

Fire resistance test report

Issuing laboratory: Warringtonfire Testing and Certification Limited

Test standard: BS 476-20:1987 and BS 476-22:1987 Clause 8

Test sponsor: Wood International Agency Ltd

Product:

Report number: 540199/R

Test date: 22 January 2024




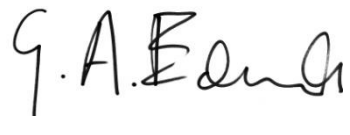
Version: 2

This report supersedes the original report dated 2/09/2024

Warringtonfire, accredited for compliance with ISO/IEC 17025:2017 – Testing



Quality management

Version	Date	Information about the report	
1	2 September 2024	Description	Initial issue
			Prepared by
		Name	Authorised by
		Signature	
		Peter White	Graham Edmonds
			
1	17 September 2024	Description	Reason for issue 2 : Client has notice Item 23 stated the grooves were adhere using PU. However it was shown to be Adhered using PVA. This has now been amended
			Prepared by
		Name	Authorised by
		Signature	
		Peter White	Graham Edmonds
			

Signed for and on behalf of Warringtonfire Testing and Certification Limited

Executive summary

This report documents the findings of the fire resistance test of doorsets in accordance with BS 476-20:1987 and BS 476-22:1987 Clause 8 determination of fire resistance of uninsulated doorsets and shutter assemblies with deviations as described in Table 3.

Warringtonfire Testing and Certification Limited (Warringtonfire) performed the test on 22 January 2024 at the request of Wood International Agency Ltd.

Table 1 provides a summary of the test specimen, Table 2 gives details of the supporting construction and Table 3 describes the summary of the test results.

Table 1 Test specimen

Item	Detail	Opening direction
Doorset A	Full size glazed timber door	Towards the furnace
Doorset B	Designed timber door with glazing	Towards the furnace
Latching conditions	Disengaged unlatched unlocked	

Table 2 Supporting construction

Item	Detail		
Supporting construction	150 mm thick low-density concrete wall with a low-density concrete lintel at the head.		
Dimensions	Width	3050 mm	
	Height	3050 mm	
	Thickness	150 mm	
Aperture dimensions		Width	Height
	Doorset A	1144 mm	2474 mm
	Doorset B	1029 mm	2272 mm
Restraint conditions	Restrained on all edges		

Table 3 Summary of test results

Item	Criteria	Results
Doorset A	Integrity	30 minutes
	Radiation of 15 kW/m ²	Radiation intensity of 15 kW/m ² was not reached after 34 minutes
Doorset B	Integrity	33 Minutes
	Radiation of 15 kW/m ²	Radiation intensity of 15 kW/m ² was not reached after 34 minutes
Notes:		
The test results for the specimen only apply to the tested orientation. The test was discontinued after 34 minutes. '*' indicates failure due to integrity failure.		

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1. Introduction

This report documents the findings of the fire resistance test of doorsets in accordance with BS 476-20:1987 and BS 476-22:1987 Clause 8 determination of fire resistance of uninsulated doorsets and shutter assemblies.

Warringtonfire performed the test on 22 January 2024 at the request of the test sponsor listed in Table 4.

Table 4 Test sponsor(s) details

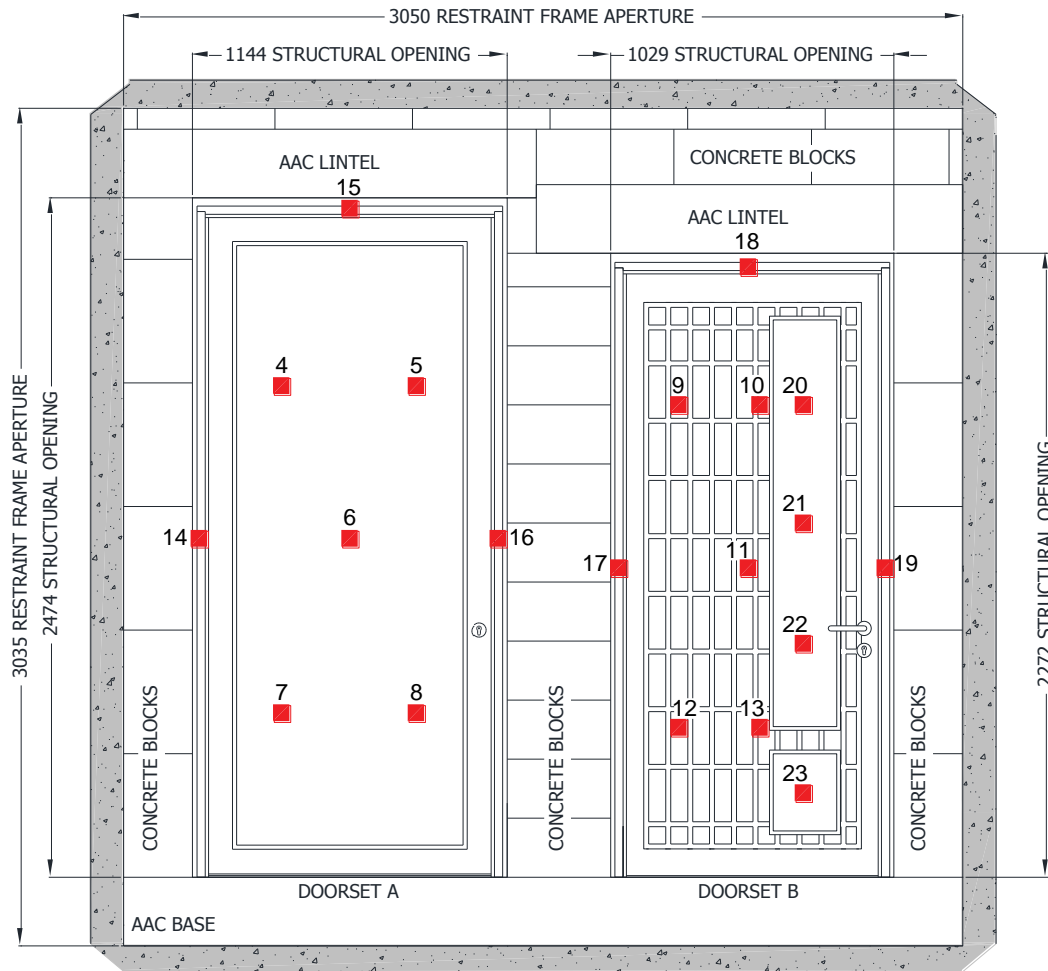
Test sponsor(s)	Address
Wood International Agency Ltd	16 King Edward Road . Brentwood, Essex CM14 4HL United Kingdom

2. Test specimen and supporting construction

2.1 Drawings of test assembly

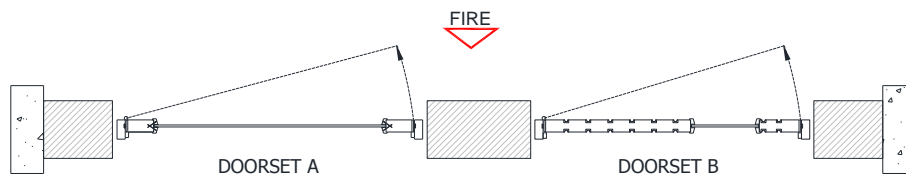
The description of the test specimen and supporting construction are detailed in Section 2.2 and illustrated in Figure 1 to Figure 21. All measurements are in millimetres – unless indicated otherwise.

The drawings were supplied by the test sponsor and verified by Warringtonfire (unless stated otherwise in Section 2.2).



■ POSITION OF THERMOCOUPLES

GENERAL ELEVATION OF TEST CONSTRUCTION
UNEXPOSED FACE



HORIZONTAL SECTION THROUGH TEST
CONSTRUCTION

Figure 1 General Elevation & Horizontal Section of Test Construction Showing Thermocouple Positions

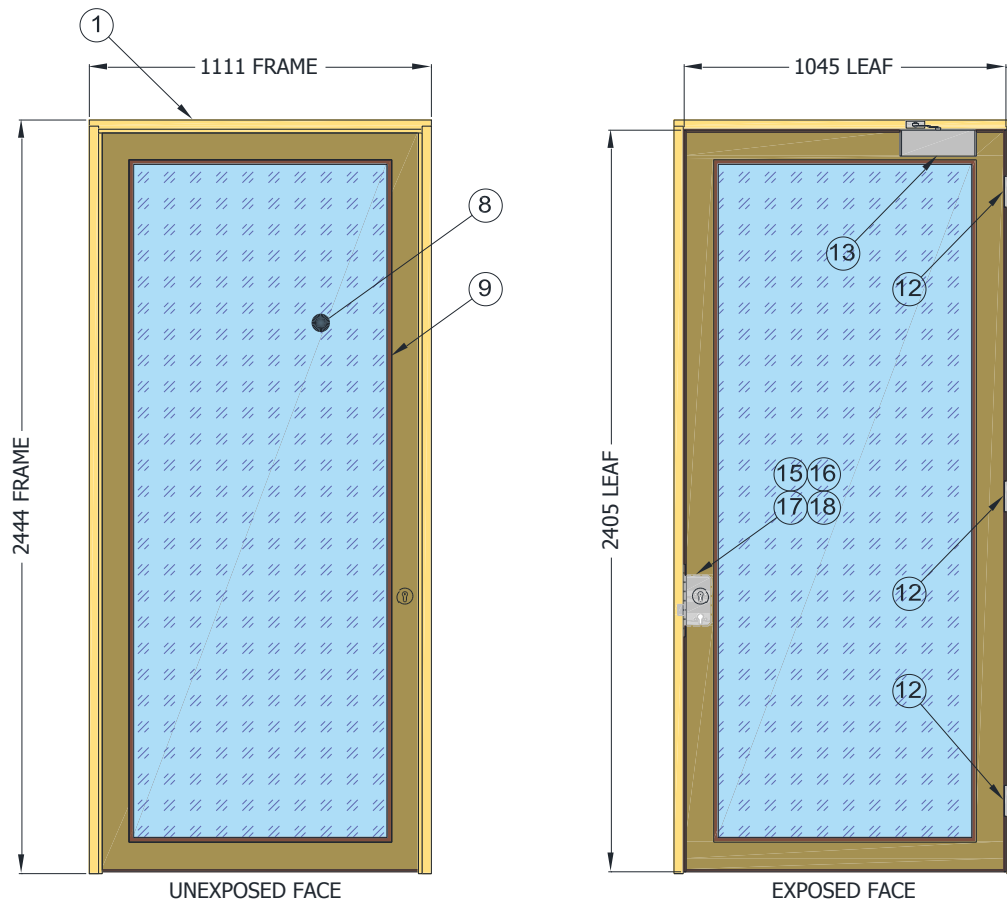


Figure 2 General Elevations of Doorset A

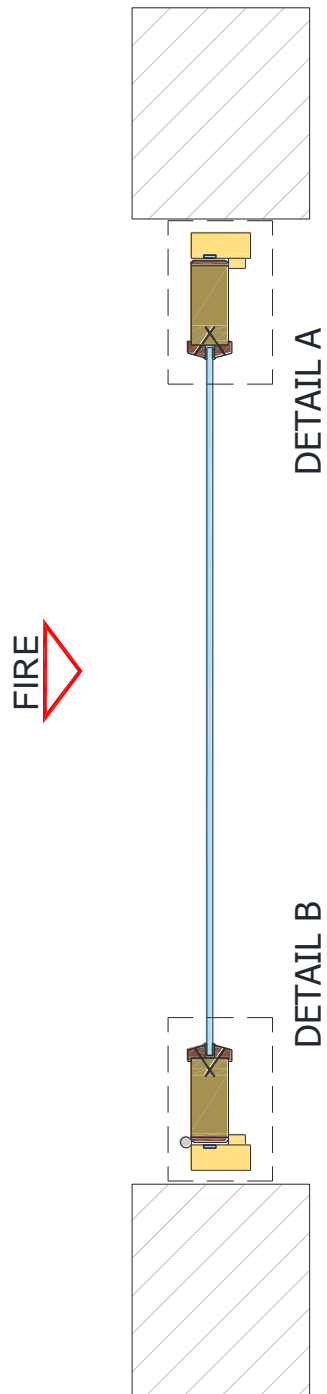


Figure 3 Horizontal Section Through Doorset A

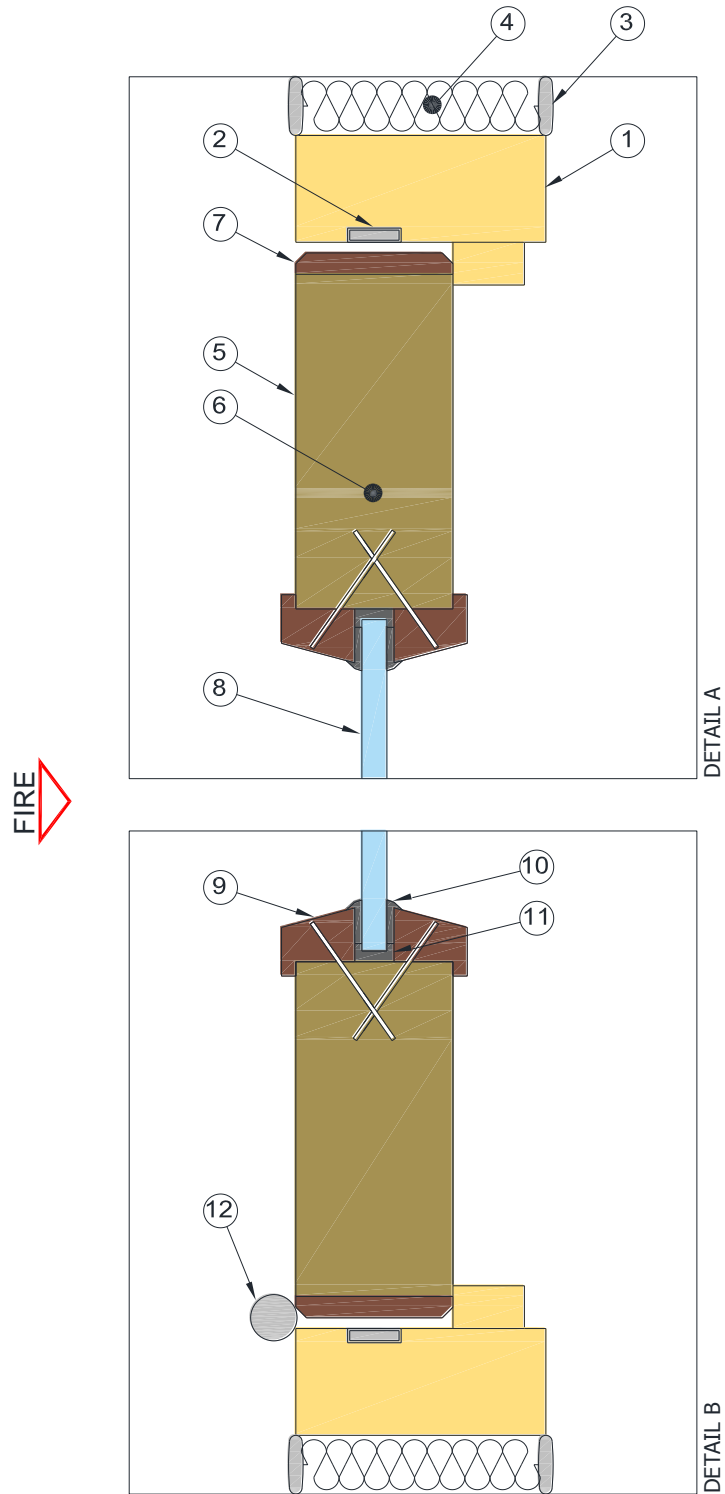


Figure 4 Doorset A Horizontal Section Detail Views

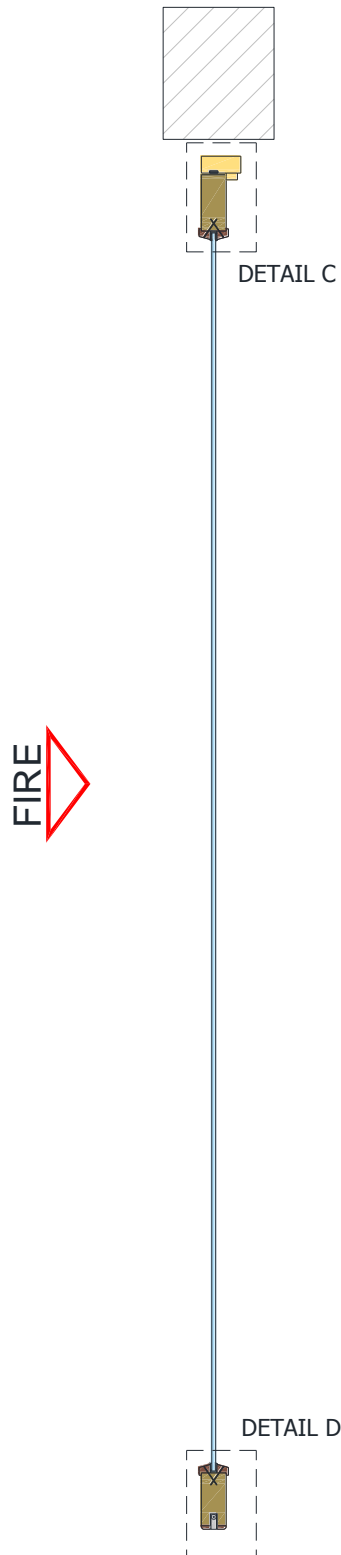


Figure 5 Vertical Section Through Doorset A

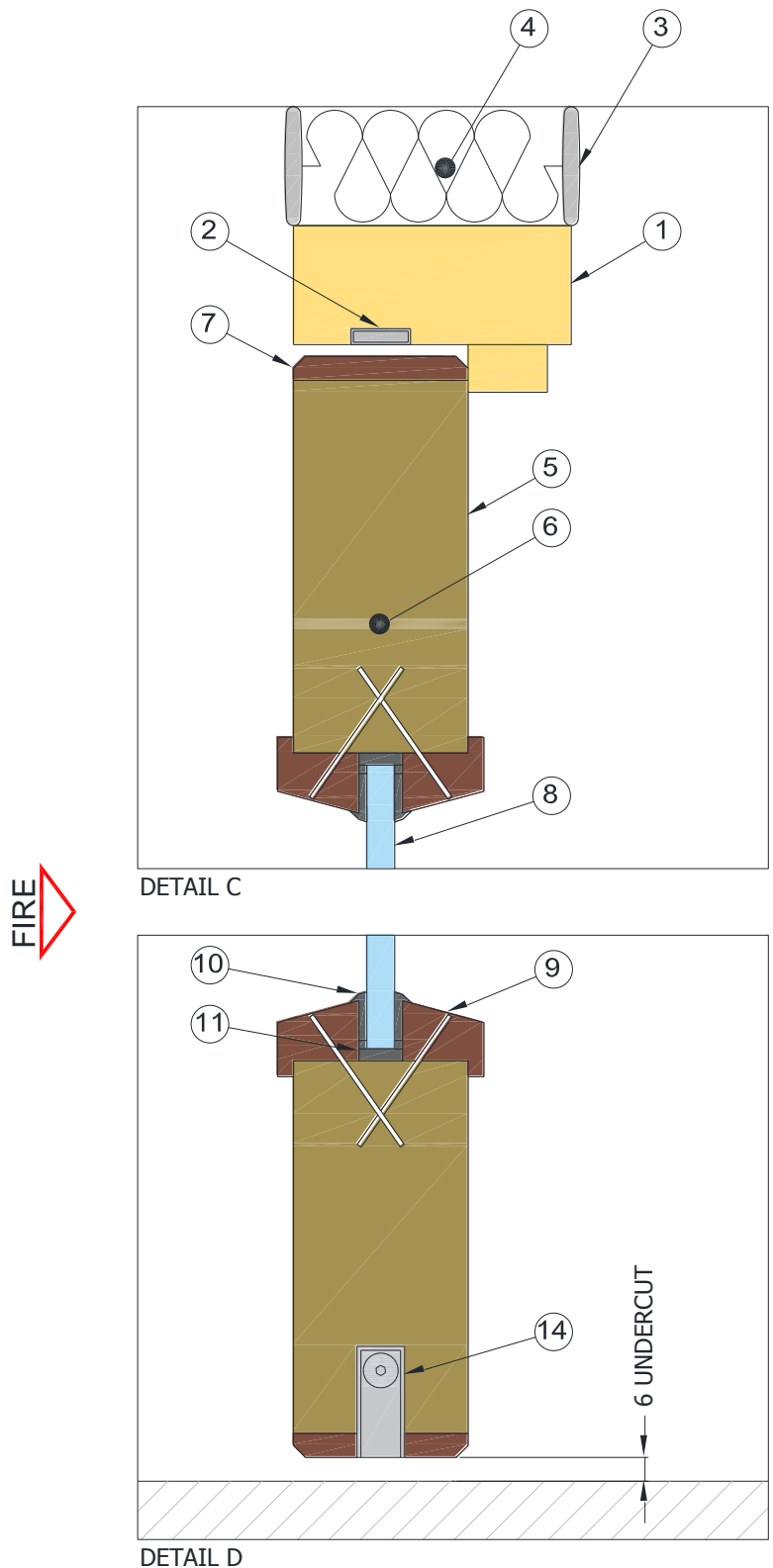


Figure 6 Doorset A Vertical Section Detail Views

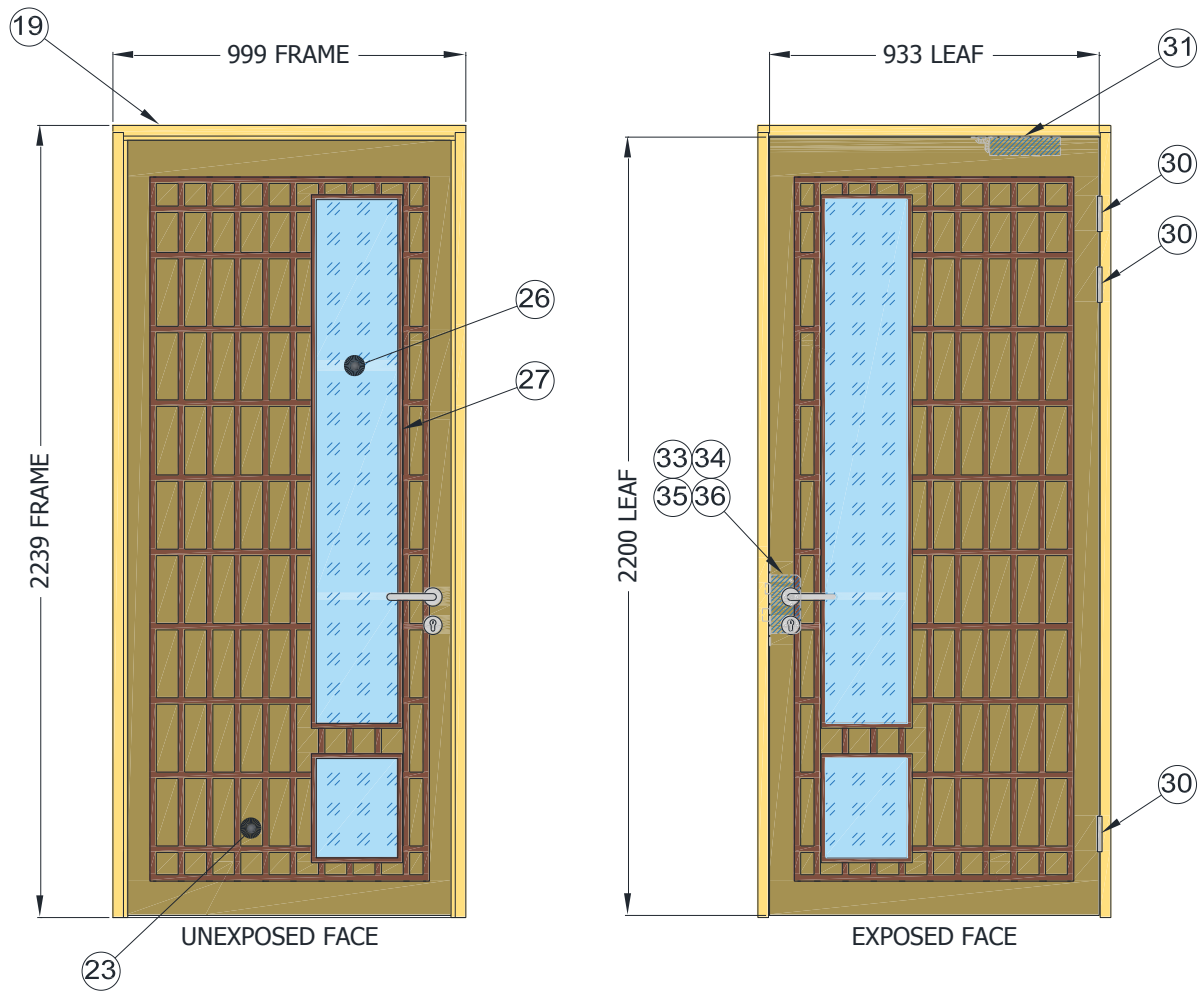


Figure 7 General Elevations of Doorset B

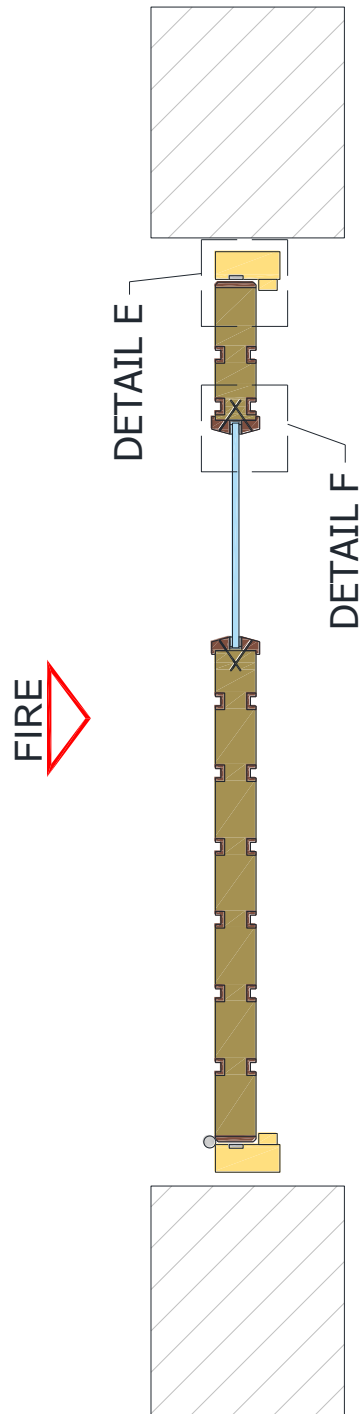


Figure 8 Horizontal Section Through Doorset B

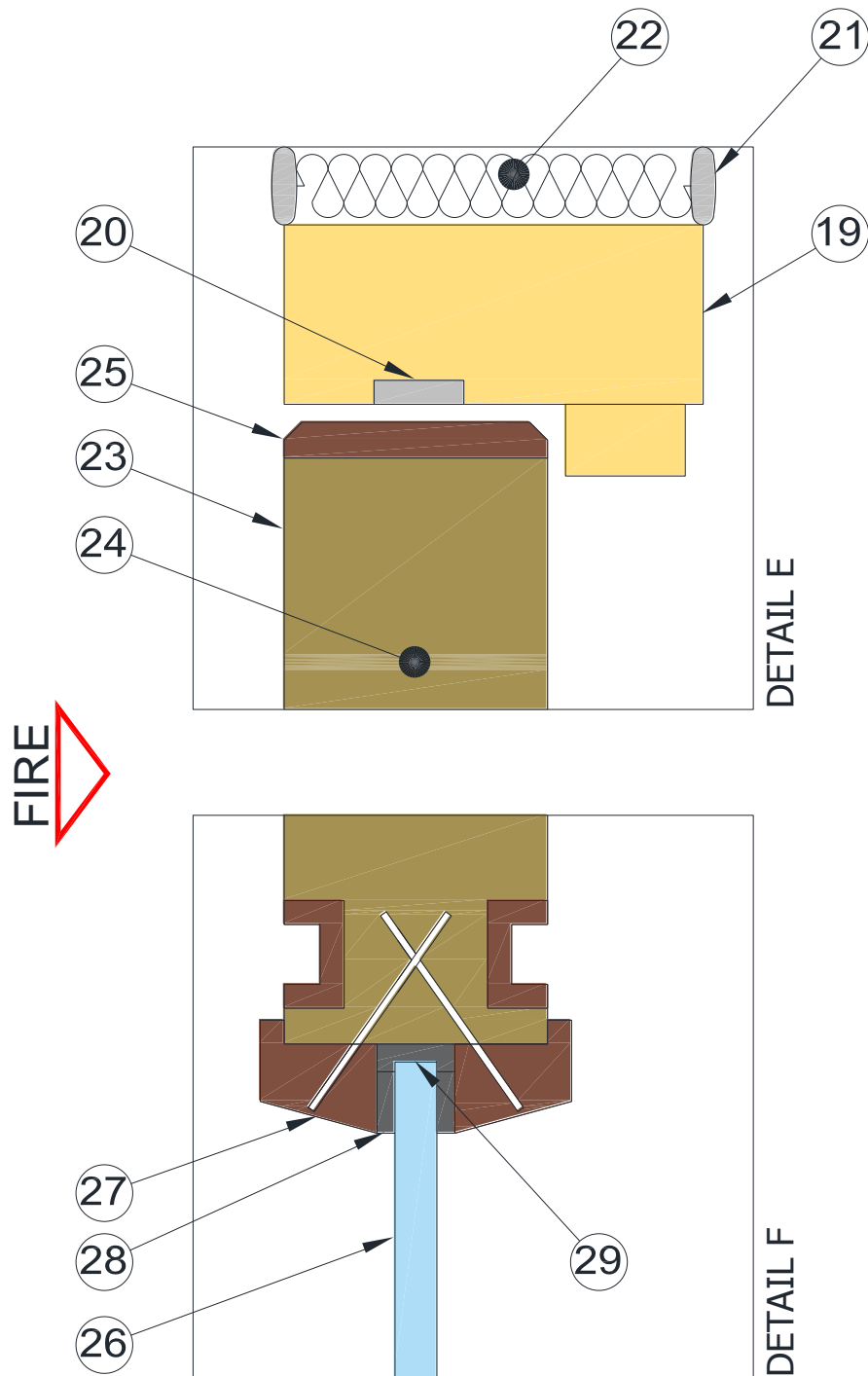


Figure 9 Doorset B Horizontal Section Detail Views

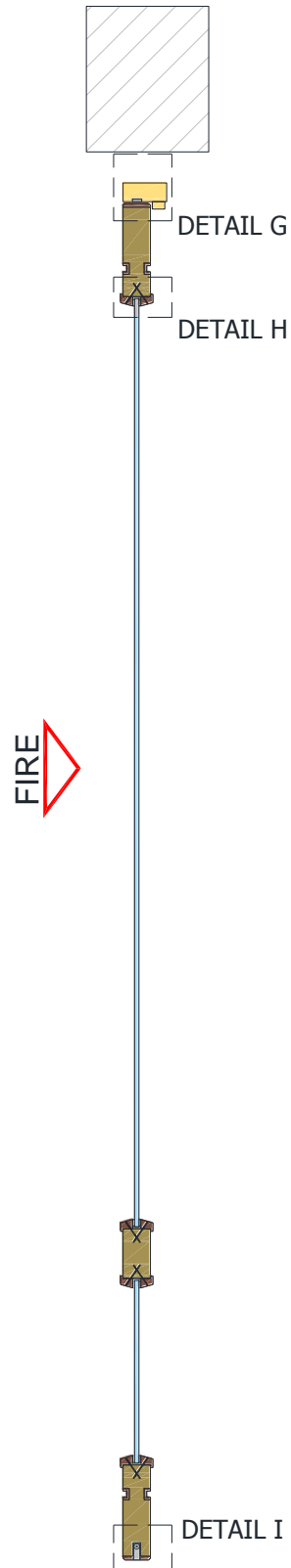


Figure 10 Vertical Section Through Doorset B

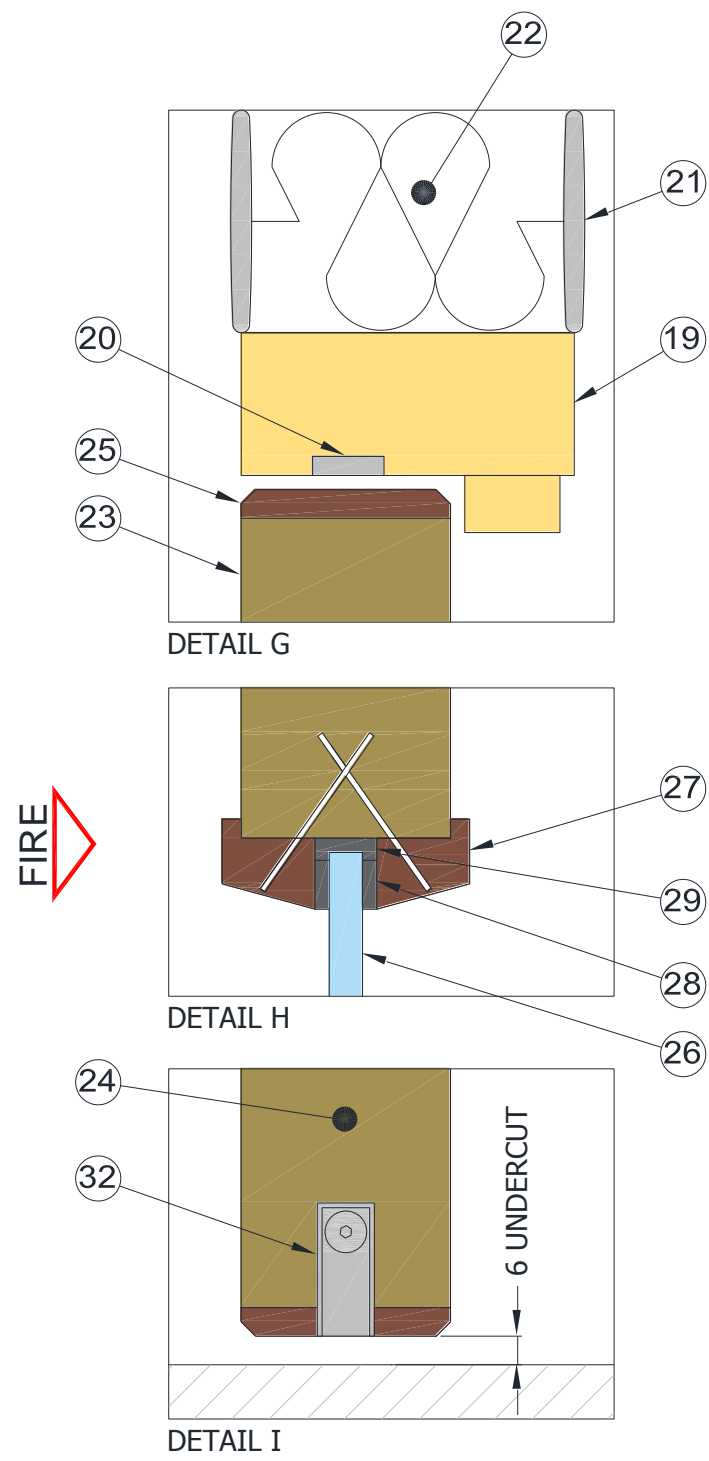


Figure 11 Doorset B Vertical Section Detail Views

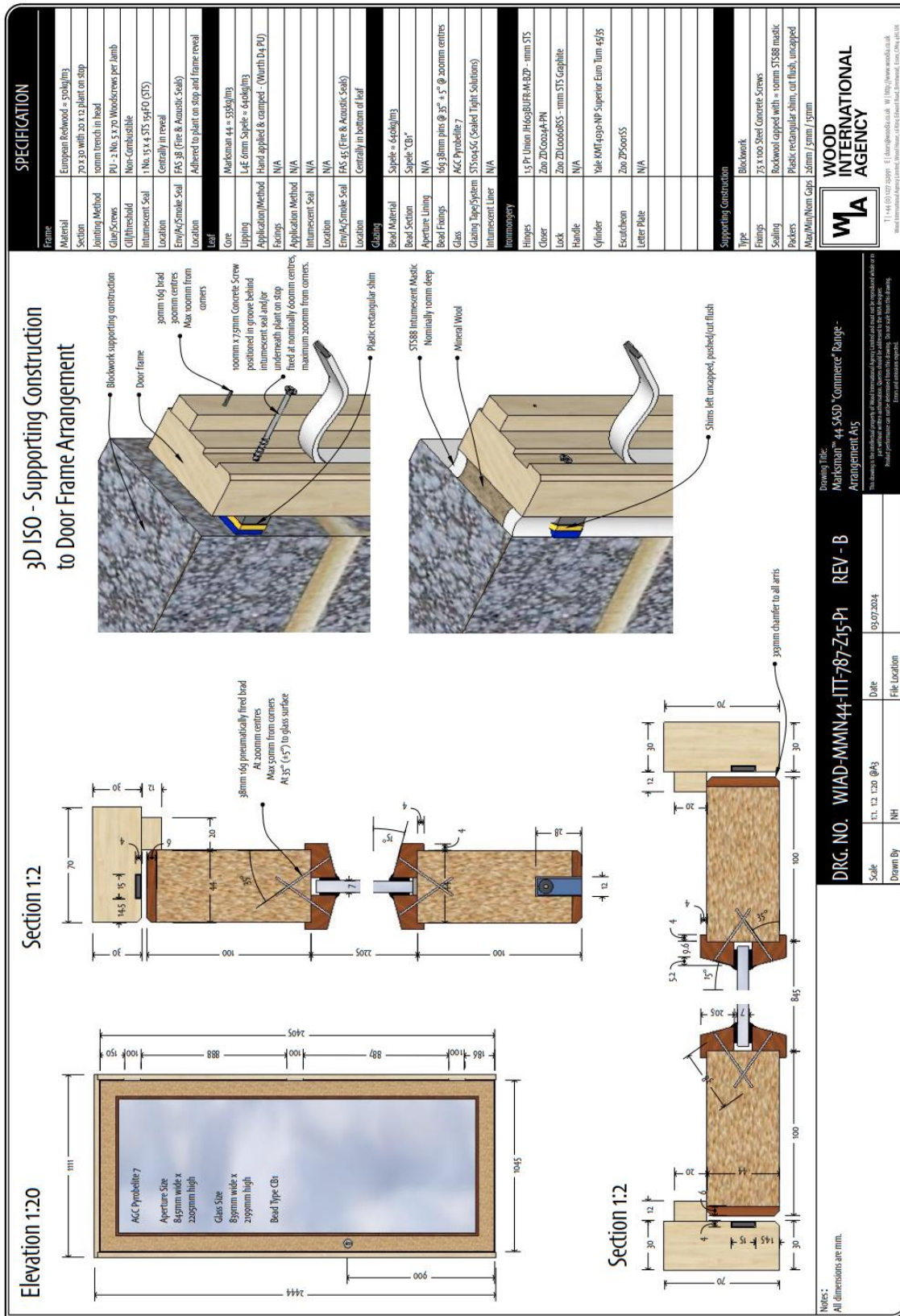


Figure 12 Doorset A- Client Drawing – Page 1

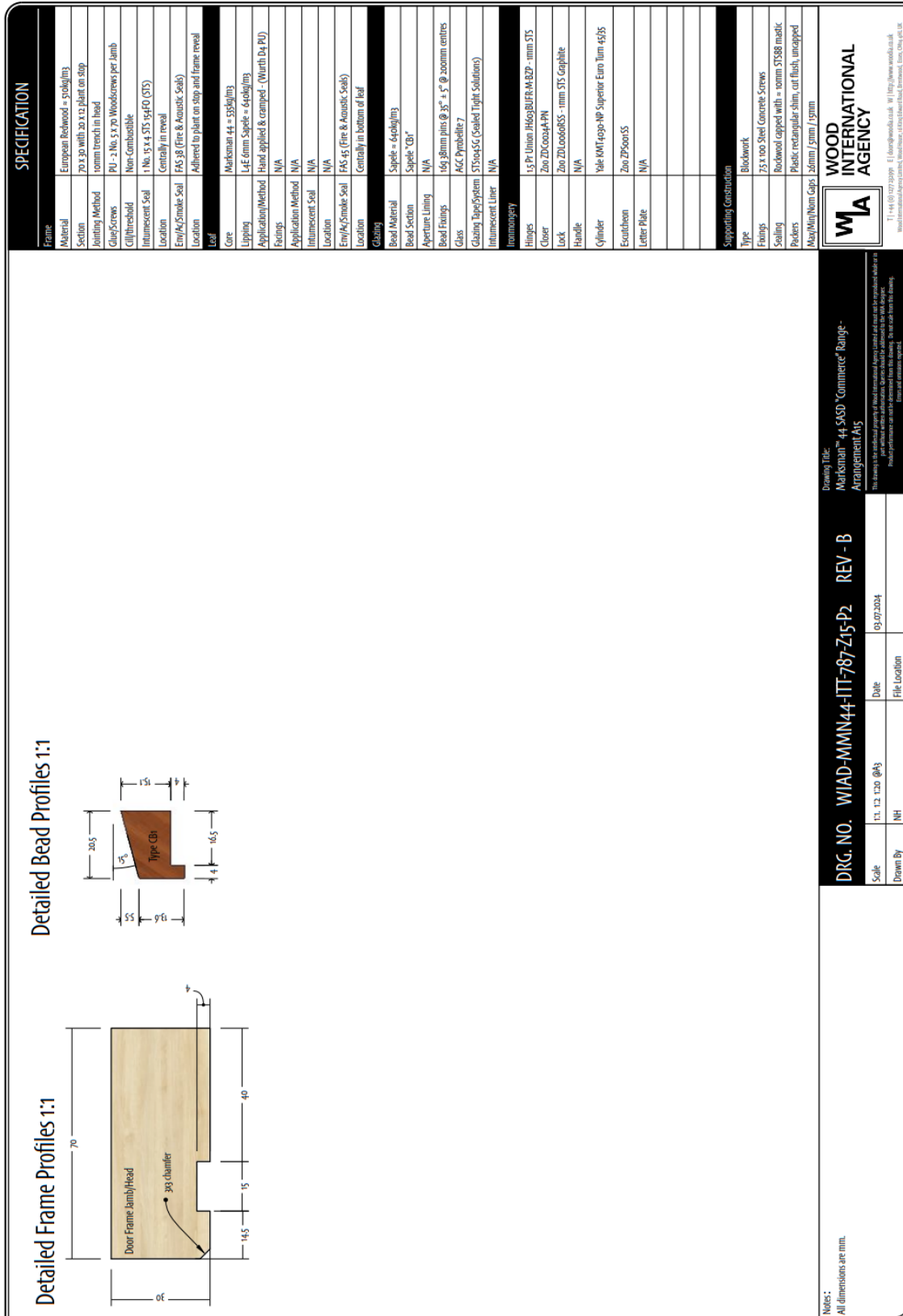


Figure 13 Doorset A – Client Drawing 0 Page 2

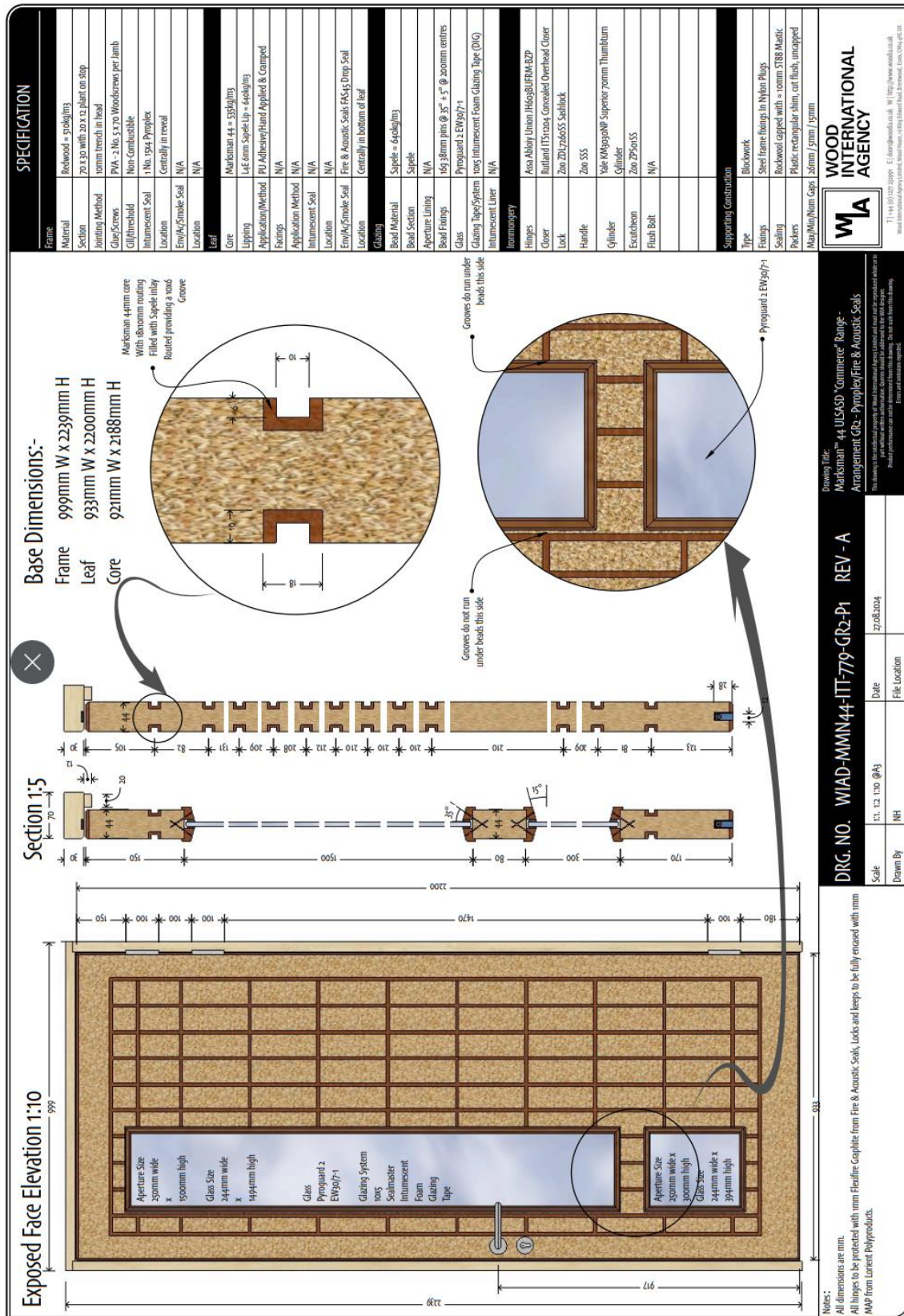


Figure 14 Doorset B – Client Drawing – Page 1

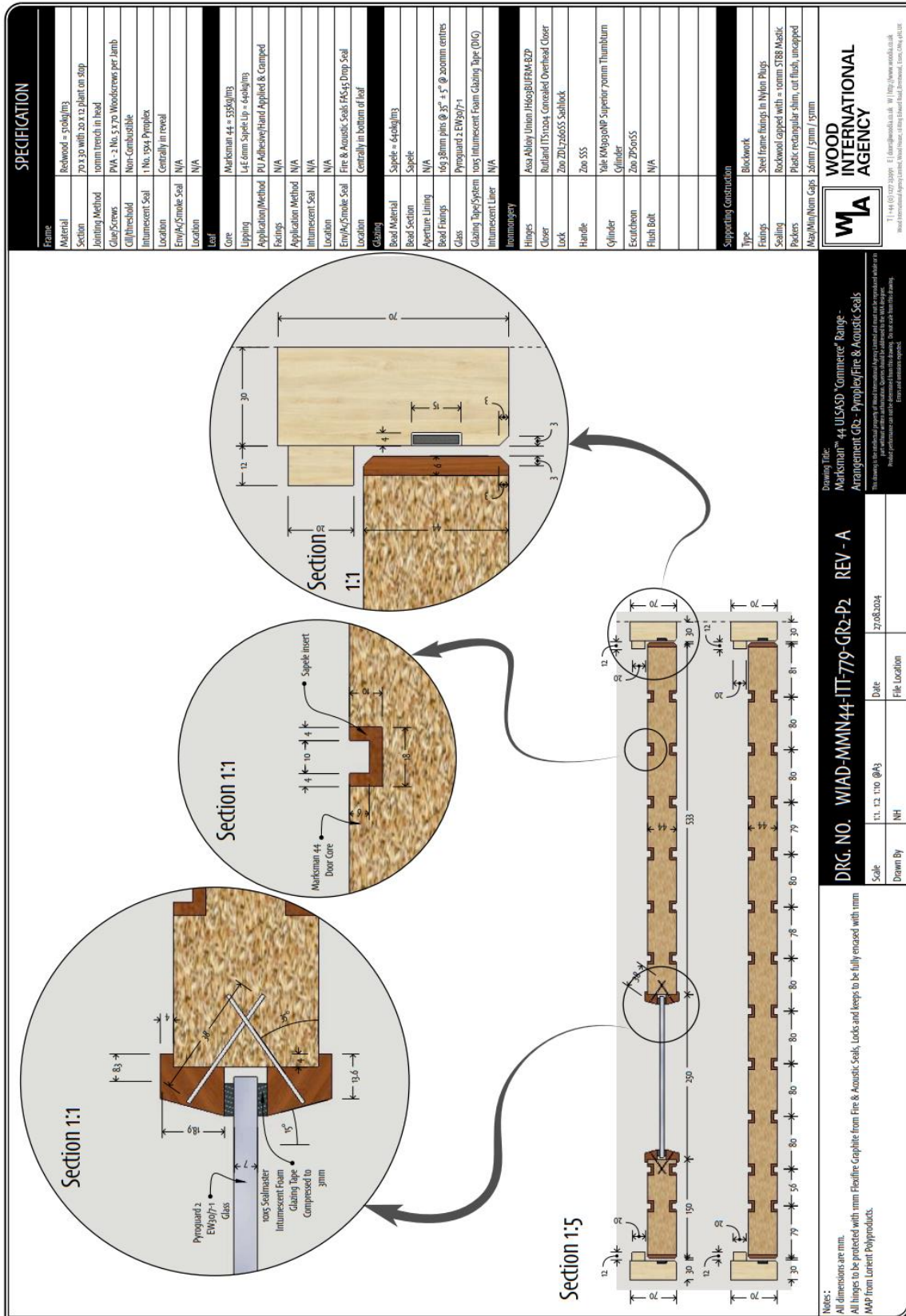


Figure 15 Doorset B – Client Drawing – Page 2

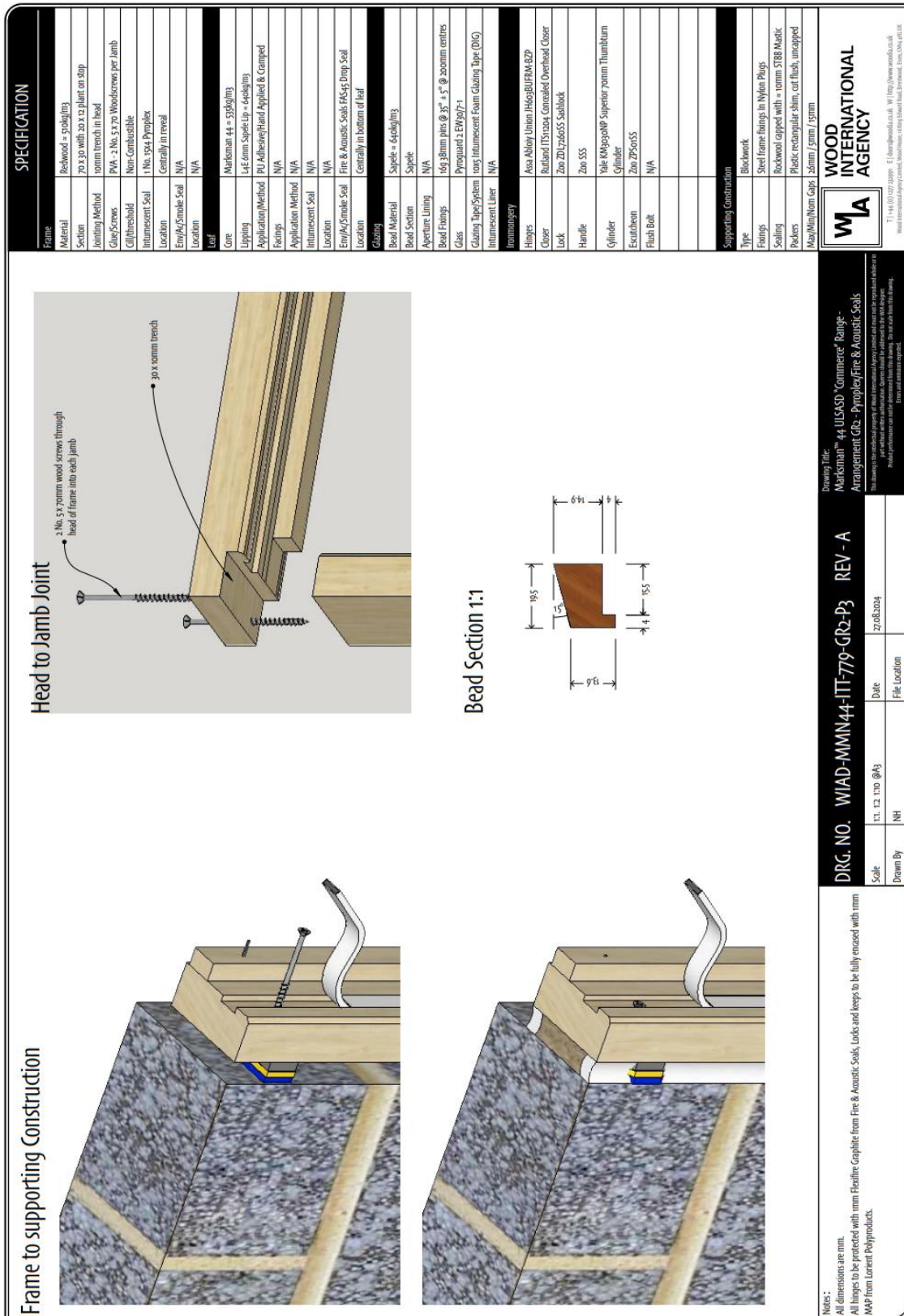
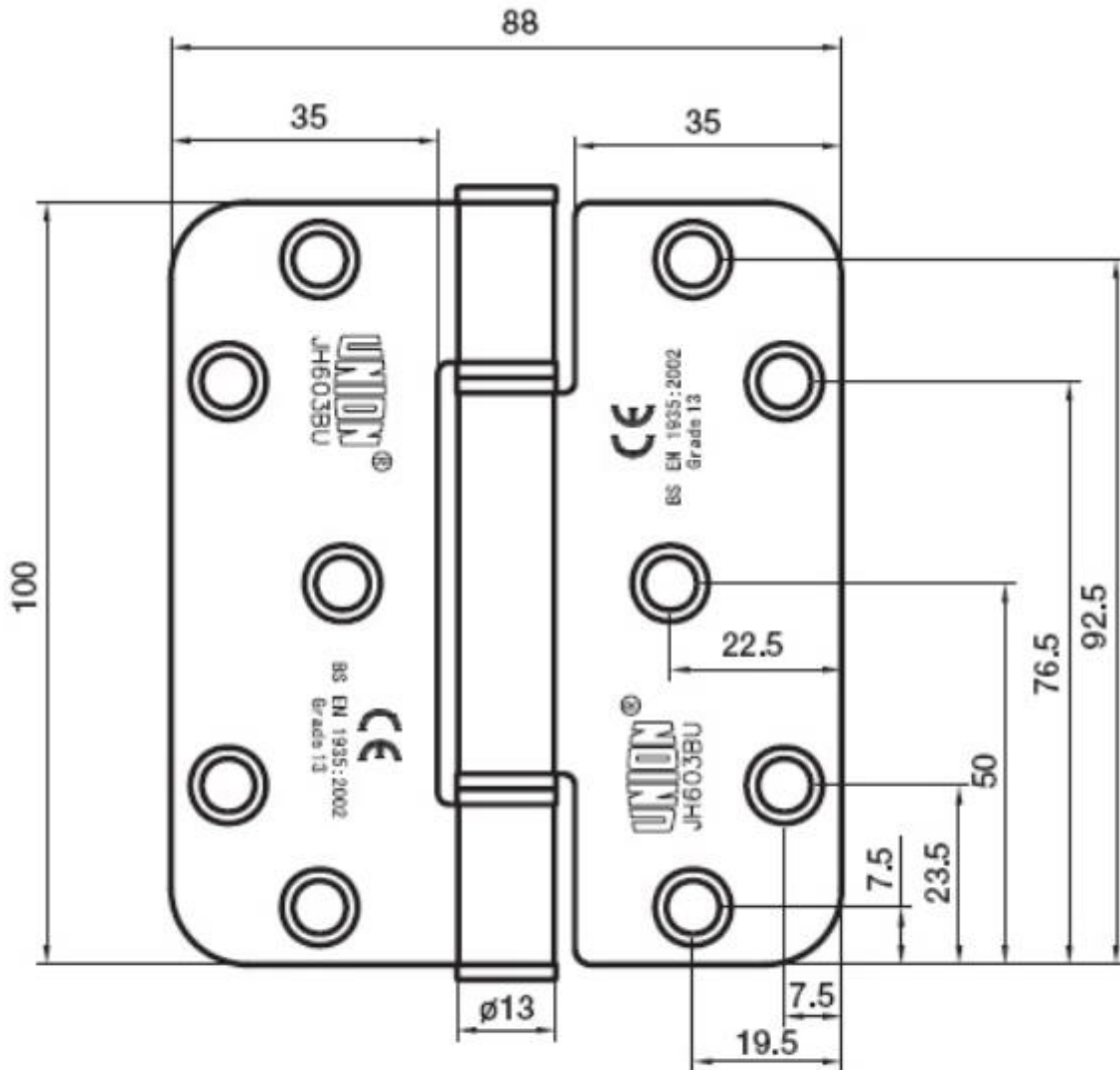


Figure 16 Doorset B – Client Drawing – Page 3



NB - bright zinc finish variant has thickness of 3.1mm



Figure 17 Items 12 & 30 – JH603BUFR-M-BZP Hinge Drawing

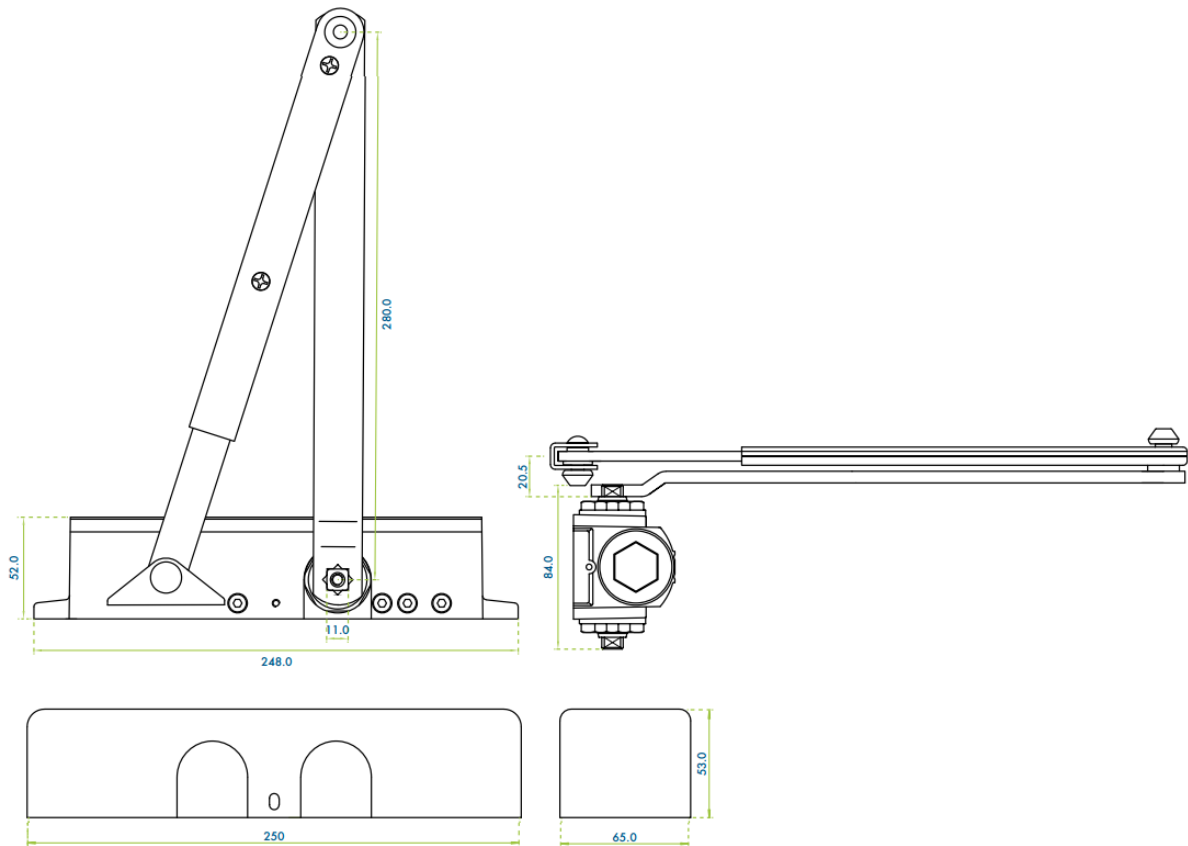


Figure 18 Item 13 ZDC0024A-PN Closer Drawing

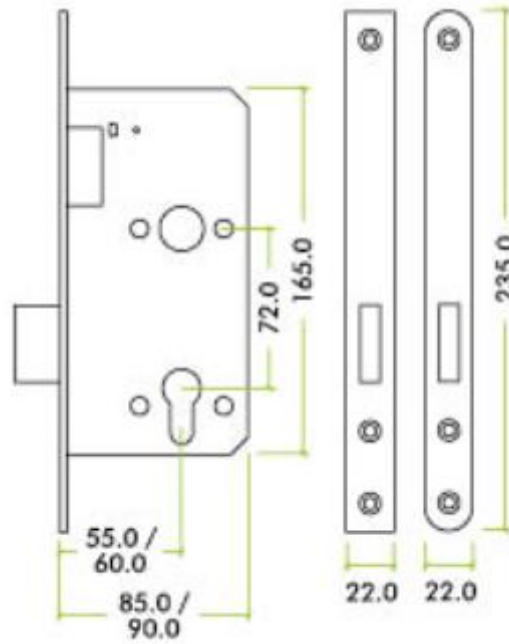


Figure 19 Item 15 – ZDL0060RSS lockset Drawing

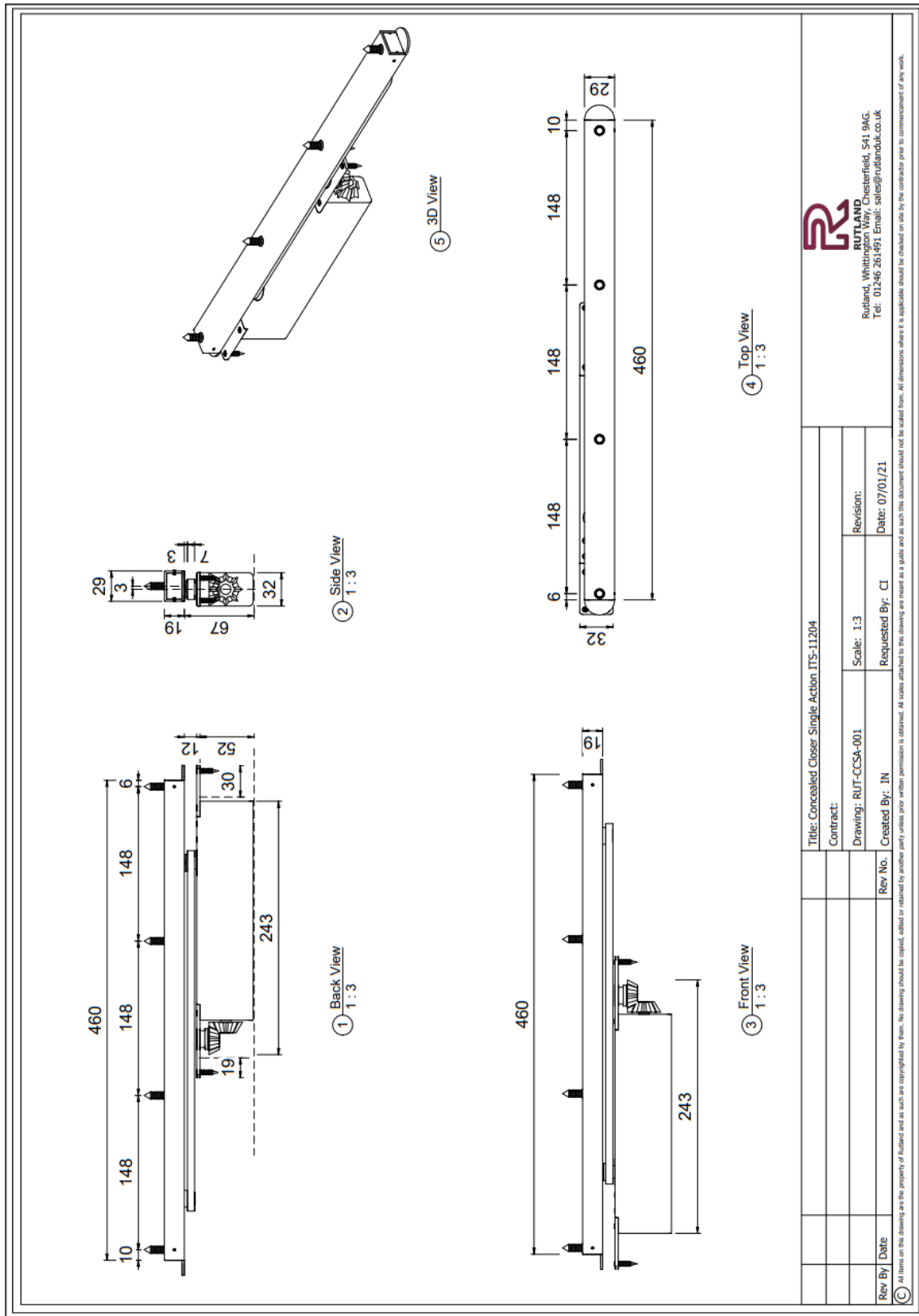


Figure 20 Item 31 – ITS/11204 Closer Drawing

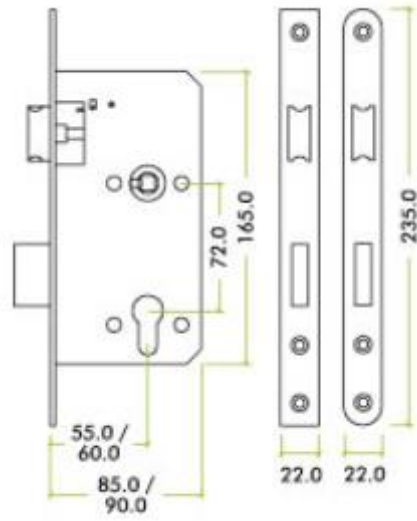


Figure 21 Item 33 -ZDL7260SS Lockset Drawing

2.2 Schedule of components

Table 5 details the schedule of components which describes the test specimen and lists the components used in the construction of the test specimen. These were provided by the test sponsor and surveyed by Warringtonfire.

All measurements were verified by Warringtonfire unless stated otherwise in the schedule of components. All components marked with an “*” have not been verified by Warringtonfire.

Table 5 Schedule of components

1. Door Frame	
Manufacturer	By Dezign Carpentry
Material	Redwood Head and Redwood Jambs
Density recorded at sampling visit	562 kg/m ³
Moisture content recorded at sampling visit	14%
Moisture content recorded at test lab	10.9%
Overall size	1111 mm wide x 2444 mm high (see figure 2)
Frame (Head)	70 mm wide x 30 mm thick (see figure 12)
Frame (Jambs)	70 mm wide x 30 mm thick (see figure 12)
Stop	20 mm wide x 12 mm deep (see figure 12)
Jamb to Head jointing method, fixing detail and location	10mm Trench cut into head to accommodate Jambs
Stop to Frame jointing method, fixing detail and location	Pinned to frame with 16g 30 mm brad nails spaced at nominally 300 mm centres no more than 100 mm away from corners (see figure 12)
Presence of Adhesives	No
Frame to supporting construction fixing method	
Manufacturer	Easydrive
Reference	TX Countersink Concrete Screws
Type & material	ZPYP Steel
Overall size	7.5 mm diameter x 100 mm long
Spacing	<200 mm from top corner of jamb, <200 mm from bottom corner of jamb and at no more than 600 mm centres
Does the fixing penetrate intumescent seal within frame reveal	No
Packing Material	Plastic
Packing Material Dimension	30 mm x various x 100 mm (cut down)
Packing Material Location	As required/in line with fixings.

2. Intumescent to Frame Reveal	
Quantity	1
Manufacturer	Sealed Tight Solutions
Reference	STS 154FO
Material	PVC Encased Graphite
Overall section size	15 mm wide x 4 mm thick
Application method	Self-Adhesive into groove
Location (relative to the opening face of the door leaf)	15 mm back from front edge (central in reveal)

Fire stopping

3. Frame to supporting construction fire stopping detail	
Manufacturer	Fire & Acoustic Seals
Reference	FAS Fire Door Intumescent Acrylic Sealant
Size	10 mm nominal
Material	Polymer based sealant
Colour	White
Fixing method	Cartridge gunned around perimeter of the specimen
4. Alkaline Earth Silicate Fibre Based Insulation	
Manufacturer	Rockwool
Reference	RWA45
Material	Stone mineral wool
Thickness	75 mm (uncompressed)
Density	45 kg/m ³ (stated)
Fixing method	Friction fitted to the gap at the head and jambs of the specimen between the frame and the supporting construction
Fixing method	Friction fitted to the gap at the head and jambs of the specimen between the frame and the supporting construction

r

Door leaf

5. Door Leaf	
Manufacturer (blank)	Wood International Agency Limited
Reference	Marksman 44 (Producing Factory W3)
Quantity of leaves on doorset	1
Glazing location relative to the head and closing edge	100 mm from the head of the leaf and 100 mm from the closing edge of the leaf
Overall leaf size supplied for testing	1045 mm wide x 2405 mm high x 44 mm thick
6. Core Element	
Manufacturer	Wood International Agency Limited
Reference	Marksman 44 (Producing Factory W3)
Material	Graduated Density Chipboard
Density recorded at sampling visit	508 kg/m ³
Moisture content recorded at test lab	10.6%
Overall thickness and reduced thickness if door leaf incorporates fielded areas	44 mm thick (removed to 24mm where decorative grooves are present)
7. Lippings	
Manufacturer	By Deziign Carpentry
Reference	Std Lipping
Material	Sapele
Density recorded at sampling visit	642 kg/m ³
Moisture content at sampling visit	14%
Overall size	2405 mm long x 44 mm wide x 6 mm thick
Fixing method	Adhered to all 4 sides of core
Location	All 4 edges
Adhesives	
Manufacturer	Würth
Type	Rapid MCPU
Reference	Rapid MCPU
Curing method	Moisture
Application method	Nozzle/spread and hand cramped
Presence of Mechanical Fixings	No

Glazing

8. Double glazed unit / Glass	
Manufacturer / Supplier	AGC/Fire Glass UK
Reference (Declaration of Performance)	Pyrobelite 7
Unit overall size	2199 mm high x 839 mm wide x 7 mm thick
Aperture location relative to the head and closing edge of the leaf	100 mm from the head of the leaf and 100 mm from the closing edge of the leaf
Aperture size (prior to any lining)	845 mm wide x 2105 mm high
Sight size	815 mm wide x 2075 mm high
Expansion allowance	3 mm all around
Presence of Timber aperture lining	No
9. Beading	
Manufacturer	By Dezign Carpentry
Reference	Type CB1 Bolection Glazing Bead
Material	Sapele
Overall size	20.5 mm x 19.1 mm with a 15°splay, including a 4 mm x 4 mm bolection
Fixing method, fixing material and sizes	Pneumatically fired steel pins, 16-gauge, 38 mm long
Fixing distances from corners, centres and angle relative to the face of the glass	50 mm from corners, 200 mm centres and at 35° to the face of the glass
10. Sealant Applied to Glass on the Internal & External Face of the Leaf	
Manufacturer	Sealed Tight Solutions
Reference	ST104SG
Material	Graphite with Nitrile cap & carrier
Overall size	5 mm x 16.5 mm
Application method	Adhered to bead upstand
11. Setting Blocks (Glazing)	
Material	Calcium Silicate
Overall size	10 mm wide x 50-70 mm deep x 3 mm thick
Location	50mm from corners on the horizontal edges, 50mm from corners on vertical edges
Presence of Adhesives to seal unit	No

Hardware

12. Hinges	
Supplier	Assa Abloy - Union
Reference	JH603BUFR-M-BZP
Quantity	3 No. per leaf
Primary material	Steel
Type	Butt Hinge
Size	
knuckle	13Ø mm x 102 mm high
blades	100 mm high x 35 mm wide x 3 mm thick
Fixings	
type	Woodscrews
material	Stainless Steel
sizes	4.5Ø mm x 30 mm long
number off per blade	5
Position of each hinge relative to the head of the leaf	See figure 12
Details of intumescent protection	1mm STS Graphite
Interruptions to Intumescent within the frame reveal	Fully interrupted
13. Door Closer	
Manufacturer	Zoo
Reference	ZDC0024A-PN
Material	
Body	Cast Aluminium
Closer arm	Steel Polished Nickel Plate
Cover	Steel Polished Nickel Plate
Configuration	Projected arm
Overall size	
Body	84 mm high (inc workings) x248 mm wide x 52 mm deep
Cover	65 mm high x 250 mm wide x 53 mm deep
Fixing method	4 No. 31 mm x 5.1 mm woodscrews

14. Drop Down Seal	
Manufacturer	Fire & Acoustic Seals Limited
Reference	FAS45
Material	Satin anodised aluminium with EPDM gasket
Body	SAA
Seal	EPDM
Face plate	Plastic
Overall size	28 mm x 11.8 mm
Body	28 mm high x 11.8 mm wide
Face plate	46 mm high x 18 mm wide x 2.5 mm thick (meeting stile side) and 46 mm high x 34 mm wide x 3 mm thick (lock stile side)
Fixing method, type and locations	Fixed through face plate, 1 No. in smaller face plate, 3 No. in large face plate, 2.8 mm x 13 mm screws. 2 No. fixings through channel, 3 mm x 40 mm screws
Location within leaf	Centrally in bottom edge
Maximum operating drop	13 mm
15. Lockset / Latch	
Manufacturer	Zoo
Reference	ZDL0060RSS
Material	Stainless steel
Overall sizes	
Lockcase	165 mm high x 90 mm wide x 14.5 mm thick
Forend plate	235 mm high x 22 mm wide x 3 mm thick
Lock bolt	35 mm high x 9 mm wide x 20 mm projection
Fixing method	2 No. screws to lock forend, 20 mm x 3.5 mm
Operation of lock bolt	Disengaged
Details of intumescent protection	1mm STS Graphite encasing body and behind forend
Location of centre of the spindle relative to the bottom of the leaf	Centre of the spindle measures 900 mm from the bottom of the leaf
Manufacturer	Zoo
16. Strike Plate	
Manufacturer	Zoo
Reference	ZDL0060RSS
Material	Stainless steel
Centre Strike Plate	70 mm high x 24 mm wide x 1.5 mm thick
Fixing method	2 No. woodscrews 21 mm x 3.5 mm
Details of intumescent protection	1mm STS Graphite
Interruptions to Intumescent within the frame reveal	Fully interrupts frame seal

17. Cylinder with Thumbturn	
Manufacturer	Assa Abloy - Yale
Reference	KMT4030-NP Superior Euro Turn 45/35
Material	Nickel Plated Brass
Overall size	33 mm high x 17 mm wide x 80 mm long
Fixing method	1 No. M5 machine screw
18. Escutcheon	
Manufacturer	Zoo
Reference	ZPS001SS
Material	Stainless Steel
Overall size	50 mm high x 50 mm wide x 8 mm thick
Fixing method	Bolt through fixings
Details of intumescent protection	None
Interruptions to Intumescent within the frame reveal	None

Doorset B

Door frame

19. Door Frame	
Manufacturer	By Dezign Carpentry
Material	Redwood Head and Redwood Jambs
Density recorded at sampling visit	510 kg/m ³ (Nominal) 463 kg/m ³ (Measured)
Moisture content recorded at sampling visit	14%
Moisture content recorded at test lab	11.4%
Overall size	999 mm wide x 2239 mm high (see figure 14)
Frame (Head)	70 mm wide x 30 mm thick (see figure 14)
Frame (Jambs)	70 mm wide x 30 mm thick (see figure 15)
Stop	20 mm wide x 12 mm deep (see figure 15)
Jamb to Head jointing method, fixing detail and location	10mm Trench cut into head to accommodate Jambs (see figure 16)
Stop to Frame jointing method, fixing detail and location	Pinned to frame with 16g 30 mm brad nails spaced at nominally 300 mm centres no more than 100 mm away from corners
Presence of Adhesives	No
Frame to supporting construction fixing method	
Manufacturer	Easydrive
Reference	TX Countersink Concrete Screws
Type & material	ZPYP Steel
Overall size	7.5 mm diameter x 100 mm long
Spacing	<200 mm from top corner of jamb, <200 mm from bottom corner of jamb and at no more than 600 mm centres
Does the fixing penetrate intumescent seal within frame reveal	No (delete as appropriate and describe)
Packing Material	Plastic
Packing Material Dimension	30 mm x various x 100 mm (cut down)
Packing Material Location	As required/in line with fixings.

20. Intumescent to Frame Reveal	
Quantity	1
Manufacturer	Pyroplex
Reference	8700
Material	PVC Encased Graphite
Overall section size	15 mm wide x 4 mm thick
Application method	Self-Adhesive into groove
Location (relative to the opening face of the door leaf)	15 mm back from front edge (central in reveal)

Fire stopping

21. Frame to supporting construction fire stopping detail	
Manufacturer	Fire & Acoustic Seals
Reference	FAS Fire Door Intumescent Acrylic Sealant
Size	10 mm nominal
Material	Polymer based sealant
Colour	White
Fixing method	Cartridge gunned around perimeter of the specimen
22. Alkaline Earth Silicate Fibre Based Insulation	
Manufacturer	Rockwool
Reference	RWA45
Material	Stone mineral wool
Thickness	75 mm (uncompressed)
Density	45 kg/m ³ (stated)
Fixing method	Friction fitted to the gap at the head and jambs of the specimen between the frame and the supporting construction

Door leaf

23. Door Leaf	
Manufacturer (blank)	Wood International Agency Limited
Reference	Marksman 44 (Producing Factory W3)
Quantity of leaves on doorset	1
Glazing location relative to the head and closing edge	100 mm from the head of the leaf and 100 mm from the closing edge of the leaf
Overall leaf size supplied for testing	933 mm wide x 2200 mm high x 44 mm thick
Grooves	
Layout	See Figures 14 & 15
Size & fixing	Sapele inlays into 18mm wide x 10 mm deep grooves, adhered with PVA glue. Sapele inlays then grooved 10 mm wide x 7 mm deep.

24. Core Element	
Manufacturer	Wood International Agency Limited
Reference	Marksman 44 (Producing factory W3)
Material	Graduated Density Chipboard
Density recorded at sampling visit	535 kg/m ³ (Nominal) 547 kg/m ³ (Measured) See SC24009T
Moisture content recorded at test lab	11.4%
Overall thickness and reduced thickness if door leaf incorporates fielded areas	44 mm thick
25. Lippings	
Manufacturer	By Deziign Carpentry
Reference	Std Lipping
Material	Sapele
Density recorded at sampling visit	640 kg/m ³ (Nominal) 651 kg/m ³ (Measured)
Moisture content at sampling visit	14%
Overall size	2200 mm long x 44 mm wide x 6 mm thick
Fixing method	Adhered to all 4 sides of core
Location	All 4 edges
Adhesives	
Manufacturer	Wurth
Type	Rapid MCPU
Reference	Rapid MCPU
Curing method	Moisture
Application method	Nozzle/spread and hand cramped
Presence of Mechanical Fixings	No

Glazing

26. Double glazed unit / Glass	
Manufacturer / Supplier	Pyroguard
Reference (Declaration of Performance)	Pyroguard 2 EW30/7-1
Unit overall size	
Upper panel	1494 mm high x 244 mm wide x 7 mm thick
Lower panel	394 mm high x 244 mm wide x 7 mm thick
Aperture location relative to the head and closing edge of the leaf	
Upper panel	150 mm from the head of the leaf and 150 mm from the closing edge of the leaf
Lower panel	170 mm from the base of the leaf and 150 mm from the closing edge of the leaf
Aperture size (prior to any lining)	
Upper panel	1500 mm high x 250 mm wide
Lower panel	394 mm high x 244 mm wide
Sight size	
Upper panel	1470 mm high x 220 mm wide
Lower panel	270 mm high x 220 mm wide
Expansion allowance	3 mm all around
Presence of Timber aperture lining	No
27. Beading	
Manufacturer	By Deziign Carpentry
Reference	Type CB1 Bolection Glazing Bead
Material	Sapele
Overall size	19.5 mm x 18.9 mm with a 15°splay, including a 4 mm x 4 mm bolection
Fixing method, fixing material and sizes	Pneumatically fired steel pins, 16-gauge, 38 mm long
Fixing distances from corners, centres and angle relative to the face of the glass	50 mm from corners, 200 mm centres and at 35° to the face of the glass
28. Sealant Applied to Glass on the Internal & External Face of the Leaf	
Manufacturer	DIG
Reference	15 mm x 5 mm Intumescent Foam Glazing Tape
Material	Foam Tape
Overall size	15 mm x 5 mm
Application method	Adhered to bead

29. Setting Blocks (Glazing)

Material	Calcium Silicate
Overall size	10 mm wide x 50-70 mm deep x 3 mm thick
Location	50mm from corners on the horizontal edges, 50mm from corners on vertical edges
Presence of Adhesives to seal unit	No

Hardware

30. Hinges

Supplier	Assa Abloy - Union
Reference	JH603BUFR-M-BZP
Quantity	3 No. per leaf
Primary material	Steel
Type	Butt Hinge
Size	
knuckle	13Ø mm x 102 mm high
blades	100 mm high x 35 mm wide x 3 mm thick
Fixings	
type	Woodscrews
material	Stainless Steel
sizes	4.5Ø mm x 30 mm long
number off per blade	5
Position of each hinge relative to the head of the leaf	See figure 14
Details of intumescent protection	1mm Flexifire from Fire And Acoustic Seals
Interruptions to Intumescent within the frame reveal	Fully interrupted

31. Door Closer	
Manufacturer	Rutland
Reference	ITS.11204
Material	
Body	Cast Aluminium
Closer arm	Steel Polished Nickel Plate
Side arm channel	Aluminium
Configuration	Concealed cam action overhead closer
Overall size	
Body	243 mm long x 57 mm wide x 32 mm deep
Side arm channel	460 mm long x 29 mm wide x 19 mm deep
Fixing method	4 No. 5.8 mm x 32 mm countersunk steel wood screws & 1 No. steel pinion bolt
Details of intumescent protection	Rutland IP.144 2 mm Graphite Intumescent Kit fitted around slide arm channel in frame and across top of closer unit in door leaf
32. Drop Down Seal	
Manufacturer	Fire & Acoustic Seals Limited
Reference	FAS45
Material	Satin anodised aluminium with EPDM gasket
Body	SAA
Seal	EPDM
Face plate	Plastic
Overall size	28 mm x 11.8 mm
Body	28 mm high x 11.8 mm wide
Face plate	46 mm high x 18 mm wide x 2.5 mm thick (meeting stile side) and 46 mm high x 34 mm wide x 3 mm thick (lock stile side)
Fixing method, type and locations	Fixed through face plate, 1 No. in smaller face plate, 3 No. in large face plate, 2.8 mm x 13 mm screws. 2 No. fixings through channel, 3 mm x 40 mm screws.
Location within leaf	Centrally in bottom edge
Maximum operating drop	13 mm

33. Lockset / Latch	
Manufacturer	Zoo
Reference	ZDL7260SS
Material	Stainless steel
Overall sizes	
Lockcase	165 mm high x 90 mm wide x 14.5 mm thick
Forend plate	235 mm high x 22 mm wide x 3 mm thick
Latch bolt	30 mm high x 12 mm wide x 12 mm projection
Lock bolt	35 mm high x 9 mm wide x 20 mm projection
Fixing method	2 No. 21 mm x 3.5 mm woodscrews
Operation of latch bolt	Disengaged
Operation of lock bolt	Disengaged
Details of intumescent protection	1mm Interdens Monoammonium Phosphate
Location of centre of the spindle relative to the bottom of the leaf	Centre of the spindle measures 900 mm from the bottom of the leaf
34. Strike Plate	
Manufacturer	Zoo
Reference	ZDL7660SS
Material	Stainless steel
Centre Strike Plate	180 mm high x 24 mm wide x 1.5 mm thick with a 135 mm x 16 mm strike extension
Fixing method	3 No. 21mm x 3.5mm woodscrews
Details of intumescent protection	1mm Interdens Monoammonium Phosphate
Interruptions to Intumescent within the frame reveal	Fully interrupts frame seal
35. Cylinder with Thumbturn	
Manufacturer	Assa Abloy - Yale
Reference	KMT3030-NP Superior 70 mm
Material	Nickel plated brass
Overall size	33 mm high x 17 mm wide x 70 mm (30:10:30) long
Fixing method	1 No. M5 Machine screw
36. Escutcheon	
Manufacturer	Zoo
Reference	ZPS001SS
Material	Stainless Steel
Overall size	50 mm high x 50 mm wide x 8 mm thick
Fixing method	Bolt through fixings
Details of intumescent protection	None
Interruptions to Intumescent within the frame reveal	None

Supporting Construction

AAC Concrete Lintel	
Type	Steel reinforced concrete lintel
Material	Steel reinforced autoclaved aerated concrete
Density	670 kg/m ³
Thickness	150 mm
Overall size	Steel reinforced concrete lintel
Size 1	150 mm wide x 250 mm high x 3000 mm long
Lightweight Blockwork	
Manufacturer	THERMALITE
Reference	THERMALITE Shield
Material	Lightweight concrete blocks
Thickness	150 mm wide x 215 mm high x 440 mm long
Density	946 ~ 960 kg/m ³ (measured)
Fixing method	Ordinary sand/cement mortar, mix 3:1
Alkaline Earth Silicate Fibre Based Insulation	
Manufacturer	Morgan Advanced Materials
Reference	Superwool Plus
Material	High temperature insulation wool
Thickness	25 mm, uncompressed
Density	96 kg/m ³ (stated)

2.3 Supporting construction

Table 6 details the supporting construction used for this fire resistance test.

Table 6 Supporting construction

Item	Detail		
Supporting construction	150 mm thick low-density concrete wall with a low-density concrete lintel at the head as described in section 7.2 of EN 1363-1: 2020.		
Dimensions	Width	3050 mm	
	Height	3050 mm	
	Thickness	150 mm	
Aperture dimensions		Width	Height
	Doorset A	1144 mm	2474 mm
	Doorset B	1029 mm	2272 mm
Restraint conditions	Restrained on all edges		

3. Test procedure

Table 7 details the test procedure for this fire resistance test.

Table 7 Test procedure

Item	Detail	
Test standard	The test was performed in accordance with BS 476-20:1987 and BS 476-22:1987 Clause 8 determination of fire resistance of uninsulated doorsets and shutter assemblies.	
Fire Test Study Group (FTSG) resolutions	Certain aspects of some fire test specifications are open to different interpretations. FTSG have identified a number of these areas and have agreed on resolutions which define a common agreement of interpretations between fire test laboratories that are members of the group. If such resolutions apply to this test, they have been followed.	
Deviations from test method	None	
Instrumentation and equipment	<p>The instrumentation was provided in accordance with BS 476-20:1987 and BS 476-22:1987 as follows:</p> <ul style="list-style-type: none"> The specimen temperature was measured by nine mineral insulated metal sheathed (MIMS) Type K thermocouples – with wire diameters not greater than 0.5 mm, an overall diameter of 1.5 mm, and the measuring junction insulated from the sheath. The thermocouples protruded a minimum of 25 mm from steel supporting tubes. The unexposed side specimen temperatures were measured by Type K thermocouples with wire diameters less than 0.5 mm soldered to 12 mm diameter x 0.2 mm thick copper discs covered by 30 mm x 30 mm x 2.0 mm thick inorganic insulating pads. 	
Pre-test conditioning	The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of 4 days. Throughout this period of time both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 9.5°C to 20.5°C and 37% to 64% respectively.	
Pre-test measurements	Doorset A	
	Opening force	29.7 Nm
	Closing force	16.4 Nm
	Distance from hinge	1000 mm
	Doorset B	
	Opening force	31.6 Nm
	Closing force	17.0 Nm
	Distance from hinge	1000 mm
Installation details	Delivery date of the test specimen	
	Start date for construction of supporting construction	15 January 2024
	Completion date for construction of supporting construction	18 January 2024
	Start date for installation of test specimen	19 January 2024
	Completion date for installation of	19 January 2024

Item	Detail		
	test specimen		
	Supporting construction constructed by	Representatives of the test sponsor	
	Doorset installed by	Representatives of the test sponsor	
Symmetry	Asymmetrical: <ul style="list-style-type: none"> • Doorset A opened into the furnace. • Doorset B opened into the furnace. The direction of exposure was decided by the test sponsor.		
Ambient laboratory temperature	Start of the test	16.0 °C	
	Minimum temperature	15.0 °C	
	Maximum temperature	16.0 °C	
Sampling / specimen selection	Appendix E includes the sampling report. A representative of BM Trada sampled and selected the following components of the tested specimen:		
	Component	sampling date	sampling report reference
	WIAD-MMN44-ITT-787-Z15-P1 Rev B	07/06/2024	SC24010T
	WIAD- MMN44-ITT-779-GR2	12/07/2024	SC24009T

4. Test measurements and results

Table 8 summarises the results achieved by the test specimen against the performance criteria listed in BS 476-20:1987 and BS 476-22:1987 Clause 8 determination of fire resistance of uninsulated doorsets and shutter assemblies for the following parameters:

- Integrity – It is required that there is no collapse of the specimen, no sustained flaming on the unexposed surface and no loss of impermeability.
- Insulation – The mean temperature rise of the unexposed surface must not be greater than 140°C and the maximum temperature rise must not be greater than 180°C. Insulation failure also occurs simultaneously with integrity failure.
- Radiation – Two water-cooled foil heat flux meters were used to record the heat radiation from the doorset, the heat flux meters were positioned at a distance of 2360 mm from Doorset A and 2159 mm from Doorset B, so that the angle of view circumscribed the diagonal of the doorset.

Appendix A includes observations of any significant behaviour of the specimen and details of the occurrence of the relevant performance criteria.

Appendix B details the location of the instrumentation used during the test.

Appendix C includes details of the measurements taken during the test, including the radiation measurements.

Appendix D includes photographs of the test specimen before, during and after the test.

Appendix E includes the sampling report.

Table 8 Detailed test results

Criteria		Doorset A	Doorset B
Integrity		30 minutes	33 integrity failure
Sustained flaming		30 minutes	33 Minutes
Failure with gap gauge		33 Minutes	33 Minutes
Cotton pad failure		33 Minutes	33 Minutes
Radiation			
Radiation intensity	15 kW/m ²	Radiation intensity of 15 kW/m ² was not reached after 34 minutes	Radiation intensity of 15 kW/m ² was not reached after 34 minutes
Notes:			
The test results for the specimen only apply to the tested orientation. The test was discontinued after 34 minutes. ‘*’ indicates failure due to integrity failure.			

5. Application of test results

5.1 Validity

This document is the original version of this test report and is written in English. In case of doubt, the original version prevails over a translation. This document is issued subject to Warringtonfire's standard terms and conditions, which are available at: [Terms and Conditions | Element](#).

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criteria for assessing the potential fire hazard of the product in use, nor can the results be extrapolated and applied to other products.

Reports are statements of fact(s) prepared in accordance with the referenced version of the standard(s) stated in Section 3 of this report. Reports are based upon the information provided to Warringtonfire. Warringtonfire takes no responsibility for the accuracy or completeness of such information.

The results stated in this report apply to the test specimens as received.

This report details the method of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in BS 476-20: 1987 and BS 476-22: 1987.

Any significant deviation with respect to size, constructional details, loads, stresses, edge or end conditions other than those allowed under the field of direct application in the relevant test method is not covered by this report.

Any differences in relation to the aforementioned characteristics may significantly affect the performance and will therefore invalidate the application of the test results to the variant product. It is recommended that any proposed variation to the tested configuration or product should be referred to the test sponsor. The test sponsor should then obtain appropriate documentary evidence of compliance from Warringtonfire or another accredited testing authority. The supplier of the product is responsible for ensuring that the product which is supplied for use is identical to the test specimens that were tested.

The specification and the interpretation of fire test methods are both the subject of ongoing development and refinement. Changes in the applicability of the results of tests in relation to associated legislation may also occur. For these reasons the currency and the relevance of test reports should be considered by the user.

The test report also relates only to the sample(s) of the product submitted to the test. The laboratory accepts no responsibility for the representativeness of the test specimens unless so stated in the test report.

Confidence that the product that is supplied to the market will have the performance indicated in the test report can be supported by use of third-party certification schemes.

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5.2 Uncertainty of measurement

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

Appendix A Test observations

Table 9 shows the observations of any significant behaviour of the specimen during the test.

Table 9 Test observations

Min	Sec	System	Observation
00	00	Doorset A & B	Commencement of test
03	00	Doorset B	Doorset B glazing is reacting and turning opaque
05	00	Doorset A & B	Doorsets Unrestrained
06	00	Doorset A & B	All glazing is now opaque across both doorsets
08	30	Doorset B	brown discolouration in the closer position of Doorset B and up the hinge edge
10	30	Doorset A	Seal falling out of the head of the glazing panel on Doorset A
15	00	Doorset A	Leading edge on Doorset A deflecting towards the furnace
17	30	Doorset A	Seal coming away fown the left edge of glazing on Doorset B
26	00	Doorset A & B	Browning discolouration around the perimeter of both leaves
30	46	Doorset A	Sustained flaming at the head of the glazing on A. This means integrity failure is deemed to have occurred
33	40	Doorset B	Sustained flaming on glass B . This means integrity failure is deemed to have occurred
34	00	Doorset A & B	End of test

Appendix B Instrumentation locations

Figure 5 shows the instrumentation locations for this fire resistance test.

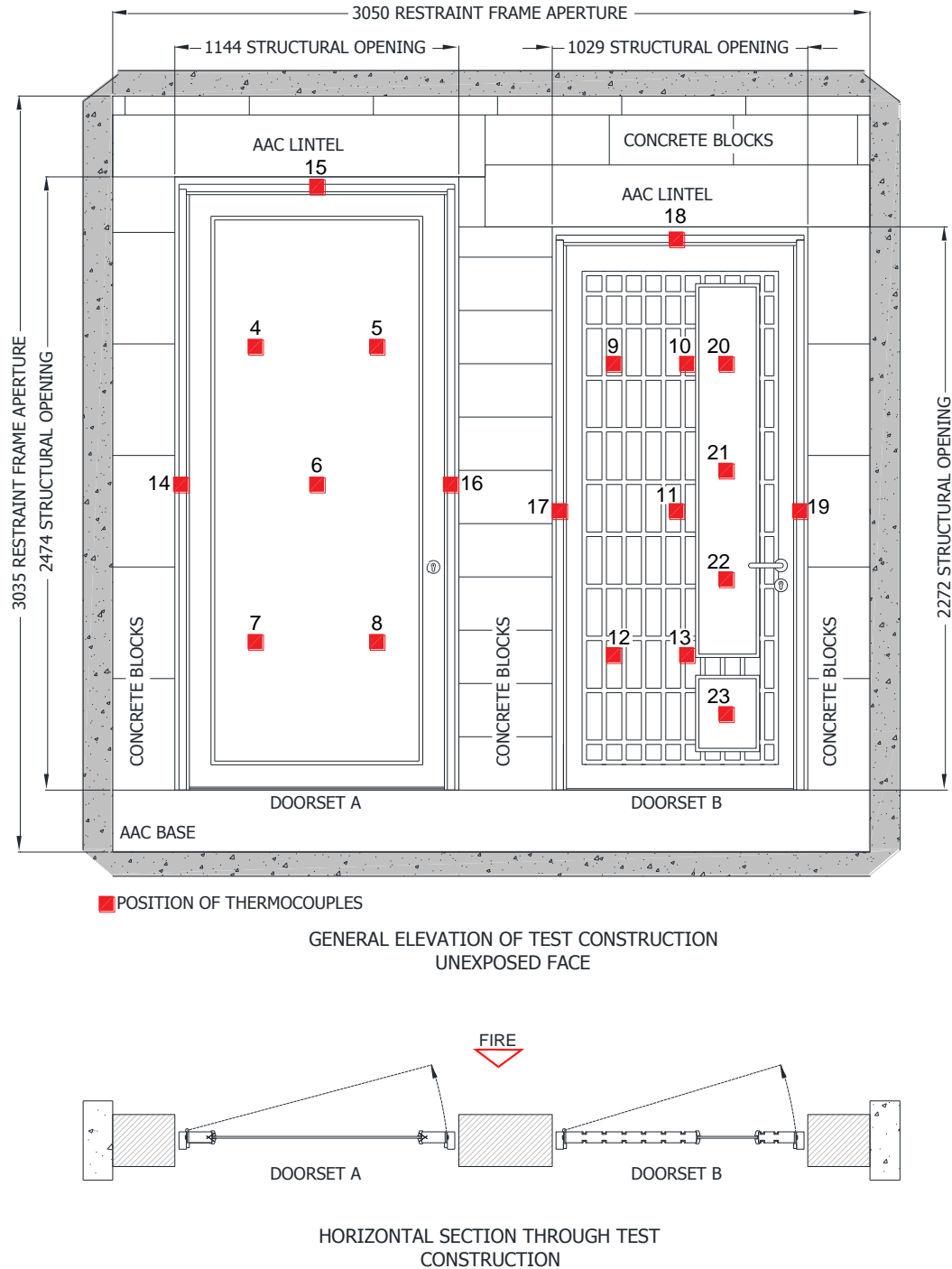


Figure 5 Instrumentation locations

Appendix C Test data

C.1 Furnace temperature and deviation

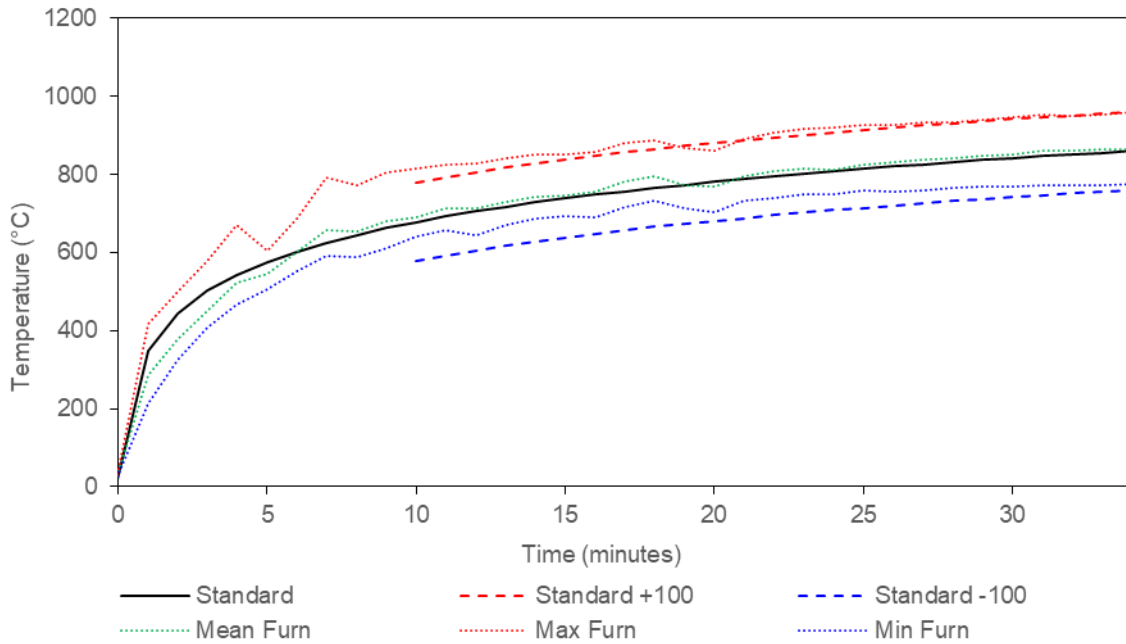


Figure 6 Furnace thermocouple temperature vs time

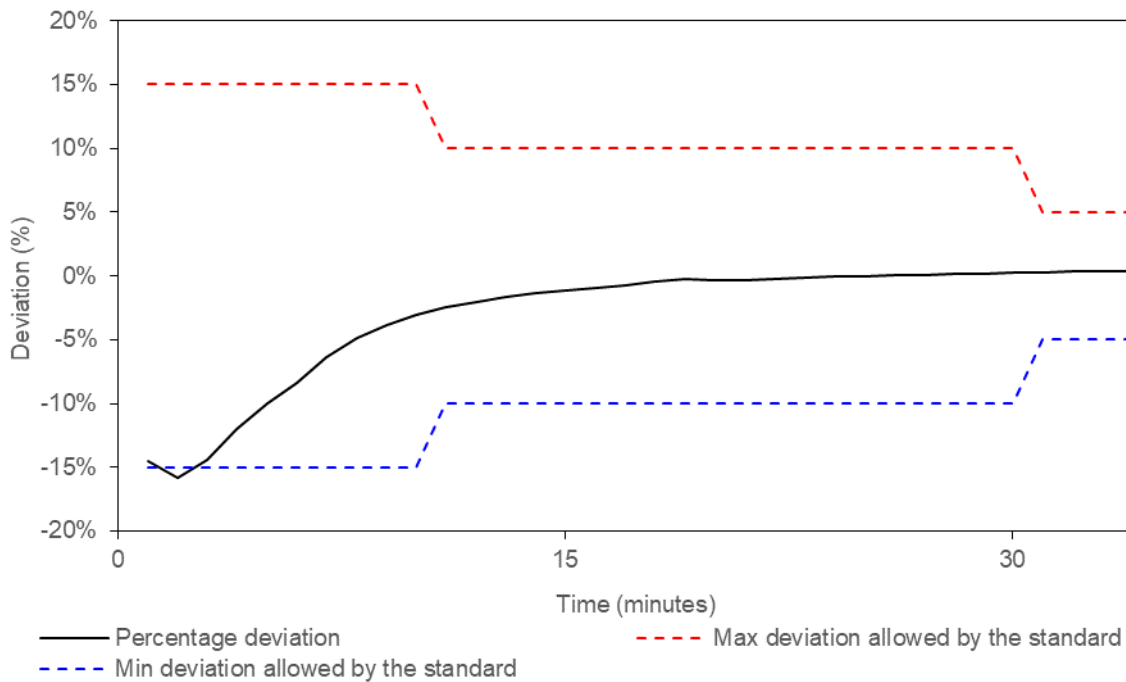


Figure 7 Percentage deviation of exposure severity vs time

C.2 Furnace pressure

The furnace pressure was taken at 2200 mm above the sill of the test specimen.

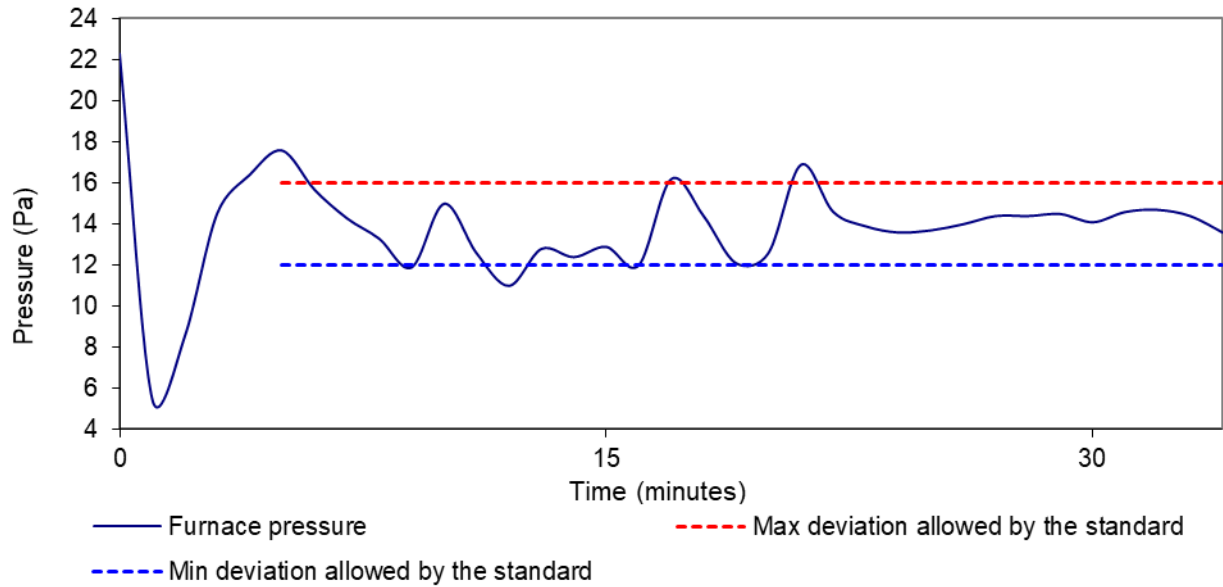


Figure 8 Furnace pressure

C.3 Specimen temperatures

Table 10 Individual And Mean Temperatures Recorded On The Unexposed Surface Of Doorset A

Time (mins)	Tc 004 (°C)	Tc 005 (°C)	Tc 006 (°C)	Tc 007 (°C)	Tc 008 (°C)	Average (°C)
0	27.0	27.0	26.0	26.0	28.0	26.8
1	31.0	30.0	29.0	28.0	30.0	29.6
2	41.0	41.0	37.0	36.0	38.0	38.6
3	55.0	56.0	53.0	52.0	55.0	54.2
4	78.0	78.0	75.0	75.0	79.0	77.0
5	105.0	105.0	102.0	103.0	108.0	104.6
6	127.0	121.0	131.0	130.0	131.0	128.0
7	129.0	127.0	131.0	130.0	132.0	129.8
8	131.0	135.0	131.0	135.0	137.0	133.8
9	137.0	141.0	134.0	141.0	145.0	139.6
10	146.0	145.0	139.0	146.0	152.0	145.6
11	153.0	149.0	146.0	152.0	156.0	151.2
12	155.0	153.0	152.0	158.0	159.0	155.4
13	161.0	157.0	159.0	165.0	164.0	161.2
14	169.0	163.0	167.0	173.0	172.0	168.8
15	180.0	173.0	178.0	186.0	184.0	180.2
16	194.0	186.0	192.0	200.0	197.0	193.8
17	208.0	201.0	207.0	215.0	212.0	208.6
18	223.0	218.0	224.0	230.0	228.0	224.6
19	238.0	236.0	242.0	247.0	245.0	241.6
20	254.0	254.0	259.0	262.0	262.0	258.2
21	267.0	270.0	272.0	275.0	276.0	272.0
22	280.0	287.0	287.0	287.0	289.0	286.0
23	293.0	303.0	300.0	299.0	302.0	299.4
24	305.0	318.0	312.0	311.0	314.0	312.0
25	315.0	331.0	323.0	323.0	325.0	323.4
26	324.0	344.0	332.0	334.0	336.0	334.0
27	332.0	356.0	342.0	343.0	346.0	343.8
29	349.0	379.0	364.0	364.0	364.0	364.0
30	358.0	388.0	375.0	373.0	373.0	373.4
31	367.0	393.0	385.0	379.0	380.0	380.8
32	376.0	396.0	390.0	384.0	386.0	386.4
33	383.0	399.0	394.0	388.0	390.0	390.8
34	389.0	401.0	397.0	391.0	393.0	394.2

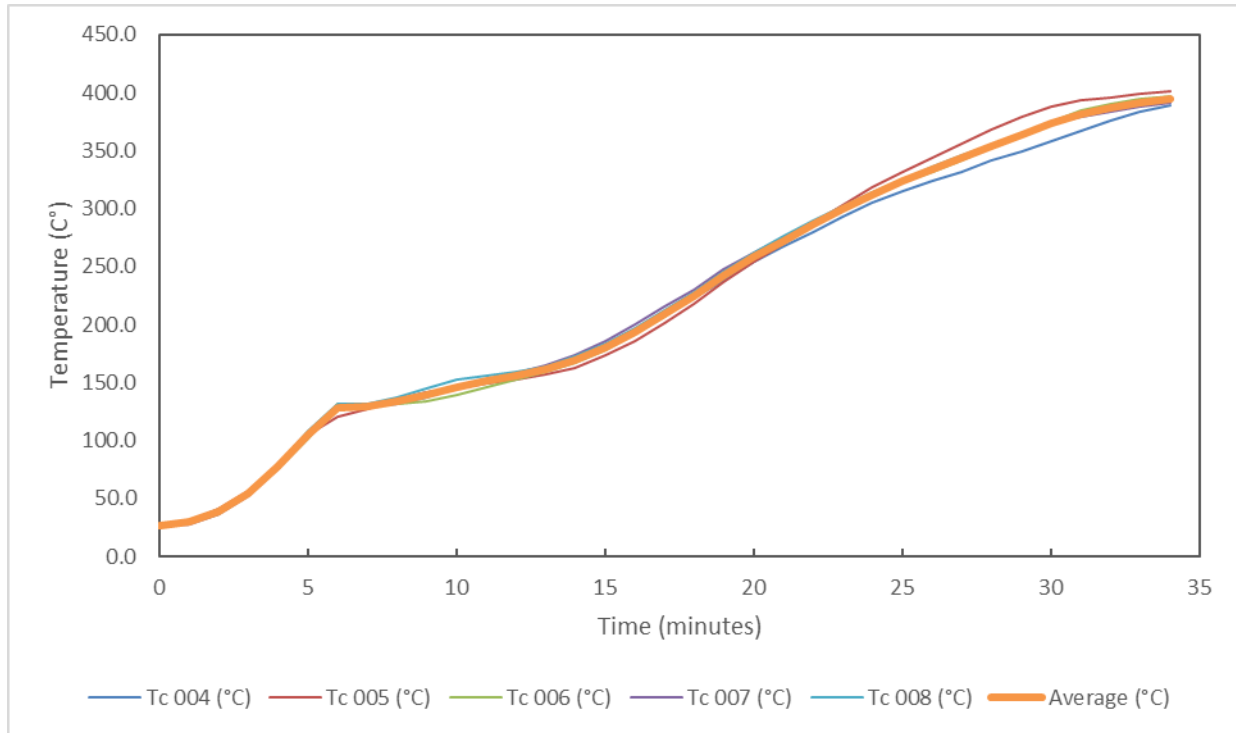


Figure 9 Individual And Mean Temperatures Recorded On The Unexposed Surface Of Doorset A

Table 11 Individual And Mean Temperatures Recorded On The Unexposed Surface Of Doorset B

Time (mins)	Tc 009 (°C)	Tc 010 (°C)	Tc 011 (°C)	Tc 012 (°C)	Tc 013 (°C)	Average (°C)
0	25.0	26.0	25.0	24.0	25.0	25.0
1	27.0	26.0	26.0	24.0	25.0	25.6
2	26.0	26.0	26.0	24.0	25.0	25.4
3	29.0	26.0	25.0	24.0	25.0	25.8
4	31.0	26.0	25.0	24.0	25.0	26.2
5	30.0	26.0	25.0	24.0	25.0	26.0
6	29.0	26.0	25.0	24.0	25.0	25.8
7	28.0	26.0	25.0	24.0	25.0	25.6
8	28.0	26.0	25.0	24.0	25.0	25.6
9	28.0	26.0	25.0	24.0	25.0	25.6
10	29.0	27.0	25.0	25.0	25.0	26.2
11	32.0	28.0	27.0	27.0	26.0	28.0
12	38.0	30.0	29.0	31.0	28.0	31.2
13	44.0	34.0	33.0	35.0	31.0	35.4
14	49.0	37.0	38.0	41.0	34.0	39.8
15	54.0	41.0	42.0	45.0	37.0	43.8
16	59.0	45.0	46.0	49.0	41.0	48.0
17	62.0	49.0	50.0	53.0	45.0	51.8
18	65.0	53.0	53.0	56.0	48.0	55.0
19	68.0	57.0	56.0	59.0	51.0	58.2
20	70.0	60.0	59.0	61.0	54.0	60.8
21	72.0	62.0	62.0	63.0	56.0	63.0
22	74.0	65.0	64.0	64.0	58.0	65.0
23	75.0	67.0	66.0	66.0	60.0	66.8
24	76.0	69.0	68.0	67.0	63.0	68.6
25	77.0	71.0	69.0	68.0	64.0	69.8
26	78.0	73.0	71.0	69.0	66.0	71.4
27	79.0	75.0	72.0	70.0	68.0	72.8
28	80.0	76.0	73.0	71.0	69.0	73.8
29	80.0	77.0	74.0	72.0	71.0	74.8
30	81.0	78.0	75.0	73.0	72.0	75.8
31	81.0	80.0	75.0	73.0	73.0	76.4
32	82.0	81.0	76.0	74.0	74.0	77.4
33	82.0	83.0	77.0	75.0	75.0	78.4
34	83.0	85.0	77.0	75.0	76.0	79.2

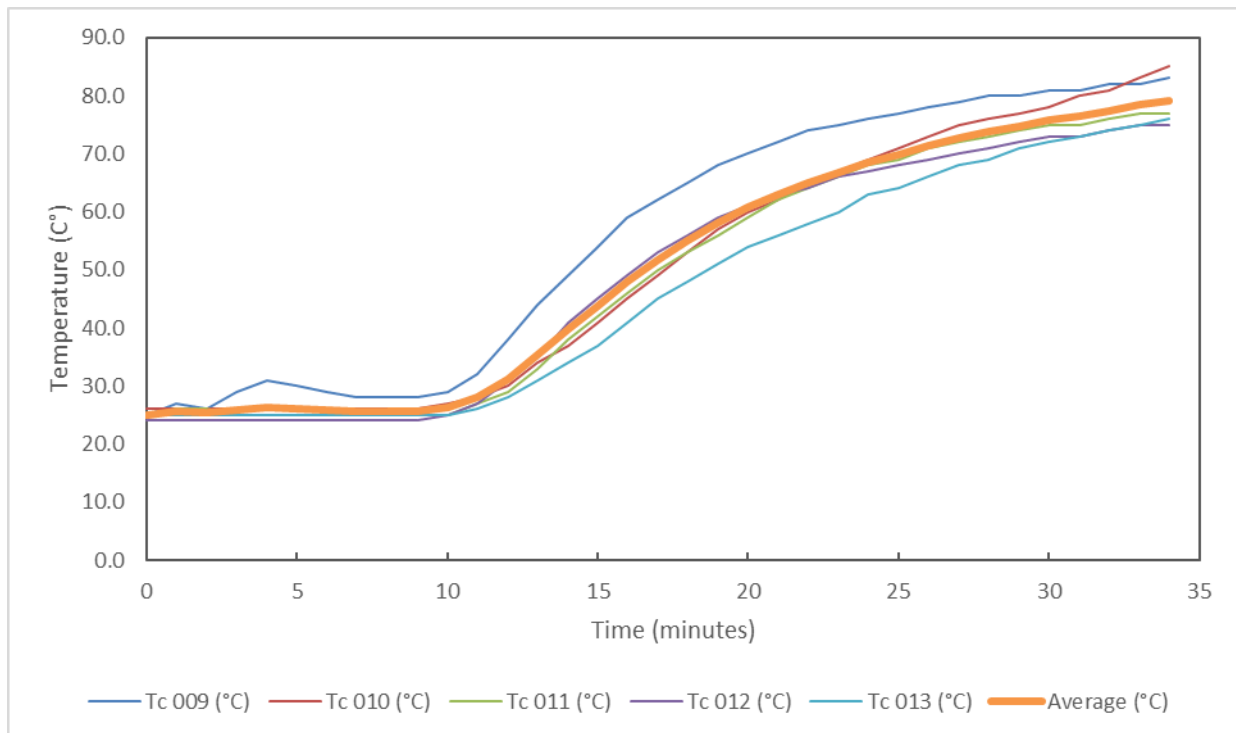


Figure 10 Individual And Mean Temperatures Recorded On The Unexposed Surface Of Doorset B

Table 12 Individual Temperatures Recorded On The Unexposed Surface Of The Frame On Doorset A

Time (mins)	Tc 014 (°C)	Tc 015 (°C)	Tc 016 (°C)
0	24.0	24.0	24.0
1	24.0	25.0	24.0
2	24.0	24.0	24.0
3	24.0	25.0	24.0
4	24.0	26.0	24.0
5	26.0	28.0	26.0
6	26.0	29.0	25.0
7	26.0	31.0	25.0
8	25.0	32.0	25.0
9	25.0	33.0	24.0
10	25.0	34.0	25.0
11	26.0	35.0	25.0
12	26.0	35.0	25.0
13	26.0	36.0	25.0
14	27.0	36.0	25.0
15	28.0	38.0	26.0
16	29.0	39.0	26.0
17	30.0	40.0	26.0
18	31.0	42.0	27.0
19	33.0	44.0	28.0
20	35.0	46.0	28.0
21	37.0	47.0	29.0
22	38.0	49.0	29.0
23	41.0	52.0	30.0
24	43.0	53.0	31.0
25	44.0	55.0	32.0
26	46.0	58.0	32.0
27	48.0	59.0	33.0
28	50.0	62.0	34.0
29	51.0	64.0	35.0
30	53.0	66.0	35.0
31	54.0	73.0	36.0
32	56.0	91.0	37.0
33	57.0	107.0	38.0
34	59.0	142.0	39.0

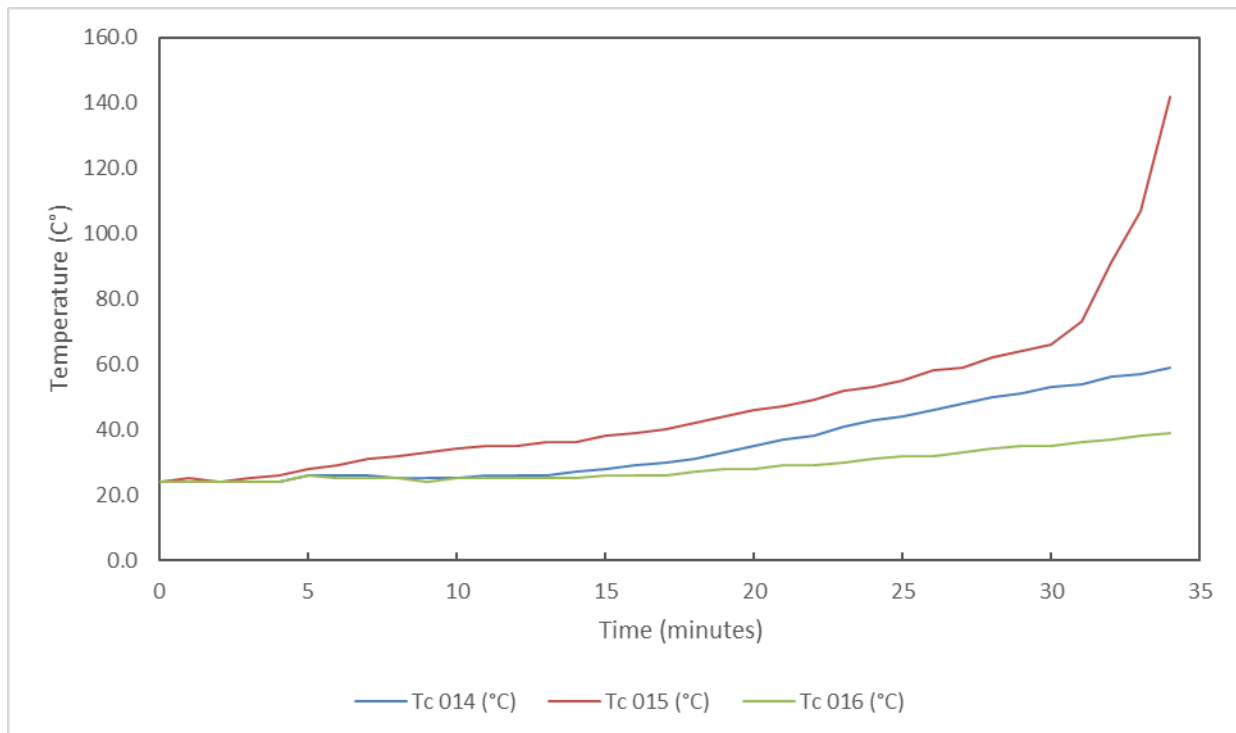


Figure 11 Individual Temperatures Recorded On The Unexposed Surface Of The Frame On Doorset A

Table 13 Individual Temperatures Recorded On The Unexposed Surface Of The Frame On Doorset B

Time (mins)	Tc 017 (°C)	Tc 018 (°C)	Tc 019 (°C)
0	22.0	24.0	23.0
1	22.0	27.0	23.0
2	22.0	26.0	23.0
3	22.0	31.0	23.0
4	22.0	36.0	23.0
5	22.0	39.0	23.0
6	23.0	39.0	24.0
7	23.0	39.0	24.0
8	22.0	39.0	24.0
9	22.0	39.0	24.0
10	22.0	39.0	24.0
11	23.0	40.0	24.0
12	23.0	42.0	24.0
13	23.0	43.0	25.0
14	23.0	45.0	25.0
15	24.0	47.0	25.0
16	24.0	49.0	26.0
17	24.0	52.0	26.0
18	25.0	54.0	27.0
19	26.0	57.0	27.0
20	26.0	59.0	28.0
21	27.0	61.0	28.0
22	28.0	63.0	29.0
23	28.0	65.0	30.0
24	29.0	66.0	31.0
25	30.0	67.0	31.0
26	31.0	69.0	32.0
27	32.0	70.0	33.0
28	33.0	71.0	34.0
29	34.0	72.0	35.0
30	36.0	74.0	36.0
31	37.0	75.0	37.0
32	38.0	76.0	38.0
33	40.0	79.0	39.0
34	41.0	80.0	40.0

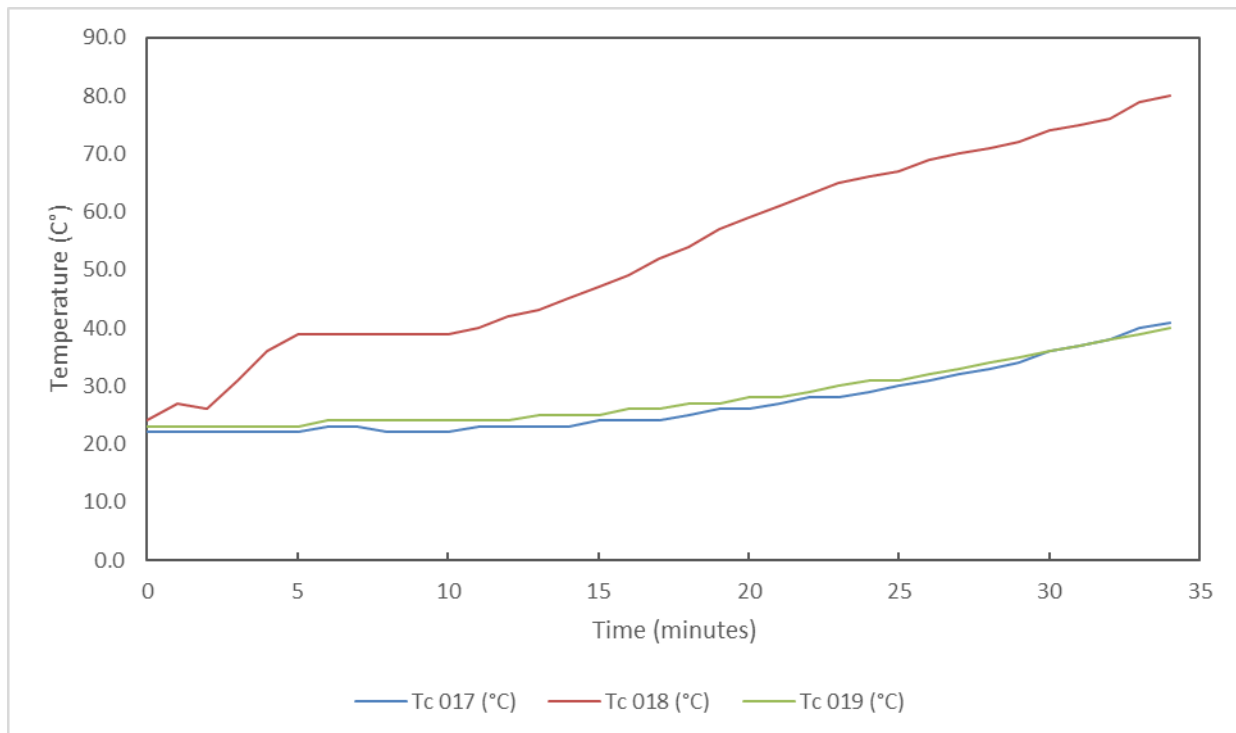


Figure 12 Individual Temperatures Recorded On The Unexposed Surface Of The Frame On Doorset B

Table 14 Individual Temperatures Recorded On The Unexposed Surface Of The Glazing On Doorset B

Time (mins)	T _c 020 (°C)	T _c 021 (°C)	T _c 022 (°C)	T _c 023 (°C)
0	29.0	28.0	23.0	22.0
1	37.0	36.0	28.0	25.0
2	55.0	53.0	42.0	31.0
3	85.0	83.0	68.0	44.0
4	102.0	102.0	97.0	69.0
5	104.0	105.0	100.0	90.0
6	110.0	113.0	104.0	94.0
7	128.0	133.0	119.0	99.0
8	148.0	153.0	137.0	109.0
9	161.0	168.0	154.0	123.0
10	174.0	184.0	165.0	139.0
11	191.0	209.0	181.0	152.0
12	216.0	234.0	199.0	163.0
13	240.0	259.0	221.0	175.0
14	261.0	279.0	239.0	190.0
15	282.0	299.0	259.0	209.0
16	298.0	315.0	277.0	227.0
17	312.0	329.0	293.0	245.0
18	324.0	342.0	309.0	261.0
19	334.0	354.0	322.0	278.0
20	342.0	364.0	332.0	290.0
21	347.0	371.0	337.0	299.0
22	353.0	378.0	345.0	308.0
23	361.0	386.0	354.0	316.0
24	369.0	392.0	363.0	323.0
25	376.0	397.0	372.0	330.0
26	384.0	400.0	379.0	337.0
27	390.0	404.0	384.0	344.0
28	396.0	407.0	386.0	351.0
29	401.0	411.0	387.0	358.0
30	407.0	415.0	389.0	365.0
31	414.0	419.0	390.0	374.0
32	423.0	424.0	392.0	383.0
33	436.0	428.0	394.0	391.0
34	470.0	438.0	396.0	400.0

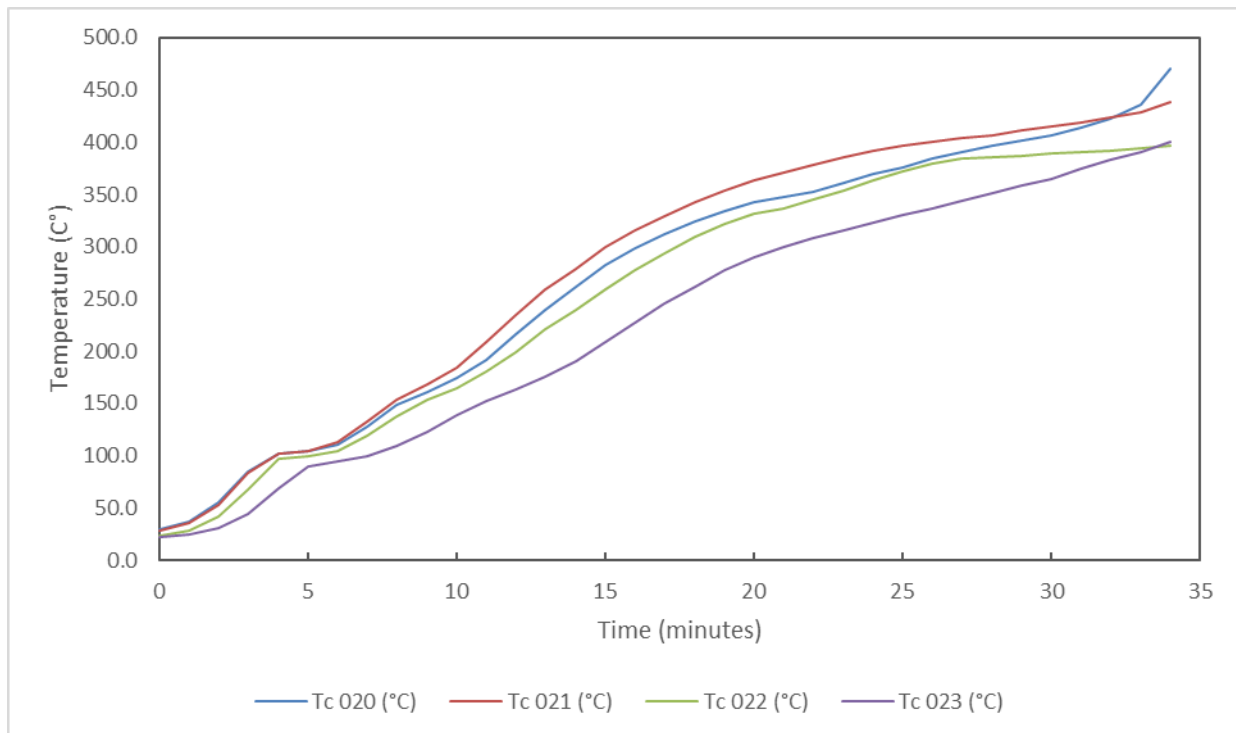


Figure 13 Individual Temperatures Recorded On The Unexposed Surface Of The Glazing On Doorset B

C.4 Specimen deflections

Table 15 and Table 16 detail the deflection measurements of the test specimen at locations given in Figure 14.

Negative measurements show movement of the test specimen away from the furnace. Positive measurements show movement of the test specimen towards the furnace.

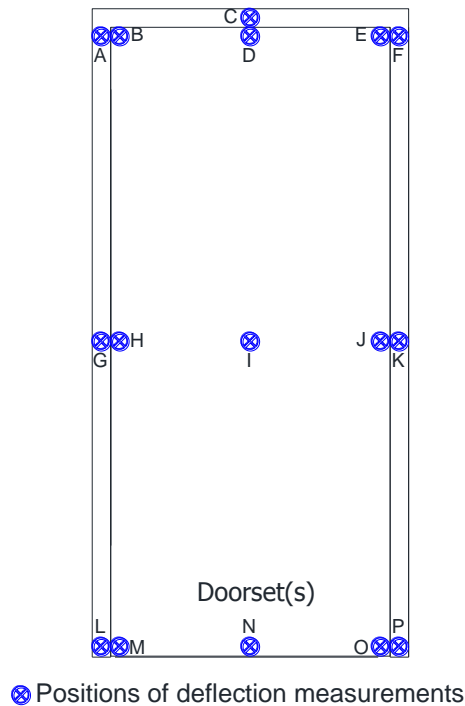


Figure 14 Position of deflection measurements

Table 15 Deflections – Doorset A

Deflections (mm)												
Time (mins)	A	B	C	D	E	F	G	H	I	J	K	L
0	0	0	0	0	0	0	0	0	0	0	0	0
5	-2	-9	4	7	17	7	16	-4	-9	2	11	15
10	-9	-4	2	7	9	5	37	0	-5	7	14	26
15	-6	-12	-3	16	18	3	63	-3	-1	2	15	22
20	4	-9	-4	14	11	3	70	1	-4	4	15	24
25	-13	-7	-6	4	3	3	57	-6	-1	1	15	23
30	5	-6	0	6	8	0	80	-3	-1	5	13	23
Max	-13	-12	-6	16	18	7	80	-6	-9	7	15	26

Table 16 Deflections – Doorset B

Time (mins)	Deflections (mm)											
	A	B	C	D	E	F	G	H	I	J	K	L
0	0	0	0	0	0	0	0	0	0	0	0	0
5	3	-17	-5	4	0	11	4	5	4	-2	2	-23
10	-7	-4	-10	-1	-4	11	5	5	1	1	2	-2
15	-8	-4	0	-1	-3	7	8	1	2	3	-1	2
20	2	-8	-14	-2	2	-3	-6	0	2	91	3	6
25	-2	-6	-14	0	-5	-7	-30	-5	5	7	1	-1
30	-7	-6	-16	-10	5	-4	-26	4	0	6	-3	10
Max	-8	-17	-16	-10	-5	11	-30	-5	5	91	-3	-23

C.5 Heat flux measurements

The heat flux was measured 2360 A 2159 B mm away from the specimen and is based on the maximum levels.

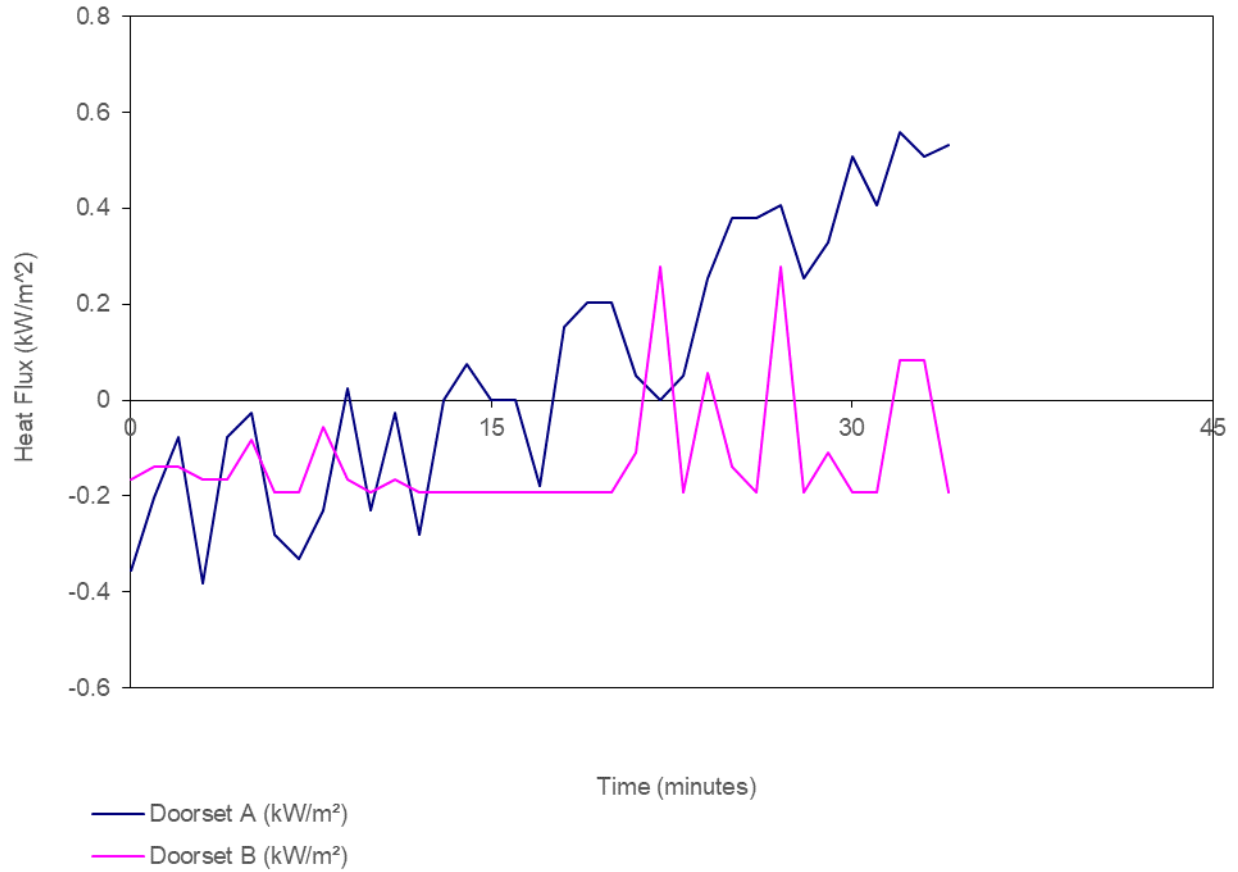


Figure 15 Heat flux measurements of the test specimen vs time

Table 17 Heat flux measurements of the test specimen vs time

Time (mins)	Doorset A (kW/m ²)	Doorset B (kW/m ²)
0	-0.356	-0.165
1	-0.203	-0.138
2	-0.076	-0.138
3	-0.381	-0.165
4	-0.076	-0.165
5	-0.026	-0.082
6	-0.279	-0.193
7	-0.33	-0.193
8	-0.229	-0.055
9	0.025	-0.165
10	-0.229	-0.193
11	-0.026	-0.165
12	-0.279	-0.193
13	0	-0.193
14	0.076	-0.193
15	0	-0.193
16	0	-0.193
17	-0.178	-0.193
18	0.152	-0.193
19	0.203	-0.193
20	0.203	-0.193
21	0.051	-0.11
22	0	0.277
23	0.051	-0.193
24	0.254	0.056
25	0.381	-0.138
26	0.381	-0.193
27	0.406	0.277
28	0.254	-0.193
29	0.33	-0.11
30	0.508	-0.193
31	0.406	-0.193
32	0.559	0.083
33	0.508	0.083
34	0.533	-0.193

Table 18 Heat flux thresholds vs time

Radiation intensity	Doorset A	Doorset B
5 kW/m ²	Radiation intensity not reached	Radiation intensity not reached
10 kW/m ²	Radiation intensity not reached	Radiation intensity not reached
15 kW/m ²	Radiation intensity not reached	Radiation intensity not reached
20 kW/m ²	Radiation intensity not reached	Radiation intensity not reached
25 kW/m ²	Radiation intensity not reached	Radiation intensity not reached

C.6 Gap measurements

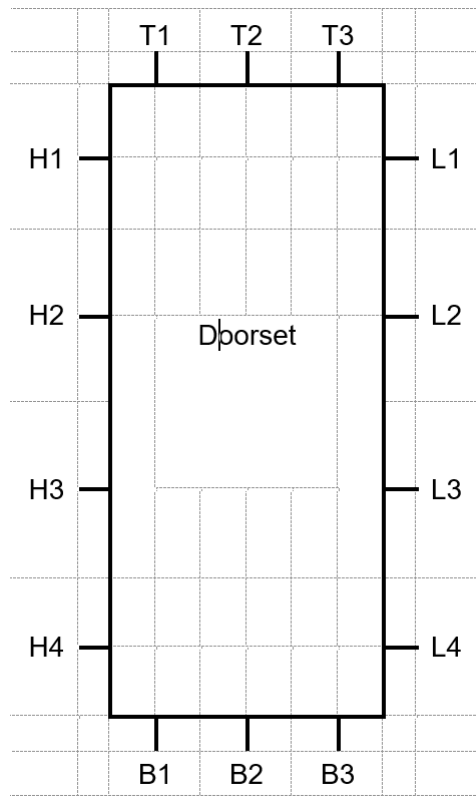


Figure 16 Gap measurements, Doorset A and B (unexposed side shown)

Table 19 Measured and calculated gap sizes for Doorset A

Doorset A (mm)					
Hinge side	Primary	Leaf to stop	Leading edge	Primary	Leaf to stop
H1	3.7	1.9	L1	2.8	4.0
H2	3.5	2.2	L2	2.7	2.0
H3	3.0	3.0	L3	2.9	3.4
H4	3.0	3.5	L4	3.2	4.9
Mean	3.3		Mean	2.9	
Max	3.7		Max	3.2	
Min	3.0		Min	2.7	
Top edge	Primary	Leaf to stop	Threshold	Primary	
T1	3.3	1.0	B1	6.6	
T2	3.5	0.3	B2	6.0	
T3	3.8	0.2	B3	6.7	
Mean	3.6		Mean	6.4	
Max	3.8		Max	6.7	
Min	3.3		Min	6.0	

Table 20 Measured and calculated gap sizes for Doorset B

Doorset B (mm)					
Hinge side	Primary	Leaf to stop	Leading edge	Primary	Leaf to stop
H1	3.4	1.8	L1	2.1	0.8
H2	3.5	1.9	L2	2.3	2.2
H3	3.4	3.2	L3	2.1	3.3
H4	3.1	2.9	L4	2.6	3.6
Mean	3.3		Mean	2.3	
Max	3.5		Max	2.6	
Min	3.1		Min	2.1	
Top edge	Primary	Leaf to stop	Threshold	Primary	
T1	3.1	2.5	B1	5.0	
T2	3.8	1.5	B2	4.6	
T3	3.7	0.4	B3	4.1	
Mean	3.5		Mean	4.6	
Max	3.8		Max	5.0	
Min	3.1		Min	4.1	

Appendix D Photographs



Figure 17 Unexposed face of the specimen before the start of the test



Figure 18 Exposed face of the specimen before the start of the test



Figure 19 Unexposed face of the specimen at 10 minutes of testing



Figure 20 Unexposed face of the specimen at 20 minutes of testing



Figure 21 Unexposed face of the specimen at 30 minutes of testing

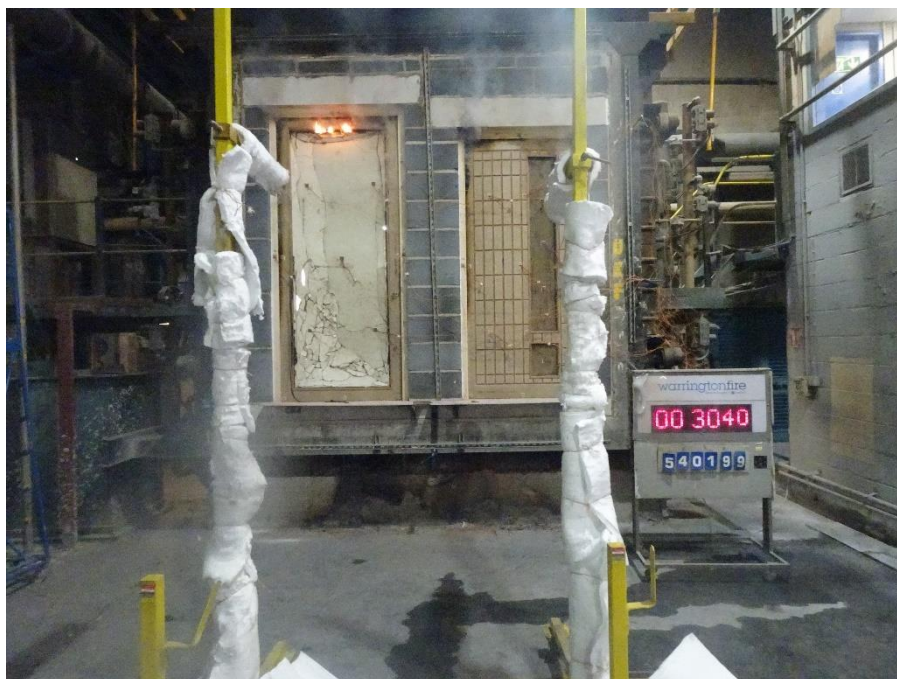


Figure 22 Unexposed face of the specimen at 30 minutes and 40 seconds of testing showing sustained flaming at the head of Doorset A glazing panel



Figure 23 Unexposed face of the specimen at 33 minutes of testing showing sustained flaming up the edge of the glazing panel on Doorset B



Figure 24 Exposed face of the specimen at the end of the test

Appendix E Sampling report

		SAMPLING VISIT REPORT		Company Name	Wood International Agency Ltd
				Establishment No.	047/E003760
				BM TRADA Approved Body ID: 1224	
Company Head Office Address	Wood International Agency Ltd Woods House 16 King Edward Road Brentwood Essex CM5 0RQ		Contact Name	Neil Harrison	
			Telephone	+44 (0) 1277 232991	
			Email Address	doors@woodia.co.uk	
Location where sampling was conducted if different from Head Office Address				Visit Date	BMT Representative
By Deziqn Carpentry, Unit 11B ERW Las, Colomendy Ind Est, Denbigh LL16 5TA				07/06/2024	Michael Chorlton
Requirement		Evidence / Comments			
Opening Meeting (names of those present)		Mr Neil Harrison / Mr Shaun Harrison			
Contract Reference		SC24010T			
Technical Specification document / FoA reference Photographs to be taken of all critical areas highlighted in the Technical Specification		Technical Drawing: WIAD-MMN44-ITT-787-Z15-P1 Rev B Technical Specification: WIAD- MMN44-ITT-787-Z15-P1 Marked up technical specification made by the sampler and must be read in conjunction with this sampling report.			
Description of product(s) sampled		Single acting single doorset incorporating Marksman 44 door core, lppd on 4 edges and hung on 3No butt hinges in softwood frame and operated with overhead face fixed closer and secured with DIN deadlock operated with cylinder and turn and finished with pattern 10 glazing.			
Product Identification / reference numbers / codes		N/A			
Batch number(s)		N/A			
Date of manufacture		January 2024			
Quantity of stock and size of sample(s) taken		1No. Doorsets at 1111mm wide x 2405mm high.			
Traceability of material records ie Purchase Orders and delivery notes		<p>Items with traceability: Frame, lipping and bead timber, density & Moisture Content. Door core. Frame Intumescents. Lipping adhesive. Glazing. Glazing bead dimensions. Glazing Intumescent. Hinges. Closer. Drop seal and fixings. Lockset and keep. Cylinder. Escutcheon.</p> <p>Items with limited or no traceability: Frame to supporting construction fixings and spacing, fire stopping and sealing. Glazing bead fixings and application angle. Setting blocks and positions. Lockset, keep and hinge Intumescent sheet.</p> <p>Please send Sampling Pack to High Wycombe Laboratory FOA Connor Payne.</p>			
Example of sampler's markings applied to the product(s) (contract reference, signature of client, date of manufacture)					
Confirmation of minimum mandatory video/live checks undertaken		<input checked="" type="checkbox"/> Glazing assembly (where applicable) <input checked="" type="checkbox"/> Hardware prep and fitting (where applicable)		<input checked="" type="checkbox"/> Finished doorset with markings <input checked="" type="checkbox"/> Sampling pack discussion	
Details of any further FPC processes witnessed during the visit.		By Deziqn do not have a formalised FPC in place. All manufacture made against the technical specification utilising traditional joinery tools and methods. Dimensional checks made throughout manufacture.			
Determine the essential characteristics of the product and confirm the details of In-process checks conducted on the sample to ensure conformity.		Door leaf specification. Hardware selection, preparation, Intumescent protection and fixings. Glazing selection, preparation, Intumescent protection and bead fixings. DIN latch with cableway and transit.			
State any items from the Technical Specification / FoA that were not witnessed and require further lab sampling		<input type="checkbox"/> Side screen / overpanel <input checked="" type="checkbox"/> Door closer		<input type="checkbox"/> Handles <input type="checkbox"/> Frame re-assembly <input checked="" type="checkbox"/> Other (see tech spec marked with 'not seen')	
Confirm any clauses within the Technical Specification that were found to be different on the sampled product/s. Non-conformances may be raised for pre-cert and audit test sampling		Refer to marked up technical specification. Areas in Green - verified during sampling Areas in Blue - Additional sampler notes Areas in Yellow with Asterisk * - Will be reported "As stated by customer"			
Closing Meeting (names of those present)		No formalised closing meeting possible. Marked up TST and draft sampling report sent for approval and signing.			
Declaration		I declare that the product/s witnessed during this sampling visit are representative of normal production.			
Company Representative Name (Print)		Company Representative Position			
Neil Harrison		Director			
BM TRADA Representative Signature		Company Representative Signature			
This sampling report remains the property of BM TRADA. BM TRADA shall keep confidential all information relating to the sampling process and your organisation and shall not disclose such information to any third party except as required by law or by BM TRADA's Accreditation Bodies. This sampling report will be shared with others within Warringtonfire Testing and Certification Ltd.					

		SAMPLING VISIT REPORT		Company Name	Wood International Agency Ltd
				Establishment No.	047/E003760
				BM TRADA Assessment Body ID: 1224	
Company Head Office Address	Wood International Agency Ltd Woods House 16 King Edward Road Brentwood Essex CM5 0RQ		Contact Name	Neil Harrison	
			Telephone	+44 (0) 1277 232991	
			Email Address	doors@woodia.co.uk	
Location where sampling was conducted if different from Head Office Address				Visit Date	BMT Representative
By Dezin Carpentry, Unit 11B ERW Las, Colomendy Ind Est, Denbigh LL16 5TA				12/07/2024	Michael Chorlton
Requirement		Evidence / Comments			
Opening Meeting (names of those present)		Mr Neil Harrison / Mr Shaun Harrison			
Contract Reference		SC24009T			
Technical Specification document / FoA reference Photographs to be taken of all critical areas highlighted in the Technical Specification		Technical Drawing: WIAD-MMN44-ITT-779-GR2-P1 Technical Specification: WIAD-MMN44-ITT-779-GR2 Marked up technical specification made by the sampler and must be read in conjunction with this sampling report.			
Description of product(s) sampled		Single acting, single leaf doorset incorporating WIA marksman 44 door leaves lipped on four edges and hung on 3No. butt hinges in softwood frame and operated by overhead concealed closers and secured with DIN Sashlock operated by handle and eurocylinder and finished with drop seal, 2 vertical vision panels and lattice of timber infilled grooves.			
Product identification / reference numbers / codes		N/A			
Batch number(s)		N/A			
Date of manufacture		In stages between 18/01/2024 and 24/06/2024 with final review 12/07/2024			
Quantity of stock and size of sample(s) taken		1No. Doorset			
Traceability of material records ie Purchase Orders and delivery notes		Items with traceability: Frame, lipping, bead and door blank material, density & MC. Door blank sampled SC23282B. Hinges and Intumescent. Door closer, Intumescent and fixings. Lockset & keep and fixings. Cylinder. Escutcheon. Glazing units. Glazing Intumescent seals. Frame Intumescent seals. Lockset and keep Intumescent. Items with limited or no traceability: Door stop fixings. Frame to supporting construction fixing type and spacing. Fire stopping and sealing material and extents. Glazing setting blocks. Hinge fixings. Lever handle manuf and type. Please send Sampling Pack to High Wycombe Laboratory FOA Connor Payne.			
Example of sampler's markings applied to the product(s) (contract reference, signature of client, date of manufacture)					
Confirmation of minimum mandatory video/live checks undertaken		<input checked="" type="checkbox"/> Glazing assembly (where applicable) <input checked="" type="checkbox"/> Hardware prep and fitting (where applicable)		<input checked="" type="checkbox"/> Finished doorset with markings <input checked="" type="checkbox"/> Sampling pack discussion	
Details of any further FPC processes witnessed during the visit.		By Dezin do not have a formalised FPC in place. All manufacture made against the technical specification utilising traditional joinery tools and methods. Dimensional checks made throughout manufacture.			
Determine the essential characteristics of the product and confirm the details of In-process checks conducted on the sample to ensure conformity.		Door leaf specification. Hardware selection, preparation, Intumescent protection and fixings. Glazing selection, preparation, Intumescent protection and bead fixings. Timber Infill grooving and Infill application.			
State any items from the Technical Specification / FoA that were not witnessed and require further lab sampling		<input type="checkbox"/> Slide screen / overpanel <input type="checkbox"/> Door closer		<input checked="" type="checkbox"/> Handles <input type="checkbox"/> Frame re-assembly <input checked="" type="checkbox"/> Other (see tech spec marked with 'not seen')	
Confirm any clauses within the Technical Specification that were found to be different on the sampled product's. Non-conformances may be raised for pre-cert and audit test sampling		Refer to marked up technical specification. Areas in Green - verified during sampling Areas in Blue - Additional sampler notes Areas in Yellow with Asterisk * - Will be reported "As stated by customer"			
Closing Meeting (names of those present)		No formalised closing meeting possible. Marked up TST and draft sampling report sent for approval and signing.			
Declaration		I declare that the product/s witnessed during this sampling visit are representative of normal production.			
Company Representative Name (Print)			Company Representative Position		
Neil Harrison			Director		
BM TRADA Representative Signature			Company Representative Signature		
This sampling report remains the property of BM TRADA. BM TRADA shall keep confidential all information relating to the sampling process and your organisation and shall not disclose such information to any third party except as required by law or by BM TRADA's Accreditation Bodies. This sampling report will be shared with others within Warringtonfire Testing and Certification Ltd.					



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