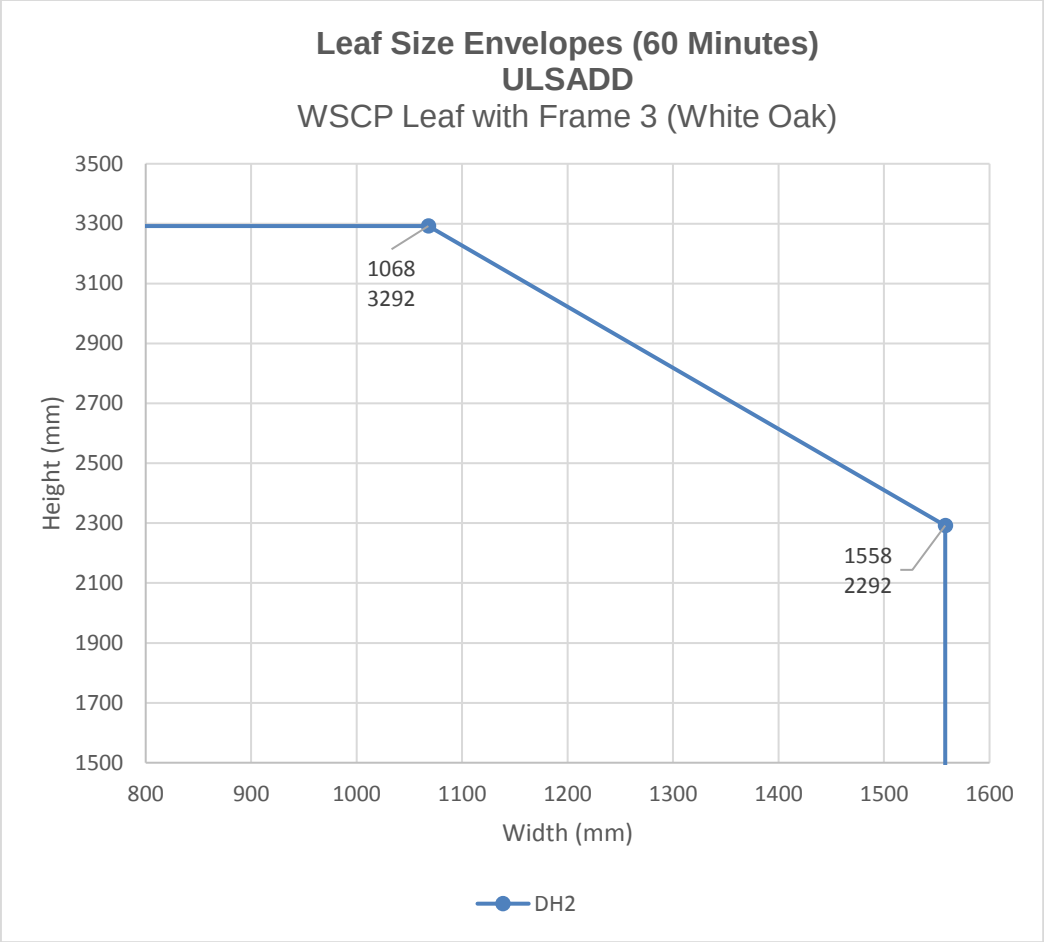
Intumescent Specification for ULSADD – 120 minutes Warm Springs Composite Products Leaf with Frame 1 (Tectonite)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
DT1 (**CFR1410311**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.8.4 60 minutes doorset with Frame 2



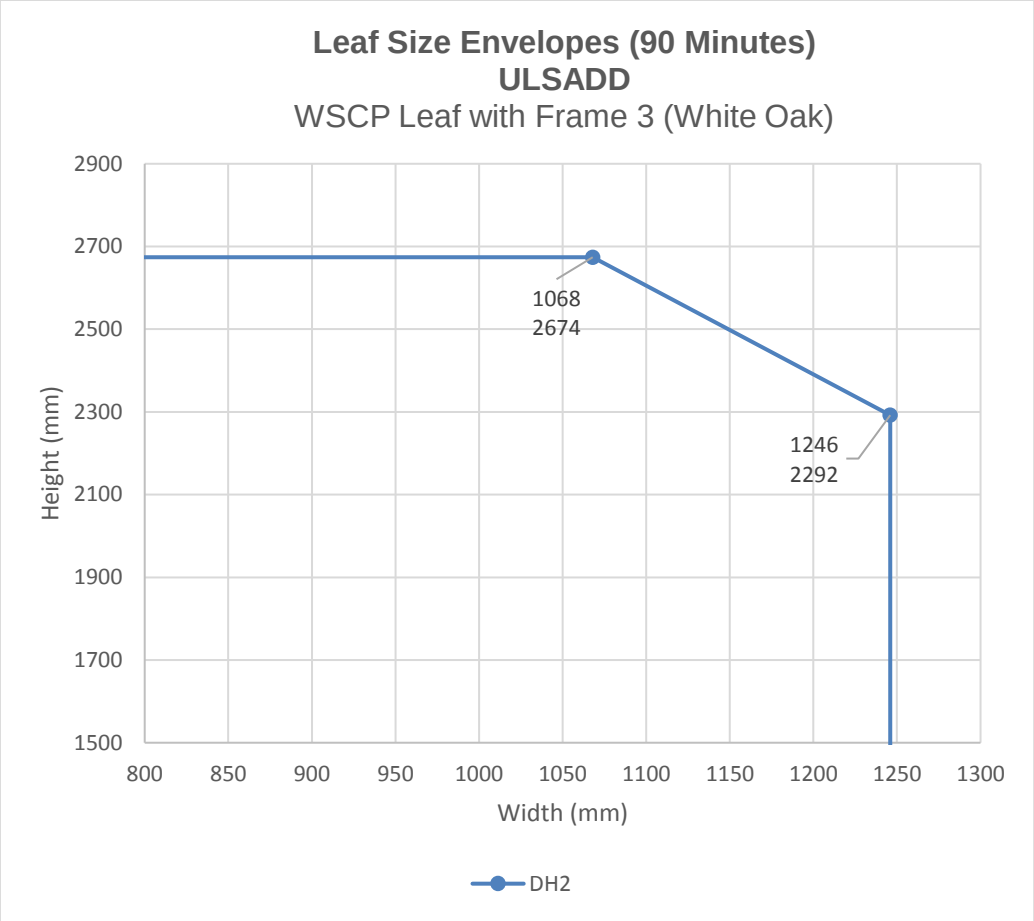
Intumescent Specification for ULSADD – 60 minutes Warm Springs Composite Products Leaf with Frame 2 (Hardwood)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
DH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.8.5 60 minutes doorset with Frame 3



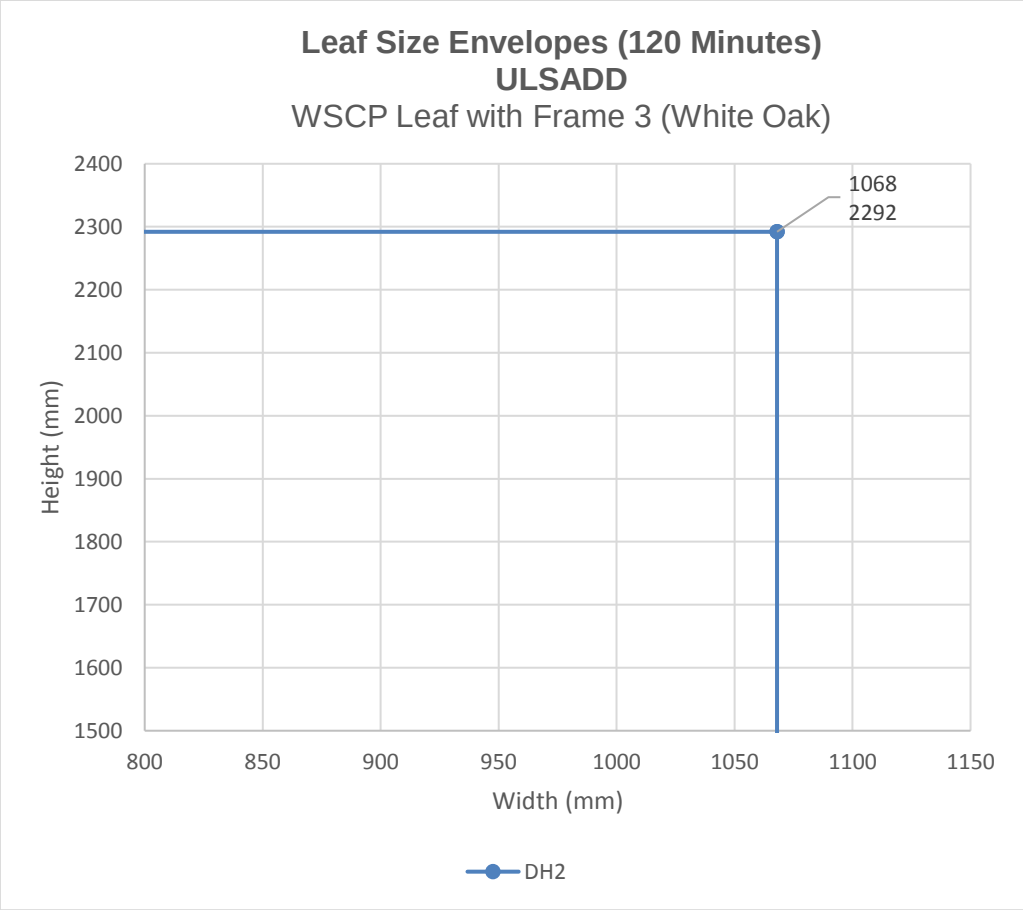
Intumescent Specification for ULSADD – 60 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
DH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.8.6 90 minutes doorset with Frame 3



Intumescent Specification for ULSADD – 90 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
DH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

4.5.8.7 120 minutes doorset with Frame 3



Intumescent Specification for ULSADD – 120 minutes Warm Springs Composite Products Leaf with Frame 3 (White Oak)			
Intumescent Spec. Reference & (Test Reference)	Make / Type	Manufacturer / Supplier	Location & Size
DH2 (**CFR1103111**)	WSCP PVC-seal & WSPC Flex-seal	Warm Springs Composite Products Ltd	**Head & Jambs:** 2no 22 x 4 graphite in PVC carrier fitted 7mm from opening face and 8mm apart in frame reveal **Bottom Edge of Leaf:** 1No. 47 x 1mm thick WSCP Flex-seal raw graphite type, fitted centrally in a rebate in bottom of leaf. **Meeting Edge:** 1no 22 x 4 fitted 7mm from opening face in master leaf. 1no 22 x 4 fitted 7mm from opening face in slave leaf.

5 General Description of Leaf Construction

5.1 Leaf Core Construction

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

Element		Material	Dimensions (mm)		Minimum Density (kg/m^3)
Stiles		Tectonite	Minimum	25 (w) x 51 (t)	1000 + 55 /-10
			Maximum	51 (w) x 51 (t)	
Rails (top and bottom)		Tectonite	Minimum	51 (w) x 51 (t)	1000 + 55 /-10
			Maximum	102 (w) x 51 (t)	
Core		Warm Springs Mineral Core	51 (t)		341 +/-30
Facings	Option 1	MDF	3 (t)		700
	Option 2	HDF	3 (t)		820
	Option 3	Plywood	3 (t)		640
	Option 4	Chipboard	3 (t)		640

The leaf must be lipped as specified in section 5.5.

The minimum leaf thickness after calibration is 56mm (i.e. a maximum of 0.5mm from both sides).

The minimum leaf thickness after finishes applied is 57mm.

5.2 Multi Piece Core, Stiles and Rails

5.2.1 Multi Piece Core

The testing conducted on the designs as detailed within CFR1009081 and CFR1103111 used door cores comprising multiple pieces (between 3 and 6). This testing demonstrates that when a multipiece core is bonded together it behaves in a similar manner to a single piece core. It is therefore permitted to construct the door design using multiple pieces of core up to a maximum number of six individual pieces glued together using cross linked PVA. Providing the following conditions are met:

- There are no gaps between butt jointed core sections.
- The pieces may be rectangular or square of different dimensions to suit the door construction.
- Vertical joints in the core material must be positioned within the vertical half of the door leaf towards the hinge side, which replicates the arrangement of core tested within CFR1103111.
- The door core must be framed on all sides with stiles and rails as detailed within section 5.1

5.2.2 Multi Piece Stiles and Rails

It is not permitted to produce the stiles and rails within the door construction from multiple pieces. The each of the stiles and rails must be constructed from a single length of material.

5.3 Banded Door Cores and Components

The door design can be supplied by Warm Springs Composite Products (WSCP) as Banded Door Cores (BDC) or as separate components to be constructed by the end user. In either case the door cores are to be constructed in strict accordance with the specification given in this field of application for the relevant door design.

5.4 Leaf Size Adjustment During Manufacturing

As noted in section 5.1, as standard, the WSCP leaves are manufactured with stiles and rails as part of the construction. These have been tested at a range of rail and stile dimensions.

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

Pre-Machining Leaf Size Adjustment Specification	
Element	Reduction
Leaf	The manufactured size of the leaf may be adjusted at any edge providing the rails and stiles are not reduced below the minimum dimensions given in section 5.1, and providing the finished leaf is lipped in accordance with section 5.5
Timber Lipping	The timber lipping thickness can be reduced after it has been glued in place, providing it is not reduced below the minimum stated in section 5.5

5.5 Timber Lipping

The testing documented in section 3 has generally been undertaken using 3-4mm thick lippings applied to either both vertical edges or to all edges using hardwood (such as American White Oak and Sapele) at varying densities. Both cross linked PVA and Holt Melt (K-78GL-Supramelt – in CFR1103111) adhesives have been used to apply the lippings.

On the above basis, WSCP door blanks must be lipped with the following specification, for all leaf types.

Timber Lipping Specification for WSCP door blanks		
Material	Size (mm)	Min Density (kg/m^3)
Hardwood which must be joinery quality which is free defects	Flat = 3-4 thick with a maximum of 2mm profiling permitted at corners of lipping	640

Notes:

1. The use of Beech (*Fagus sylvatica*) is not permitted.
2. All lippings may be either the full thickness of the door leaf construction or alternatively may be over sailed by the 3mm facing material.
3. Overpanels separated from the leaf heads with a transom do not need to be lipped.
4. Single and double doorsets with or without transomed overpanels only require lipping on the vertical edges but may be additionally lipped on the top and bottom edges if required as tested (Chilt/RF12178 – lipped on all edges).
5. Rebated meeting edges are not permitted.
6. A 2.5^o chamfer is permitted to the lipping at the leading edge of leaves providing the door gaps meet the requirements of section 11.7.
7. Lippings can be bonded with cross linked PVA or Hotmelt adhesive as detailed in section 9. These may be hand applied or may be applied using an edgebander. In all cases the adhesive manufacturers specification must be followed.

5.6 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 for this door design since they would have limited influence under fire resistance test conditions.

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

Notes:

1. Metallic facings are not permitted except for push plates and kick plates
2. The door leaf thickness may be reduced on both sides by a maximum of 0.5mm for calibration purposes in order to accommodate the chosen finish. The minimum overall leaf thickness must remain at 56mm after finishing has been applied.
3. Materials may over sail lippings but must not return around leaf edges.
4. For all options, materials must not conceal intumescent strips.
5. Intumescent paints are not permitted.

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

5.7 Feature Grooves and recesses

The outer facing of the door leaf has been deemed as having negligible influence on the structural stability of the door design it is therefore permitted to groove / recess one or both faces of the door leaf with any decorative pattern subject to the following limitations:

- Feature grooves and patterned recess features may be applied to the leaves hung within frame option 1, 2 and 3.
- Feature grooves and patterned recess features cannot be located within 200mm of the leaf edges, apertures within the leaf or elements of building hardware.
- The amount of material removed from any one face must not exceed 30% of the leaf face area.
- The depth of the groove / recess must not exceed 3mm

6 Glazing within the Leaf

6.1 General

The testing conducted on WSCP door leaf design has demonstrated that it is capable of tolerating glazed apertures. For example, test reference CFR1806192 details the testing of a section of WSCP core which included a glazed aperture measuring 1450mm high x 150mm wide, which when subject to test conditions maintained an integrity performance of 132 minutes.

Based on the evidence submitted for the WSCP door leaf design as summarised within section 3 the maximum assessed glazed area permitted within any one door leaf for all configurations is 0.29m² for up to 120 minutes fire resistance.

Multiple apertures are acceptable within the permitted glazed area, with a minimum dimension of 150mm of core between apertures based on the minimum distance tested from a glazed aperture to the edge of the leaf.

The subsequent sections contained herein outline the permitted glass types and glazing systems, each section also details specific requirements to installation, positioning and maximum glass size of any single aperture.

In all instances the glazing seal between the bead and the glass should generally be in accordance with the manufacturer's instructions with a tight fit present between the substrates.

All glazing apertures must be lined with a tectonite aperture liner of 43 to 51mm (w) x 51mm (t), adhered to the core prior to the fitting of the leaf facings, using the same adhesives as permitted for stiles and rails.

All glass types must be fitted fully in accordance with the tested details & installation requirements, particularly with respect to edge cover and expansion tolerances. Glass should be aligned within the aperture using non-combustible setting block placed at the bottom horizontal edge only, sized to provide edge cover and expansion allowance as the specific system requires.

6.2 Single Pane Glass & Glazing Systems – Up to 120 minutes

The glass and glazing system must be one of the following proprietary tested systems. The maximum assessed area of glazing for each permitted glass type and glazing system is given.

6.2.1 Option 1 – 5mm Firelite with Lorient System 90+ (WF63295)

Test reference Warres 63295 was conducted on a door design which is considered fundamentally the same as the WSCP design which achieved a performance of 149 minutes under test conditions.

Based on the equivalence of the door construction and the 24% margin of overrun in performance achieved by the glazing system, we consider that the Lorient system 90+ can be used for glazing the WSCP doorset design.

The maximum assessed glazed area for any one aperture is 0.18m².

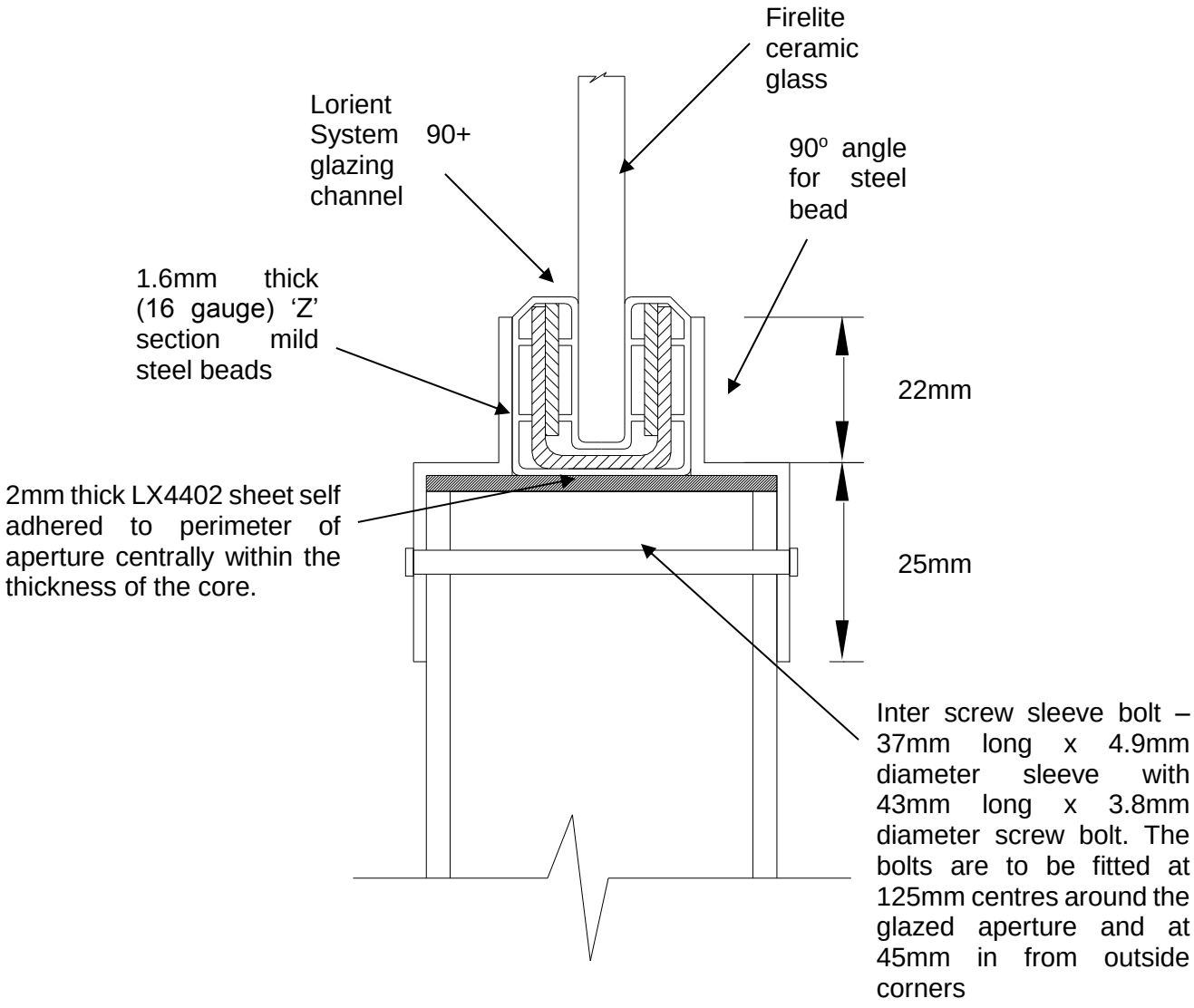
Glazed openings must not be less than 210mm from the head of the door and 150mm vertical edges. (based on the testing undertaken within CFR1806192 Revision 1).

Aperture shape must be square or rectilinear.

The approved system is to be installed as follows.

Element	Make/Type	Size (mm)	Location
Glass Type	Firelite ceramic glass	5 thick	-
Expansion Allowance	-	2-3 all edges	-
Beading	1.6 thick stainless steel (Z section)	25 over door face 11 return across reveal 22 upstand to glass	Fitted on both faces around the perimeter of the glazing aperture and mitred at the corners
Beading Fixings	Steel sleeve bolt	M6 x length required to pass through leaf	125mm centres, 45mm from outside corners
Glazing Liner	Lorient Polyproducts Ltd – LX4402	44 wide x 2 thick	Fitted lining the aperture within the door leaf, centrally within the thickness of the leaf.
Glazing Channel	Lorient Polyproducts Ltd – System 90+	27 wide x 27 high channel with 6mm rebate to facilitate the glass.	Fitted at the perimeter of the glass on all edges fastened between the two bead sections.

A sectional drawing detailing the assessed glazing system is shown below:


Firelite ceramic glass
Lorient System 90+ glazing channel
90° angle for steel bead
1.6mm thick (16 gauge) 'Z' section mild steel beads
22mm
2mm thick LX4402 sheet self adhered to perimeter of aperture centrally within the thickness of the core.
25mm
Inter screw sleeve bolt – 37mm long x 4.9mm diameter sleeve with 43mm long x 3.8mm diameter screw bolt. The bolts are to be fitted at 125mm centres around the glazed aperture and at 45mm in from outside corners

6.2.2 Option 2 – 10mm Pyrodur with Fireglaze 2000 (CFR1806192 Rev 1)

Test referenced CFR1806192 was conducted on the WSCP door leaf design and was fitted with a Sealmaster Ltd, Fireglaze 2000 glazing system and achieved an integrity performance of 132 minutes.

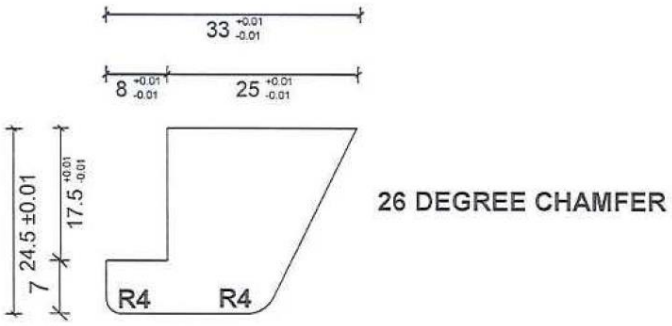
The tested and therefore approved system is to be installed as follows and may be used in all door designs and configurations for up to 120 minutes performance.

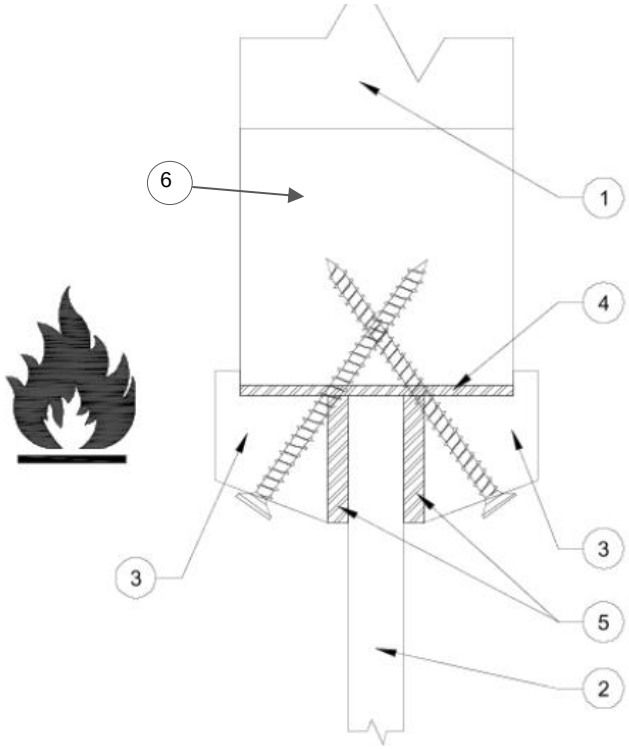
The maximum assessed glazed area for any one aperture is 0.22m².

Glazed openings must not be less than 210mm from the head of the door and 150mm vertical edges.

The approved system is to be installed as follows:

Element	Make/Type	Size (mm)	Location
Glass Type	Pilkington Pyrodur EW60-10	10mm thick	-
Expansion Allowance	-	3 all edges	-
Beading	Hardwood of minimum density 770 kg/m^3 (the use of Beech, *Fagus sylvatica*, is not permitted) Timber for glazing beads must be joinery quality, free from defects.	As detailed in the image below.	Positioned to both faces of the glass at the entire perimeter of the aperture.
Beading Fixings	PVA adhesive and 74mm long x ø4.5 steel screws at no more than 50mm from any corner, at maximum 150mm nominal centres on the vertical edges and at maximum 75mm nominal centres on the horizontal edges, inserted at 30-35º to the vertical		
Glazing Liner	Dixon International Group Ltd GL60 liner	54 wide x 2 mm thick	fitted lining the glazed aperture
Glazing System	Sealmaster Fireglaze 2000	25 high x 5mm thick (uncompressed)	fitted between the glass and beads to both faces of the glass





Key:

1. WSCP Core
2. Pyrodur EW60-10
3. Hardwood Beads
4. GL60 Liner
5. Fireglaze 2000

6.3 Single Pane Glass & Glazing Systems – Up to 90 minutes

6.3.1 Option 1 – 6mm Pyran S with Norglaze Universal 90 (Chilt/IF12047 Revision A)

Test referenced Chilt/IF12047 Revision A was conducted on the WSCP design and was fitted with a Norsound Ltd, Norglaze Universal 90 glazing system.

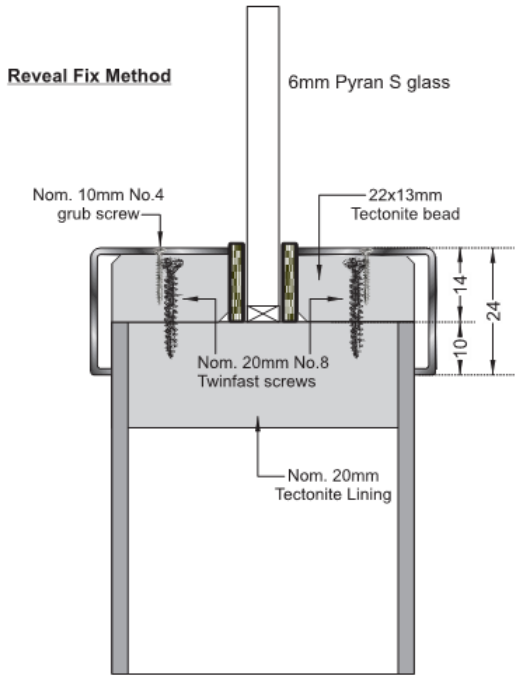
Based on the overrun in performance achieved by the glazing system, we consider that the Norglaze Universal 90 glazing system can be used for glazing the WSCP doorset design for up to 90 minutes fire resistance applications.

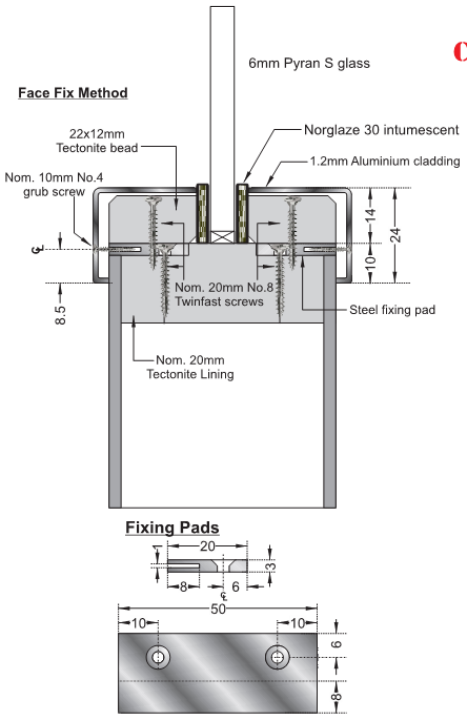
The maximum assessed glazed area for any one aperture is 0.18m².

Glazed openings must not be less than 165mm from the head of the door and 165mm vertical edges.

The approved system is to be installed as follows:

Element	Make/Type	Size (mm)	Location
Glass Type	Schott Pyran S	6mm thick	-
Expansion Allowance	-	3 all edges	-
Beading	As detailed in the image below. The detailed reveal fix method has been assessed based on the positive result obtained on the face fix method which was tested within the above referenced test report.		
Beading Fixings	The beads must be fixed into the 20mm (t) tectonite aperture liner using PVA adhesive and 15mm long steel grub screws at 150mm nominal centres and no more than 50mm from any corner. See diagrams below for glazing options.		
Glazing System	Norglaze Universal 90		fitted between the glass and beads to both faces of the glass





7 Door Frame Construction

7.1 Details for Frame 1

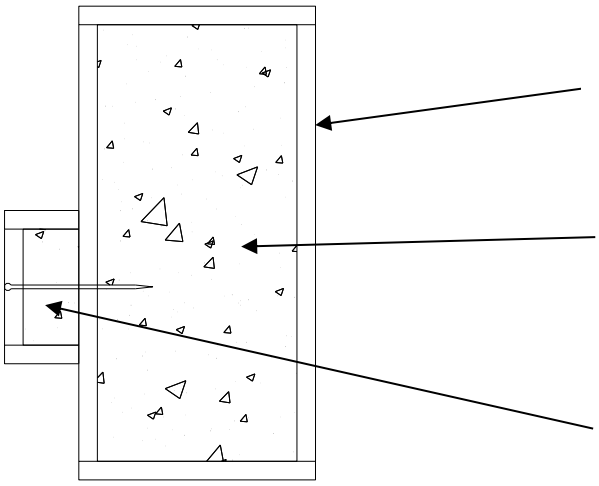
The testing conducted on WSCP door designs has demonstrated that they are capable of being fitted in frames based on Tectonite, with two options for timber cladding. In all instances the door leaf must remain in parallel to the tectonite section within the frame construction for the full thickness if the leaf.

The door frames listed below are the minimum size and density which have been successfully tested and assessed by this report. The frame must be constructed to meet the following specification for single frames, where applicable.

Frame specification			
Frame type	Material	Minimum section size (mm)	Minimum density (kg/m^3)
1a	WSCP Tectonite with veneers to the visible faces of the frame. The veneer can be optionally applied to the rear of the frame. Veneers may be MDF or hardwood, of 2-4mm thick. The use of Beech (*Fagus sylvatica*) is NOT permitted.	Overall: 98 (d) x 45 (w) (excluding stop) Tectonite component: 94 (d) x 43 (w) Hardwood or Tectonite stop: 12 (w) (planted on)	Tectonite: 1000 +55 / -10 Hardwood: 680
1b	WSCP Tectonite & hardwood composite with 4mm hardwood facing to the reveal All door frame timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects). The use of Beech (*Fagus sylvatica*) is NOT permitted.	Overall: 112 (d) x 47 (w) (excluding stop) Tectonite component: 71 (d) x 43 (w) Hardwood comprising either: 40 (d) x 47 (w) or 2no. layers 20 (d) x 47 (w) Hardwood or Tectonite stop: 12 (w) (planted on)	Tectonite: 1000 +55 / -10 Hardwood: 680

Note:

1. Minimum section size is subject to size of hardware.
2. It is permitted to fix the stop through the rear of frame with a suitable fixing penetrating the stop by 8mm.
3. A planted T-Stop stop is acceptable as depicted below.

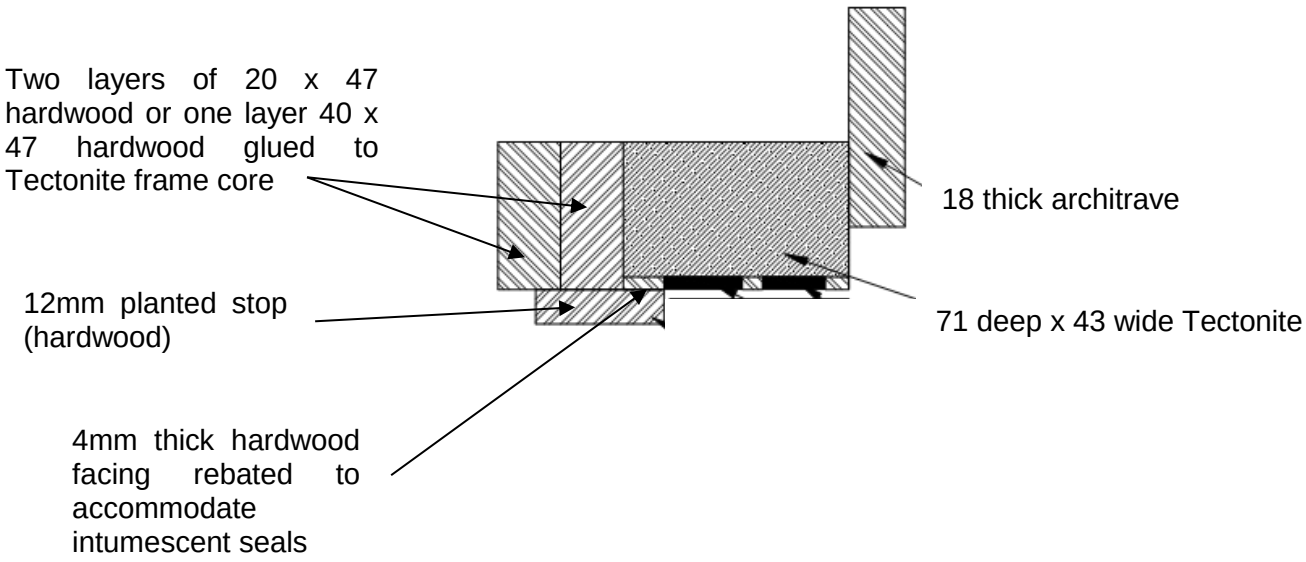


2 to 4mm hardwood or MDF veneer may be applied on all faces of the door frame

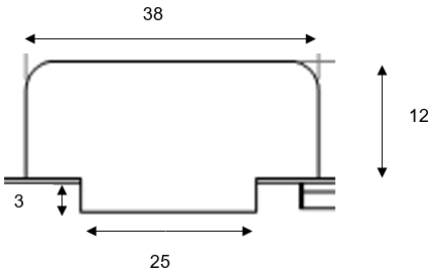
94mm (w) x 43mm (t) section of Tectonite

12mm deep planted or rebated stop (hardwood or Tectonite). The stop may be fixed by screwing through the rear of the frame. The fixing must penetrate the stop to a depth of 8mm

Frame Option 1a as detailed within in the table above.



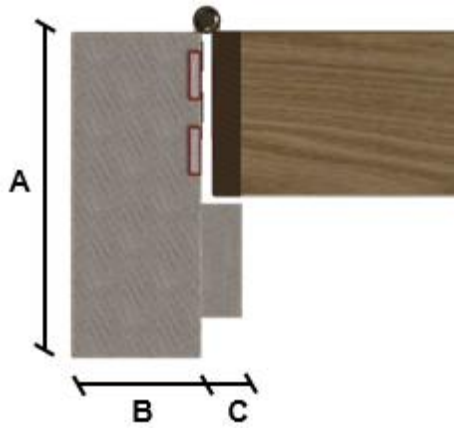
Frame Option 1b as detailed within the table above.



T-Stop with a 25mm (w) x 3mm (d) tongue to locate into a groove on the face of the frame. The stop is machined to have a slightly narrower end than the groove in the frame to give a snug fit. The stop is then mechanically fixed using pins or screws. The T-Stop may be constructed of hardwood or Tectonite meeting the specification in the table above for 60, 90 or 120 minutes fire resistance

7.1.1 Standard frame detail

The diagram below is for illustration purposes only and shows detail of the standard frame construction, for specific constructional images of permitted frame types for frame option 1 refer to the images in section 7.1. Minimum section is permitted in two sizes subject to which of the two frame options are being utilised (i.e. frame option 1a or frame option 1b).



Frame variation 1a:

A: Frame depth = 98mm minimum

B: Frame width = 45mm minimum

C: Stop width = 12mm minimum

Frame variation 1b:

A: Frame depth = 112mm minimum including a 72mm Tectonite core

B: Frame width = 47mm minimum

C: Stop width = 12mm minimum

7.1.2 Multi Piece Tectonite frames

It is not permitted to produce the framing elements from multiple pieces. The each of the jambs and head must be constructed from a single length of material.

7.2 Details for Frame 2

The testing conducted on WSCP door designs has demonstrated that they are capable of being fitted in frames based on hardwood.

Test reference RF12178A, was tested with a 640 kg/m^3 hardwood frame and achieved 121 minutes. This is used in support of the 60 and 90 minute applications, when considering the requested change in intumescent material. As follows:

Tested: 1No 20x4mm WSCP PVC encased graphite type 7mm from the opening face and 1No 25x4mm WSCP PVC encased graphite type 33mm from the opening face.

Proposed: 2No 22x4mm WSCP PVC-seal, PVC encased graphite type, 7mm and 37mm from the opening face.

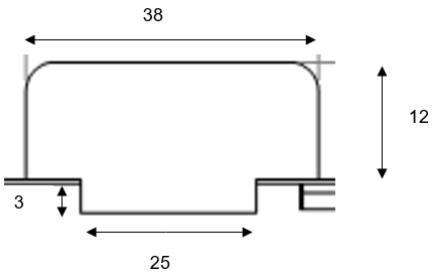
The performance of the proposed intumescent specification has been tested within CFR1410311 which achieved 200 minutes with the Tectonite frame option, based on the over performance achieved it has been possible to consider the application of the proposed intumescent specification used in the framing option, up to 90 minutes fire resistance only detailed below.

The door frames listed below are the minimum size and density which have been successfully tested and assessed by this report. The frame must be constructed to meet the following specification for single acting frames, where applicable.

Frame specification			
Material	Minimum section size (mm)	Minimum density (kg/m^3)	Suitable for fire resistance duration
Hardwood: All door frame timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects). The use of Beech (*Fagus sylvatica*) is NOT permitted.	Frame: 90 (d) x 38 (w) (excluding stop) Hardwood Stop: 12 (w) (planted on)	640	60 and 90 minutes

Note:

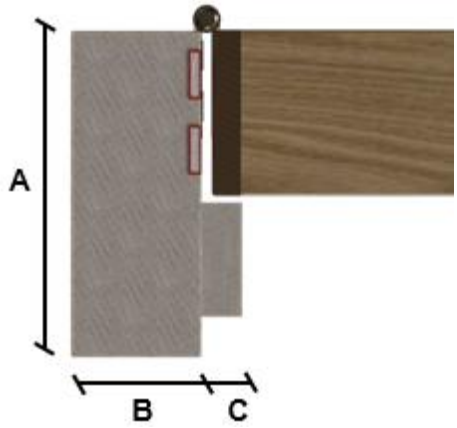
1. Minimum section size is subject to size of hardware and the use of transomed overpanel (see frame details below).
2. It is permitted to fix the stop through the rear of frame with a suitable fixing penetrating the stop by 8mm.
3. A planted T-Stop stop is acceptable as depicted below.



T-Stop with a 25mm (w) x 3mm (d) tongue to locate into a groove on the face of the frame. The stop is machined to have a slightly narrower end than the groove in the frame to give a snug fit. The stop is then mechanically fixed using pins or screws. The T-Stop may be constructed of hardwood or Tectonite meeting the specification in the table above for 60 or 90 minutes fire resistance

7.2.1 Standard frame detail

The diagram below shows detail of the standard frame construction. Minimum section is permitted in two sizes subject to hardware size and the use of transom overpanel.



A: Frame depth = 90mm minimum

B: Frame width = 38mm minimum

C: Stop width = 12mm minimum

Minimum section size when using a transom overpanel:

A: Frame depth = 90mm minimum

B: Frame width = 45mm minimum

C: Stop width = 12mm minimum

7.3 Details for Frame 3

The testing conducted on WSCP door designs has demonstrated that they are capable of being fitted in frames based on hardwood.

Test reference CFR1103111, was tested with a 860 kg/m^3 White Oak frame and achieved 151 minutes. This is used in support of the 120 minute applications, when considering the requested change in intumescent material. As follows:

Tested: 1No 20x4mm WSCP PVC encased graphite type 7mm from the opening face and 1No 25x4mm WSCP PVC encased graphite type 33mm from the opening face.

Proposed: 2No 22x4mm WSCP PVC-seal, PVC encased graphite type, 7mm and 37mm from the opening face.

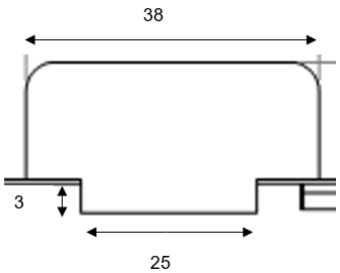
The performance of the proposed intumescent specification has been tested within CFR1410311 which achieved 200 minutes with the Tectonite frame option, based on the over performance achieved it has been possible to consider the application of this intumescent within the below detailed framing option, up to 120 minutes fire resistance.

The door frames listed below are the minimum size and density which have been successfully tested and assessed by this report. The frame must be constructed to meet the following specification for single acting frames, where applicable.

Frame specification			
Material	Minimum section size (mm)	Minimum density (kg/m^3)	Suitable for fire resistance duration
White Oak: All door frame timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects). The use of Beech (*Fagus sylvatica*) is NOT permitted.	Frame: 102 (d) x 39 (w) (excluding stop) Hardwood Stop: 13 (w) (planted on)	860	120 minutes

Note:

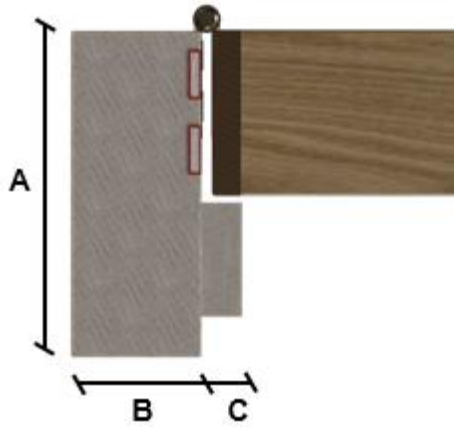
1. Minimum section size is subject to size of hardware and the use of transomed overpanel (see frame details below).
2. It is permitted to fix the stop through the rear of frame with a suitable fixing penetrating the stop by 8mm.
3. A planted T-Stop stop is acceptable as depicted below.



T-Stop with a 25mm (w) x 3mm (d) tongue to locate into a groove on the face of the frame. The stop is machined to have a slightly narrower end than the groove in the frame to give a snug fit. The stop is then mechanically fixed using pins or screws. The T-Stop may be constructed of hardwood or Tectonite meeting the specification in the table above for 120 minutes fire resistance

7.3.1 Standard frame detail

The diagram below shows detail of the standard frame construction. Minimum section is permitted in two sizes subject to hardware size and the use of transom overpanel.



A: Frame depth = 102mm minimum

B: Frame width = 39mm minimum

C: Stop width = 13mm minimum

Minimum section size when using a transom overpanel:

A: Frame depth = 102mm minimum

B: Frame width = 45mm minimum

C: Stop width = 13mm minimum

7.4 Door Frame Joints

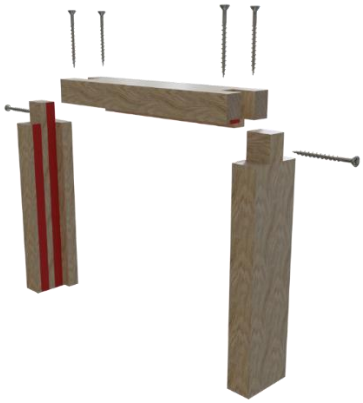
Frame 1 frame joints must be butt jointed or mortice and tenoned with 3 No. coarsely threaded wood type steel screws per joint. The Tectonite must have pilot holes drilled in order to facilitate construction (and the fitting of hardware).

Frame 2 & 3 frame joints may be mitred, mortice and tenon, half lapped or butted and with no gaps. All jointing methods require mechanical fixing with the appropriate size ring shank nails or coarsely threaded wood type steel screws.

Below are depictions of these door framing joints. Please note that the drawings are representative of each type of door frame joint; actual construction in terms of intumescent seal location and material, etc. must be as the text within this document specifies.

Trenched or Half Lapped Joint

Mitre Joint



Mortice & Tenon Joint

Butt Joint

Approved door frame jointing options

8 Overpanels and Sidepanel

8.1 Solid sidepanels and overpanels

8.1.1 Sidepanels Framed on all edges (transomed)

Given the performance of the leaf design it is assessed that if installed as detailed below that transomed solid sidepanels can be fitted while maintaining the fire resistance of the doorset for 60, 90 and 120 minute designs.

Side panels of the same construction as the door leaves may be used with this doorset design meeting the following specification:

- Sidepanels may only be used with single leaf doorsets;
- The swinging leaf must be hung from the door frame that is directly fixed back to the structural opening (i.e. it is not permitted to hang the leaf from the frame that separates the side panel from the leaf);
- The maximum permitted dimensions of the side panel are for the height of the leaf and no more than 500mm in width.
- The side panel must be located in the same plane as the door leaf;
- The side panel may be used in conjunction with an overpanel providing the overpanel is located above the side panel, including a separating transom and the overall assembly is no wider than 1500mm in total;
- The frame separating the side panel and door leaf must be of the same section and material assessed for the door frames appropriate for the intended fire resistance duration (i.e. Frame 2 for up to 90 minutes only or frames 1 & 3 for up to 120 minutes), mortice and tenon or butt jointed to the frame head (with no gaps), bonded with cross linked PVA or urea/resorcinol formaldehyde and fixed with a minimum of 3 steel fixings penetrating by a minimum of 40mm (see section 7 for additional information on frame specification);
- The side panel must be fixed by screwing through the rear of the frame with coarsely threaded wood type, steel screws passing at least 40mm into the centre line of the side panel. Fixings must be no more than 100mm from each corner and a maximum of 250mm centres in between.
- In this application the panel is not required to be lipped on any specified edges but must include the specified stiles and rails as detailed within section 5 for the door leaf core.
- The frame to side panel junction is permitted to have a maximum 1mm gap tolerance.

8.1.1.1 Fitted in square edge frame sections (i.e. no rebate)

The intumescent seals specified for the jambs in section 4 must also be fitted to all four edges of the panel. The seals must be fitted either in the frame reveal.

Maximum panel dimensions are given as below:

Assembly Element	**Width** (mm)	**Height** (mm)
Sidepanel	500	Overall doorset height

8.1.2 Overpanels Framed on all edges (transomed)

Given the performance of the leaf design it is assessed that if installed as detailed below that transomed solid overpanels can be fitted while maintaining the fire resistance of the doorset for 60, 90 and 120 minute designs.

Overpanels of the same construction as the door leaves may be used with this doorset design only when a transom is fitted between the leaf head and overpanel.

- The transom separating the over panel and door leaf must be of the same section and material assessed for the door frames appropriate for the intended fire resistance duration (i.e. Frame 2 for up to 90 minutes only or frames 1 & 3 for up to 120 minutes),
- The transom must be mortice and tenon or butt jointed to the frame head (with no gaps), bonded with cross linked PVA or urea/resorcinol formaldehyde and fixed with a minimum of 3 steel fixings penetrating by a minimum of 40mm (see section 7 for additional information on frame specification);
- The overpanels must always be on the same plane as the doors below and must be fixed by screwing through the rear of the frame with coarsely threaded wood type, steel screws passing at least 40mm into the centre line of the overpanel. Fixings must be no more than 100mm from each corner and a maximum of 250mm centres in between.
- In this application the panel is not required to be lipped on any specified edges. The overpanel must be fully contained within the door frame (see following diagram).
- The frame to overpanel junction is permitted to have a maximum 1mm gap tolerance.

The image below gives a general illustration of the installation of an over panel fixed within a transomed frame, for informational purposes only.

8.1.2.1 Fitted in square edge frame sections (i.e. no rebate)

The intumescent seals specified for the jambs in section 4 must also be fitted to all four edges of the panel. The seals must be fitted in the frame reveal.

Maximum panel dimensions are given as below:

Assembly Element		**Height** (mm)	**Width** (mm)
Overpanel	Single Doorsets	500	Overall doorset width
	Double Doorsets	500	Overall doorset width

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. In all cases the adhesive manufacturers specification must be followed.

Element	**Product/Material Type**
Door blank core (bonded to perimeter framework)	Cross linked PVA
Internal framing (stiles and rails)	Cross linked PVA
Door blank facings	Cross linked PVA
Timber lipping	Cross linked PVA or K-78GL-Supramelt Hotmelt adhesive as tested

9.1 Facing adhesives – Informational purposes only.

The following information has been supplied by Warm Springs Composite Products and is given in relation to gluing the facings for the WSCP door design:

1. The adhesive spread rate recommendation for the facings is 250-350g/m^2;
2. The adhesive must be applied directly to the facing material and not the mineral core due to the porosity and absorption rate of the mineral core and for controlling the spread rate being used (as listed above).

10 Hardware

10.1 General

The following section details the permitted scope and constraints for fitting hardware to the WSCP doorset design. The following items of hardware must bear the CE / UKCA Mark:

- Latches & locks: Test Standard EN 12209
- Single axis hinges: Test Standard EN 1935
- Controlled door closing devices: Test Standard EN 1154
- 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 timber frame for the same required duration (i.e. 60, 90 or 120 minutes depending on the application of the doorset)
- As a result of an assessment of the appropriateness of the item of hardware, based on test evidence not commissioned by Falcon Panel Products Ltd.
- As a result of the CERTIFIRE approval of the item of hardware for the required duration of fire resistance which is suitable for a leaf with the same thickness or greater as the leaf detailed herein.

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.

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.

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

The below table details the minimum intumescent protection required for each element of building hardware. For the purpose of this assessment, it has been necessary to establish a minimum base line on performance of the doorset to the highest classification, therefore hardware protection requirements for 120 minutes are to also be applied at 60 and 90 minutes fire resistance.

Hardware Intumescent Specification		
Item	**Location**	**Product/Manufacturer**
Hinges	Frame options 1, 2 & 3: Located under each blade of the hinge.	• 2mm thick WSCP Strip-seal, ammonium phosphate based (CFR1410311)
Lock/latches	Under forend & keep (and at base of latch and lock rebates in frame) for all doorsets	• 2mm thick WSCP Flex-seal raw graphite type (CFR1410311)
	Encasing latch body	Not required
Concealed overhead closers	Encasing the entire body of the concealed closer and slide arm including the back surface of the face plate	2mm thick interdens (RF12178 A & B)
Flush bolts	Lining the body of the flush bolt including the back surface of the face plate as tested CFR1410311	1mm thick WSCP Flex-seal raw graphite type (1No 53 x 19 x 1mm and 2No 55 x 6 x 1mm)

Example of hinge protection detail

10.3 Essential Hardware

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

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 Barrel Bolt
ULSADD	• Hinges • Self-closing device (closer)

10.4 Latches & Locks

10.4.1 Single Point Engagement

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

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

Element	Manufacturer & Product Reference
Locks & latches	1. Zoo ZDL CE1121 (CFR1410311) 2. Dale 97170 Tubular mortise latch (CFR1103111) 3. Arrone AR910 (RF12178) 4. Altro 684791 heavy duty tubular latch (WF504475)

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

Single leaf doorsets

Element	Specification
Maximum forend and strike plate dimensions	235mm high x 24mm wide x 3mm thick
Maximum body dimensions	165mm high x 92mm wide x 15mm 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

Double leaf doorsets

Element	Specification
Maximum forend and strike plate dimensions	235mm high by 22mm wide by 3mm thick
Maximum body dimensions	165mm high by 87mm wide by 15mm 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 between 1000 – 1200mm from the threshold.

10.5 Handles

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

The table below details the tested handles that are approved.

Element	Manufacturer & Product Reference
Handles	• Turentek Architetureal Ironmongers Ovation OV 75.001 (CFR1410311) • Dale SA sandal DH005706 (CFR1103111) • Arrone AR361/10 (RF12178) • RL-RTD-121-SS Aluminium lever handle (WF504475)

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

- Steel, stainless steel, brass, aluminium or bronze are permitted.
- Surface fixings or through fixings are permitted. If through fixed there must be no more than 0.5mm clearance between the hole and the fixing.
- The hole through the leaf to facilitate the spindle must be no greater than 20mm diameter.

The design may be either handle on rose or handle on back plate up to the following maximum sizes:

- Lever on rose with a rose diameter up to 54mm.
- Lever on back plate with a back plate size up to 243mm high x 56mm wide.
- Lever handle length 250mm

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

Alternative escutcheons are permitted providing they meet the specification given below:

- Steel, stainless steel, brass, aluminium or bronze are permitted.
- Surface fixings or through fixings are permitted. If through fixed there must be no more than 0.5mm clearance between the hole and the fixing.
- The escutcheon may be up to Ø52mm overall and up to 8mm thick.

10.6 Butt Hinges

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

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

Element	Manufacturer & Product Reference
Hinges	• Union JH603BU (CFR1410311) • Arrone AR8680 (RF12178) • Royde & Tucker Hi load H105 lift-off type (CFR1103111) • Royde & Tucker Hi load H101 (WF504475) • Cooke Brothers 7740 (CFR1504141)

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

Element	Specification
Blade height:	90 - 105mm
Blade width (excluding knuckle):	30 - 35mm
Blade thickness	2.5 - 4mm
Fixings:	Minimum of 4 No. 30mm long No. 8 or No.10 steel wood screws per blade
Materials:	Steel or stainless steel

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

Element		Specification	
Hinge positions:	Leaf height < 2135mm high, 3 hinges are required:	Top	150 –180mm from the head to top of hinge
		2nd	Minimum 200mm from top hinge or centrally fitted between top and bottom hinge
		Bottom	180 - 250mm from the foot of leaf to bottom of hinge
	2135mm ≥Leaf height < 2700mm high, 4 hinges are required:	Top	150-180mm 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	180 - 250mm from the foot of leaf to bottom of hinge
	Leaf height ≥ 2135mm high, 5 hinges are required:	Top	150-180mm from the head to top of hinge
		2nd & 3rd & 4th	Equispaced between top and bottom hinges
		Bottom	180 - 250mm from the foot of leaf to bottom of hinge
Intumescent protection:		See section 10.2	

Note:

Leaves less than 2135mm (h) must be hung on a minimum of 3 hinges. Leaves greater or equal 2135mm (h) and less than 2700mm high must be hung on 4 hinges. Leaves greater or equal 2700mm (h) must be hung on 5 hinges. It is permitted to increase the number of hinges on doorsets which are smaller than the heights specifically detailed above up to a maximum of 5No. hinges applied to any one door leaf.

10.7 Doorset Self Closing

Doorset automatic self-closing can be provided by:

- Overhead face fixed closers
- Concealed overhead closers

Automatic doorset self-closing devices such as transom mounted, and offset pivots used with floor springs are not considered acceptable for use with the WSCP doorset range.

10.7.1 Overhead Face Fixed Closer

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

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

Element	Manufacturer & Product Reference
Overhead face-fixed closers	• Briton 2003SES (CFR1009081 Revision 2) • Dorma TS72 (CFR14103111) • Dorma TS86 (CFR1103111) • Rutland TS11205 (WF504475)

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

- CERTIFIRE approved overhead face-fixed closers for 60, 90 or 120-minute fire resistance applications (as appropriate) on intumescent sealed door assemblies consisting of timber faced and edged leaves with timber, cellulosic or mineral cores in timber frames (code ITT).

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

10.7.2 Concealed Overhead Self Closing Device

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

The table below details the tested concealed overhead closers that are approved.

Element	Manufacturer & Product Reference
Concealed overhead closer	• Arrone AR7383 (RF12178)

Alternative concealed overhead self closing devices are not permitted.

Note:

1. It must be ensured that the concealed overhead closer is of sufficient strength and power to ensure the door leaf/leaves fully engage into the frame reveal
2. For intumescent protection requirements, see section 10.2.

10.8 Flush Bolts

These items are suitable in the following applications only:

Frame options: Frame 1 Only

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

Element	Manufacturer & Product Reference
Overhead face-fixed closers	• Zoo ZAS03SS (CFR14103111)

Alternative flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions for the mortice are not exceeded and do not interrupt the intumescent any more than tested:

- 204mm long x 20mm deep x 20mm wide.

Flush bolts must be steel, and the mortice must be as tight to the mechanism as is compatible with its operation. All edges of the mortice of the keep and body must be protected with intumescent gaskets as specified in section 10.2.

10.9 Face fixed Barrel Bolts

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

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

Element	Manufacturer & Product Reference
Face fixed barrel bolt	• Necked barrel bolt (code 5528), 76 x 25 (back plate) (CFR1009081)

Steel, stainless steel or bronze barrel bolts up to 100mm x 30mm back plate size, may be surface-fixed to the top and bottom of the slave door leaf.

10.10 Non-Essential Hardware

10.10.1 Pull Handles

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

Steel, stainless steel or bronze handles may be surface-fixed or bolted through the door leaf, providing the length is limited to 1200mm between the fixing points. If through fixed, 1mm thick interdens must be wrapped around the full length of the stud and the hole through the leaf tight to the stud.

10.10.2 Push Plates & Kick Plates

Frame options: Frames 1, 2 & 3

Components with the following specification are deemed acceptable.

- Steel or stainless-steel face-fixed hardware such as push plates and kick plates 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 or 'notch out'/interrupt the door stop.

10.10.3 Panic Hardware

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

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

10.10.4 Air Transfer Grilles

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

Air transfer grilles must be CERTIFIRE approved for 60, 90 or 120 minutes on intumescent sealed door assemblies consisting of timber faced and edged leaves with timber, cellulosic or mineral cores in timber frames (code ITT), in a leaf of comparable thickness, for the intended fire resistance period. Restriction relating to size, location and intumescent protection around the air transfer grille must be complied with.

Additonally margins to the leaf edges will remain as detailed for glazing (see section 6) and the position of the unit will be dictated by the pressure regime tested in the proving evidence (normally below mid height).

The area occupied by the air transfer grille must not exceed 0.18m^2 and must be deducted from the area of glazing, if both elements are fitted.

If it is required to fit air transfer grilles outside the aforementioned scope, guidance and appropriate test evidence must be sought from the manufacturer of the grille, including permitted numbers of grilles, spacing within the door leaf, additional intumescents, aperture liners and location within the doorset (with respect to pressure regime).

All apertures created for air transfer grilles must be lined with a tectonite aperture liner of 43 to 51mm (w) x 51mm (t), adhered to the core prior to the fitting of the leaf facings, using the same adhesives as permitted for stiles and rails.

10.10.5 Environmental Seals

The use of environmental seals is not permitted with the WSCP doorset design.

10.10.6 Threshold drop Seals

Threshold drop seals are not permitted with the WSCP doorset design.

10.10.7 Numerals & Signage

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

Components with the following specification are deemed acceptable.

Steel, stainless steel, aluminium or plastic numerals or fire safety signage may be glued or screwed to the face of the door leaves, providing they are fitted no closer than 75mm from the leaf edge or to any glazing and are no greater than 300mm high x 100mm wide.

11 Installation

11.1 General

This section considers the installation of direct types of frames and doorset. This section considers:

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

11.2 Door Frame Installation

The following table indicates the acceptable door frame installations.

Permitted Installations
Instances where the door frame and the wall of the same depth. Architraves must be fitted flush to both faces. The minimum door frame section size (width and depth) must be as per the requirements noted in this report – see section 7.
Instances where the wall thickness is greater than the door frame depth. Architraves must be fitted to both faces, fitted with a minimum 15mm overlap to the door gap, other than when the architrave abuts the wall.
Instances where the wall thickness is greater than the door frame depth – Split Frames Split frames are permitted to increase the depth of the frame to match the thickness of the wall such that architraves may be applied flush to both faces. Frame 1a is permitted to have a hardwood extension piece of minimum 43mm (w) and of up to 150mm (d) fitted using either a butt joint or tongue and groove joint, to the closing side of the frame applied with PVA cross linked adhesive as tested for lipping application. Frame 1b is not permitted to have an extension piece applied. Frame 2 & 3 are permitted to have a hardwood extension piece of the same material as the frame applied using either a butt joint or tongue and groove joint, to the closing side of the frame applied with PVA cross linked adhesive as tested for lipping application. The width of the extension piece must match the width of the frame and the extension piece must be no deeper than 150mm. In all instances both frame sections must be secured to the wall in accordance with section 11.5. 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) & density as per the requirements noted in this report – see section 7.

Architraves requirements are documented in the firestopping section of this report.

11.3 Firestopping

The firestopping requirements between the back of frame and wall are dependent on the gap size between the substrates and the test evidence supplied to support this field of application. The table below provides the requirements based upon the gaps size.

Gap (mm)	Requirement	Test Evidence
0 – 2	Not permitted. Gaps must be a minimum of 2mm to the entire perimeter to accept an appropriate quantity of fire stopping material.	N/A
2 – 13	Gap must be must be tightly packed with mineral fibre and sealed on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1 for 120 minutes integrity. Hardwood architraves of a minimum 18mm thick x 70mm wide must be fitted to both faces, fitted with a minimum 25mm overlap to the door frame.	WF504475
14 – 20	Gaps between 14 and 20mm must be tightly packed with mineral fibre and filled on both faces with a minimum of 20mm depth of intumescent mastic that has demonstrated 120 minutes integrity to BS 476: Part 22: 1987 or BS EN 1634-1 (between masonry and timber or mineral composite). The frame to structural opening gap must be covered with a minimum of 18mm thick hardwood architraves overlapping at least 15mm each side.	This installation detail has been assessed based on the increase in depth of the tested intumescent solution above.

Note:

It is permitted to install the door without architraves based on CFR1504141 (or with architraves that do not meet the 15mm overlap requirement based upon RF12178) providing the gap between the frame and the structural opening is suitably sealed with a proven linear gap seal that meets the following provisos:

1. The sealing medium has been tested at the required thickness and depth and has demonstrated 60, 90 or 120 minutes integrity, as appropriate, to BS 476: Part 22: 1987 or BS EN 1634-1 (between masonry and timber or mineral composite) &
2. The sealing medium was tested without architrave or any other capping material.

11.4 Packers

Packers must be timber or Tectonite of equal density to the frame or hardwood with a density no less than 640kg/m^3. The packers must be cut back in all instances to allow for an appropriate depth of fire stopping to be applied as detailed in section 11.3.

11.5 Wall types, Structural Opening & Fixity

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

It is not permitted to install the WSCP doorset design within flexible wall types such as steel and timber stud partitions.

The WSCP doorset design has been tested within rigid supporting constructions consisting of blockwork and is therefore permitted to be installed within masonry supporting constructions with at least the same level of fire resistance for the doorset design.

It must therefore be capable of staying in place and intact for a minimum of 60, 90, or 120 minutes (as appropriate to the fire resistance of the doorset).

The supporting construction must also be a suitable medium to permit adequate fixity.

For single leaf doorset without sidepanels, the frame jambs only are to be fixed to the supporting construction using 5no. steel fixings at 600mm maximum centres and maximum of 200mm from corners. 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 a minimum of 2no. steel fixings at 600mm maximum centres and maximum of 500mm from corners. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm.

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

11.6 Post Production (Onsite) Leaf Size Adjustment

The WSCP range of doorsets may be altered as follows:

Leaf Size Adjustment Specification	
Element	Reduction
Lipping	The post-production lipping thickness may be reduced by 1mm for fitting purposes, providing that the door gaps and intumescent conditions remain as required by this assessment and the minimum limitation in terms of lipping thickness is still maintained

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	10mm between bottom of leaf and top of floor covering. This is the maximum tolerance for fire resistance only. Other performance characteristics are not handled within this document.

12 Insulation Performance

60 minutes insulation performance may be claimed for a doorset to this design meeting the following:

Insulation Performance Criteria	
Type	Details
Partially insulating	Doorsets incorporating up to 20% of non-insulating glazing
Fully insulating	Unglazed doorsets

It is not possible to claim insulation performance for the WSCP doorset design for 90 or 120 minutes.

13 Conclusion

If the WSCP doorsets constructed in accordance with the specification documented in this field of application were to be tested in accordance with BS 476: Part 22: 1987, it is our opinion that they would provide a minimum of 60, 90 and 120 minutes integrity and 60 minutes insulation (subject to section 12), as appropriate.

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: 6C3251A35814487...

Name: Josh Clare

Position: Technical Manager

Date: 13-Oct-2023

For and on behalf of: Falcon Timber 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. 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. 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:	Senior Product Assessor	Senior Product Assessor

* For and on behalf of Warringtonfire

Appendix A: Summary of Supporting Test Evidence

Report No	Configuration	Leaf Size (h x w x t) (mm)	Test Standard	Performance (mins)	
CFR1410311	ULSADD	2289 1069 58	BS 476: Part 22: 1987	Integrity	200
				Insulation	91
CFR1103111	ULSADD	2292 1068 57	BS 476: Part 22: 1987	Integrity	151
				Insulation	98
RF12178 Doorset A	ULSASD	2036 916 57	BS EN 1634-1:2008	Integrity	121
				Insulation	82
RF12178 Doorset B	ULSASD	2040 918 57	BS EN 1634-1:2008	Integrity	148
				Insulation	82
CFR1007071	LSADD	2265 1050 57	BS 476: Part 22: 1987	Integrity	115
				Insulation	95
CFR1007081 RH	LSASD	2340 1075 57	BS 476: Part 22: 1987	Integrity	105
				Insulation	93
CFR1007081 LH	LSASD	2340 1075 57	BS 476: Part 22: 1987	Integrity	91
				Insulation	84
CFR1009081 Revision 2	LSADD	2236 1036 57	BS 476: Part 22: 1987	Integrity	131
				Insulation	90
CFR1504141	ULSASD	2284 1068 58	BS EN 1634-1:2014	Integrity	117
				Insulation	76
WF63295	ULSADD	2040 826	BS 476: Part 22: 1987	Integrity	149
				Insulation	70

(similar core glazed)		44			
Chilt/IF12047 Rev A	ULSASD sample	1040 996 58	Principles of BS 476: Part 22: 1987	Integrity	108
				Insulation	N/A
CFR1806192 Rev 1	Fixed sample	2038 527 55	Principles of BS 476: Part 22: 1987	Integrity	132
				Insulation	N/A
WF504475 (opening out)	LSADD	2235 1040 57	BS 476: Part 22: 1987	Integrity	141
				Insulation	90

Appendix B: Revisions

Rev.	WF Ref.	Date	Description
A	WF527608	27/09/2018	Technical review and revalidation for a further 5 years, addition of new glazing system, addition of information relating to tectonite framing lengths
B	WF511608	12/10/23	Technical review, revalidation and reformat of information contained within revision A of the document resulting: • At the request of the sponsor the intumescent specification has been streamlined to a single option. • Bi-directional testing included and justification included within section 4.5.3. • Removal of reference to RF03070 • Removal of reference to 100359573COQ-009 • Removal of rails and frames constructed from multiple sections • Removal of reference to WHI 495 PSV 1553 • Inclusion of the following test reports: CFR1410311, RF12178, CFR1504141 & WF504475 • Introduction of Frame Option 3. • Recalculation of permitted leaf size envelopes • Removal of DADD & DASD Configurations • Scope has been aligned with positive test evidence which achieved 120 minutes fire resistance.