United Kingdom Testing and Certification

Test Report

The fire resistance performance of two, timber, single acting single door assembly when tested in accordance with BS 476-22: 1987 § 6.

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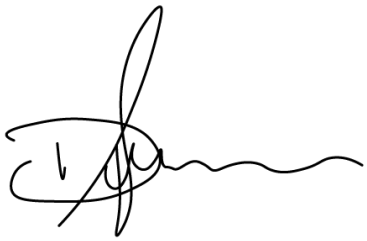
Change History

Issue Date	Revision	Created by	Authorised by	Description of Change
06/08/2024	B	NS	DF	This document replaces issue A (date issued 3/6/2024) Reason for revision: Correction to the packer listed in item 16 on page 22
03/06/2024	A	NS	DF	Initial Issue

Signatories

	
Prepared by **Nathan Small*** Technical Officer	Authorised by **Daniel Fitzsimmons*** Head of Testing

*For and on behalf of United Kingdom Testing and Certification.

Table of Contents

1 Executive Summary

1.1 Specimen Summary

Specimen A had overall nominal dimensions of 992 mm wide by 2072 mm high, incorporating a single door leaf with overall dimensions of 926 mm wide by 2040 mm high by 44 mm thick. The door leaf was formed from a flaxboard core with 4 mm thick timber lippings to the vertical edges. The leaf was hung in a softwood frame on three steel hinges.

Specimen B had overall nominal dimensions of 992 mm wide by 2072 mm high, incorporating a single door leaf with overall dimensions of 926 mm wide by 2040 mm high by 44 mm thick. The door leaf was formed from a particle board core with 8 mm thick timber lippings to all four edges. The leaf was hung in a softwood frame on three steel hinges.

1.2 Specimen Verification

United Kingdom Testing and Certification carried out a comprehensive survey to verify the information provided by the Test Sponsor. This included verifying the materials, dimensions, and manufacturing methodologies of the test specimens, wherever possible. Refer to page 16 for full details of this survey.

1.3 Specimen Installation and Fixity

Specimen A was installed into the test construction by United Kingdom Testing and Certification. The specimen was installed such that the door leaf opened towards the heating conditions at the request of the Test Sponsor. The specimen was unlatched and unbolted prior to the commencement of the test at the request of the test sponsor.

Specimen B was installed into the test construction by United Kingdom Testing and Certification. The specimen was installed such that the door leaf opened towards the heating conditions at the request of the Test Sponsor. The specimen was unlatched and unbolted prior to the commencement of the test at the request of the test sponsor.

1.4 Specimen Conditioning

The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of five days. Throughout this period, both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 8.5 °C to 14.8 °C and 67.2 % to 77.8 % respectively.

1.5 Instruction to Test

The test was conducted on 15 April 2024 at the request of the Test Sponsor. The test was witnessed by Mark Thorne, a representative of the Test Sponsor.

1.6 Sampling

United Kingdom Testing and Certification was not involved in the sampling or selection of the tested specimen or any of the components. A representative of Warringtonfire Testing and Certification Limited, trading as BM TRADA sample selected the following components of the tested specimen:

Component	Sampling date	Sampling report reference
44 mm JB Kind	22/02/2024	SC24000T
44 mm Halspan Optima	22/02/2024	SC24001T

Refer to page 41 for the copies of the sampling reports.

1.7 Expression of Results

1.7.1 Specimen

The performance criterion specified in BS 476-20: 1987 § 10 was satisfied for the following intervals:

Integrity[1]	Specimen A	33 minutes	No failure*
	Specimen B	33 minutes	No failure*
Insulation[2]	Specimen A	33 minutes	No failure*
	Specimen B	33 minutes	No failure*

*The test was discontinued after a period of 33 minutes.

[1] The time(s) in completed minutes for which the test specimen(s) continues to maintain its separating function without: a) causing ignition to the cotton pad applied in accordance with BS 476-20:1987 § 10.3.2; b) permitting the penetration of a gap gauge as specified in BS 476-20: 1987 § 10.3.2; c) resulting in sustained flaming

[2] The time(s) in completed minutes for which the test specimen(s) continues to maintain its separating function without developing temperatures on its unexposed surface which: a) increase the average temperature above the initial average temperature by more than 140 °C; b) increase at any location (including the roving thermocouple) above the initial average temperature by more than 180°C.

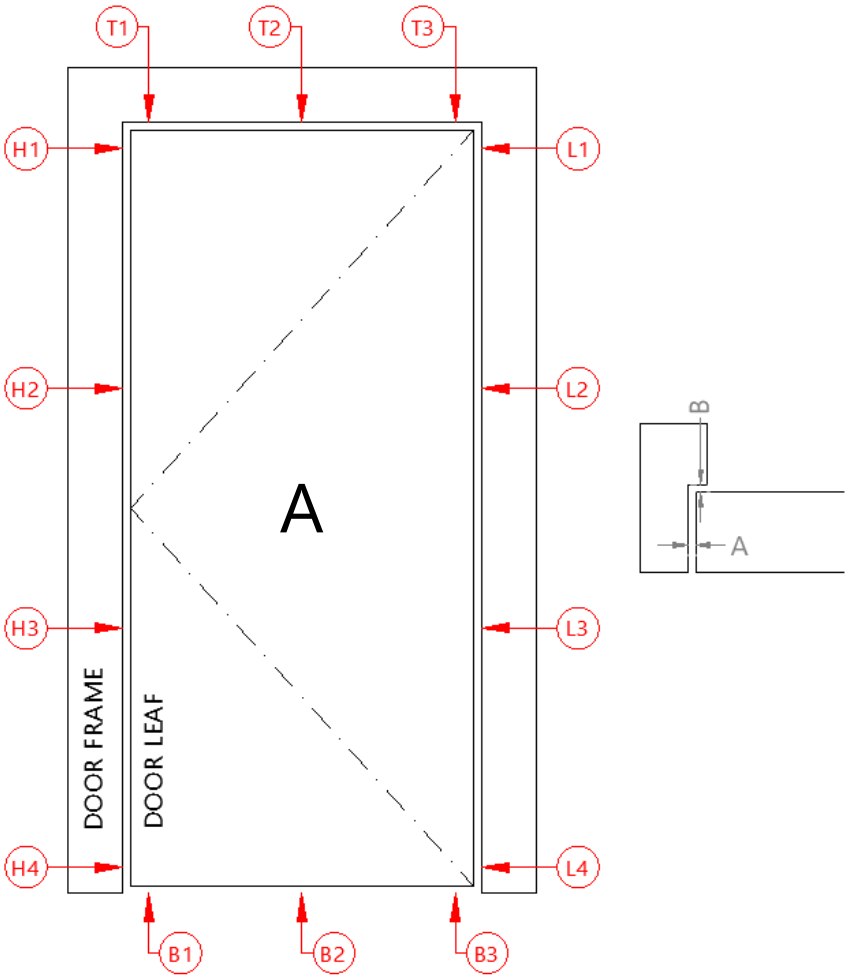
2 Pre-test Examination

2.1 Closing Force Measurement

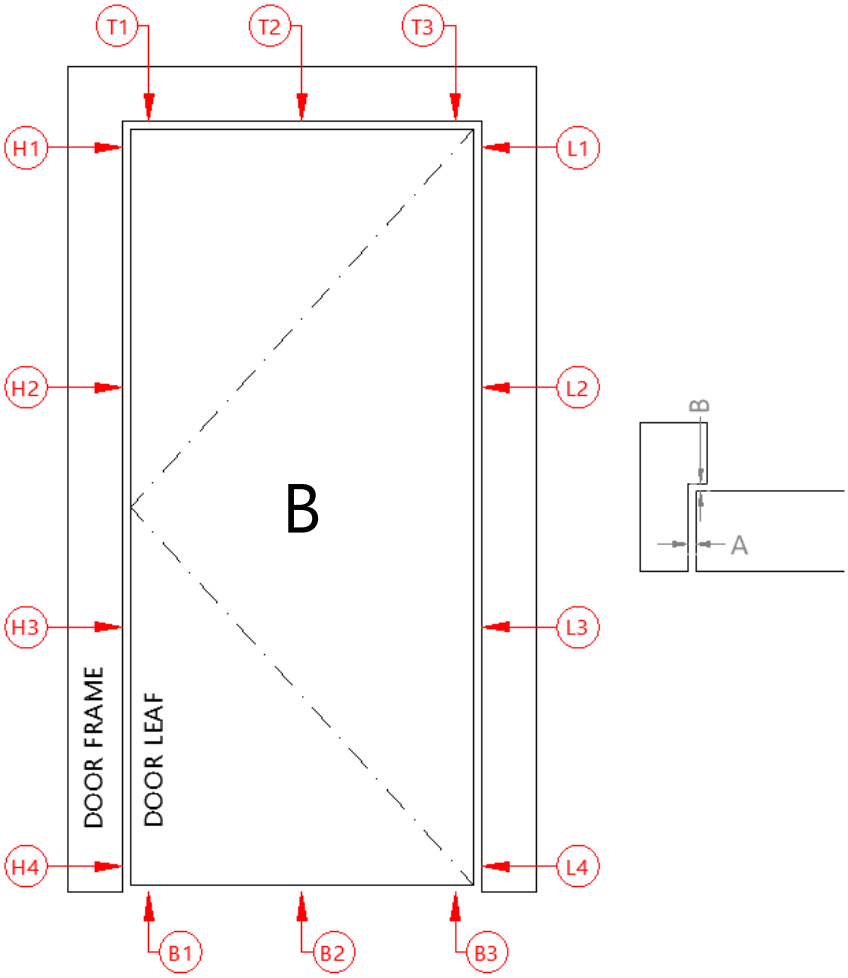
The door closing forces were measured and recorded three times. The results are presented below:

Measurement	Maximum Recorded Force (N)	Distance from Pivot to Measurement Location (m)	Moment (Nm)
Closing Force Specimen A	40.6	0.750	30.45
Opening Force Specimen A	64.9	0.750	48.675
Closing Force Specimen B	41.1	0.750	30.83
Opening Force Specimen B	76.0	0.750	57.0

2.2 Gap Measurements



Hanging Stile	A	B	Closing Stile	A	B
H1	3.4	0.0	L1	3.4	0.0
H2	3.1	0.0	L2	2.9	0.0
H3	2.7	0.0	L3	3.2	0.0
H4	3.3	0.0	L4	3.2	0.0
Mean	**3.1**		**Mean**	**3.2**	
Max	**3.4**		**Max**	**3.4**	
Min	**2.7**		**Min**	**2.9**	
Top Edge	**A**	**B**	**Bottom Edge**	**A**	
T1	4.0	0.0	B1	3.3	
T2	3.6	0.0	B2	3.4	
T3	4.3	0.0	B3	2.9	
Mean	**4.0**		**Mean**	**3.2**	
Max	**4.3**		**Max**	**3.4**	
Min	**3.6**		**Min**	**2.9**	



Hanging Stile	A	B	Closing Stile	A	B
H1	3.3	0.0	L1	2.2	0.0
H2	2.5	0.0	L2	2.8	0.0
H3	2.3	0.0	L3	0.7	0.0
H4	3.0	0.0	L4	2.8	0.0
Mean	**2.8**		**Mean**	**2.1**	
Max	**3.3**		**Max**	**2.8**	
Min	**2.3**		**Min**	**0.7**	
Top Edge	**A**	**B**	**Bottom Edge**	**A**	
T1	3.8	0.0	B1	4.6	
T2	4.2	0.0	B2	4.2	
T3	4.1	0.0	B3	3.2	
Mean	**4.0**		**Mean**	**4.0**	
Max	**4.2**		**Max**	**4.6**	
Min	**3.8**		**Min**	**3.2**	

3 Test Specimen Drawings

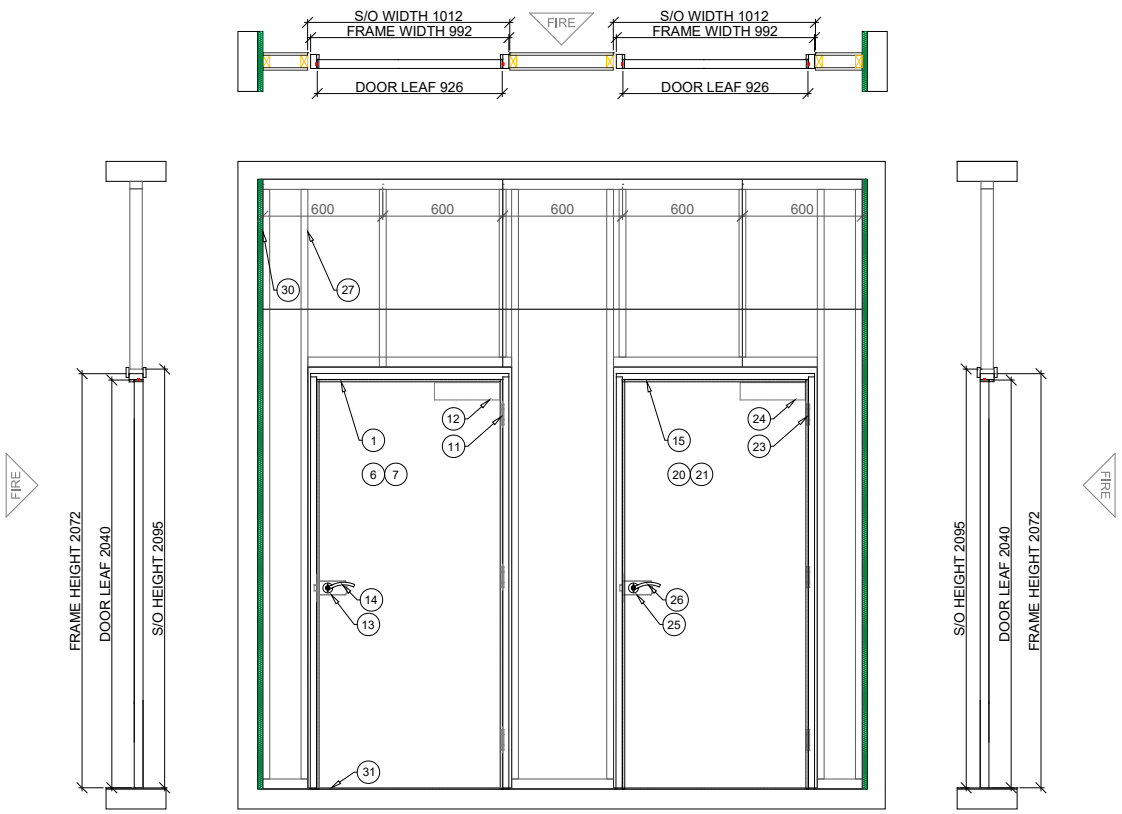


Figure 1 - General arrangement of test construction viewed from the unexposed surface

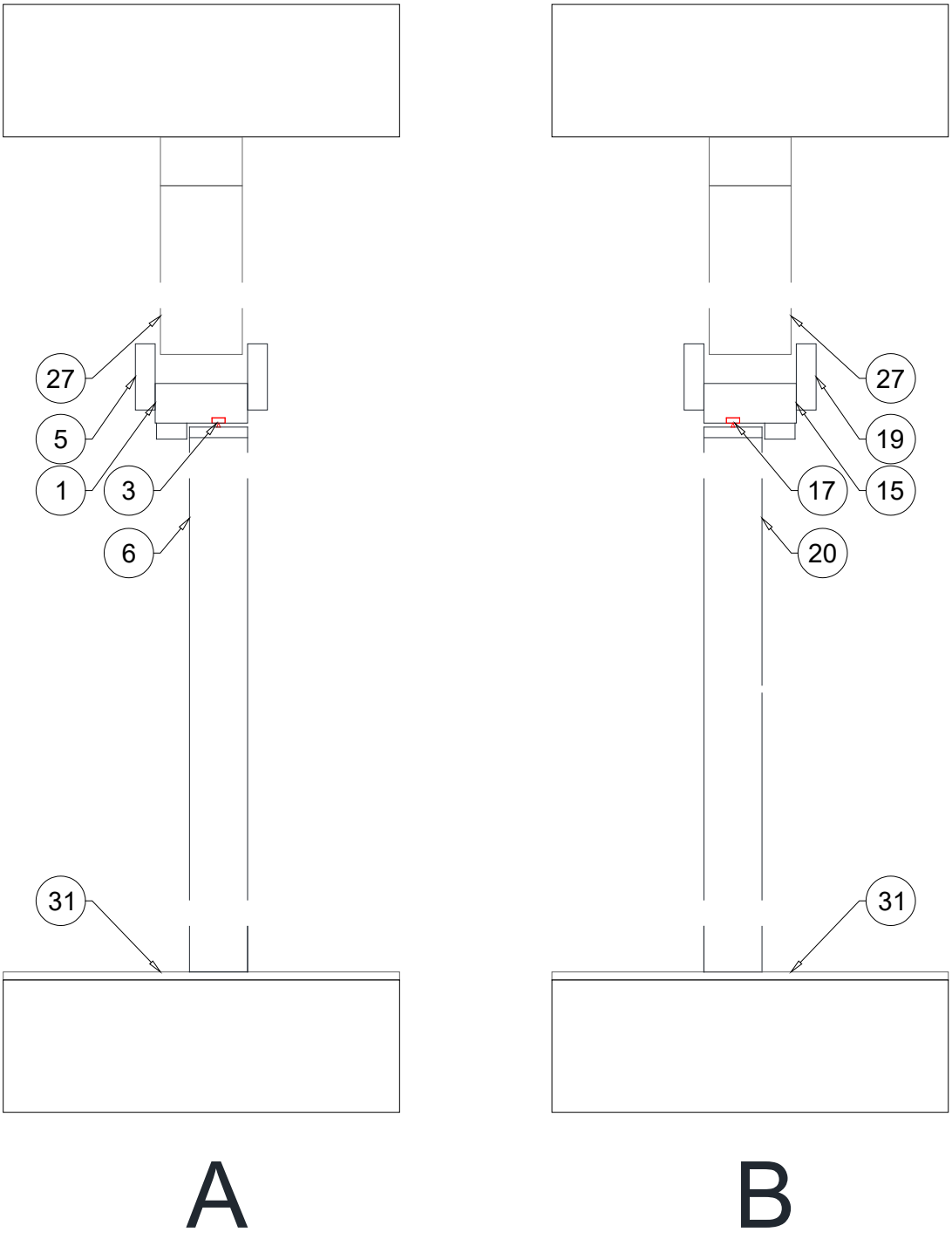


Figure 2 - Typical vertical section through the specimens

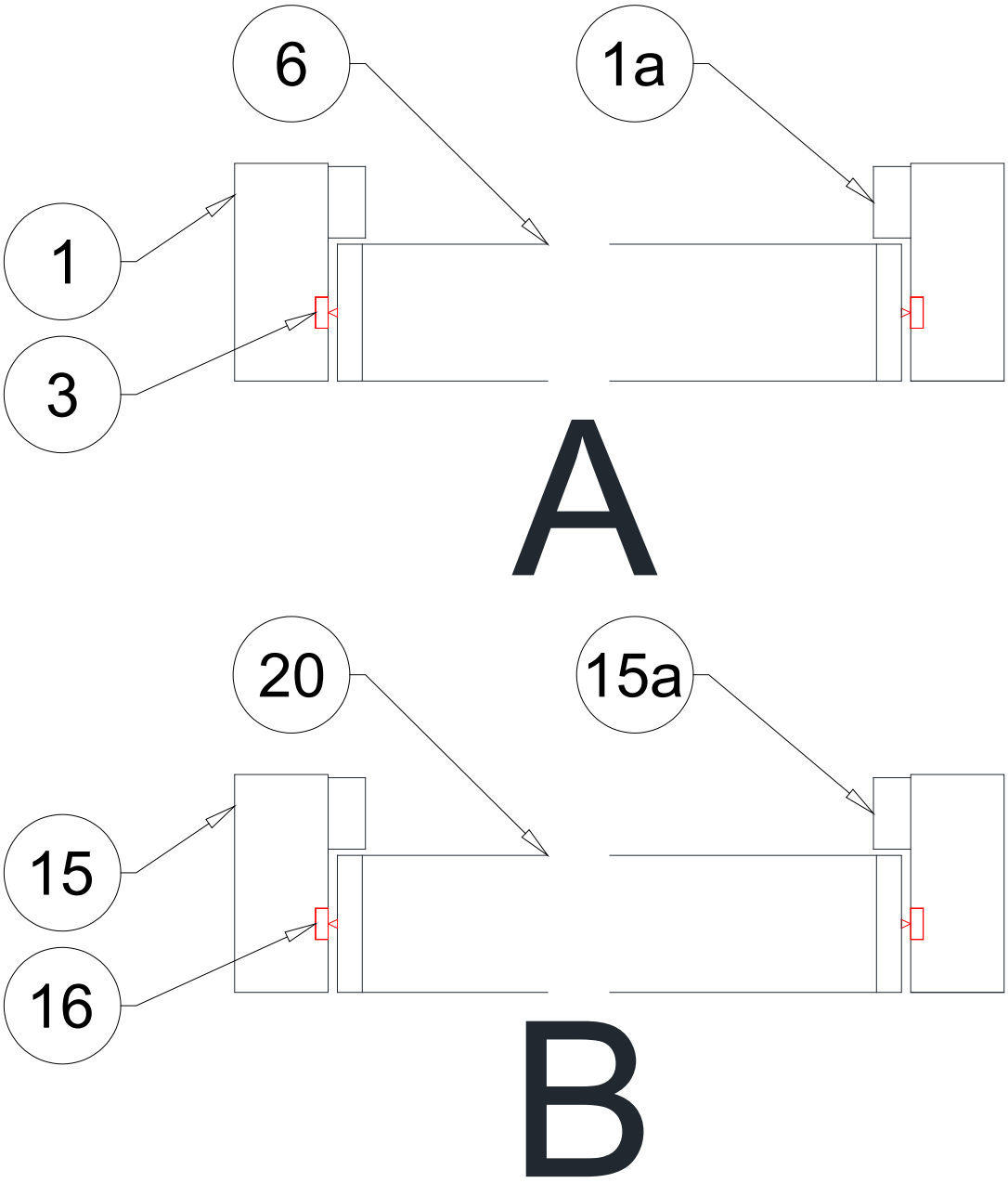


Figure 3 - Typical horizontal section through the specimens

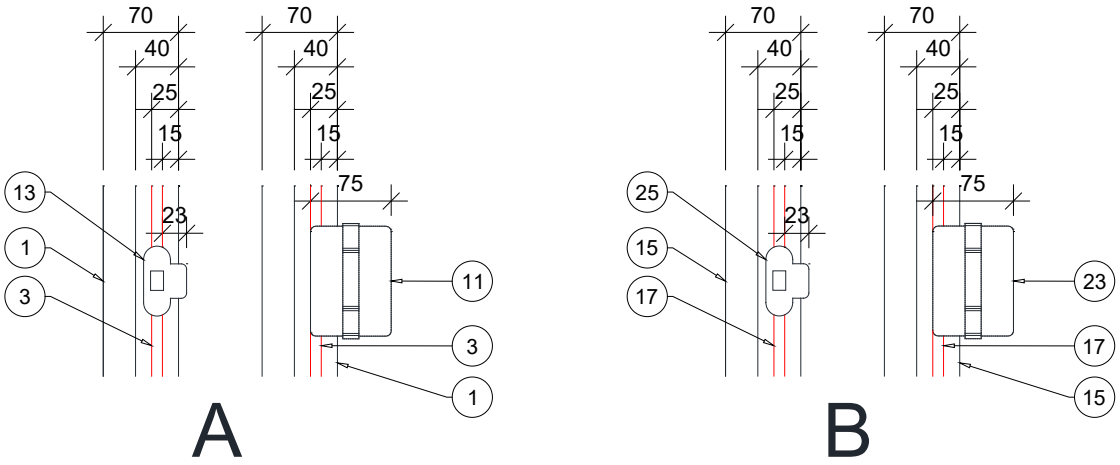


Figure 4 - Hardware intumescent interruptions

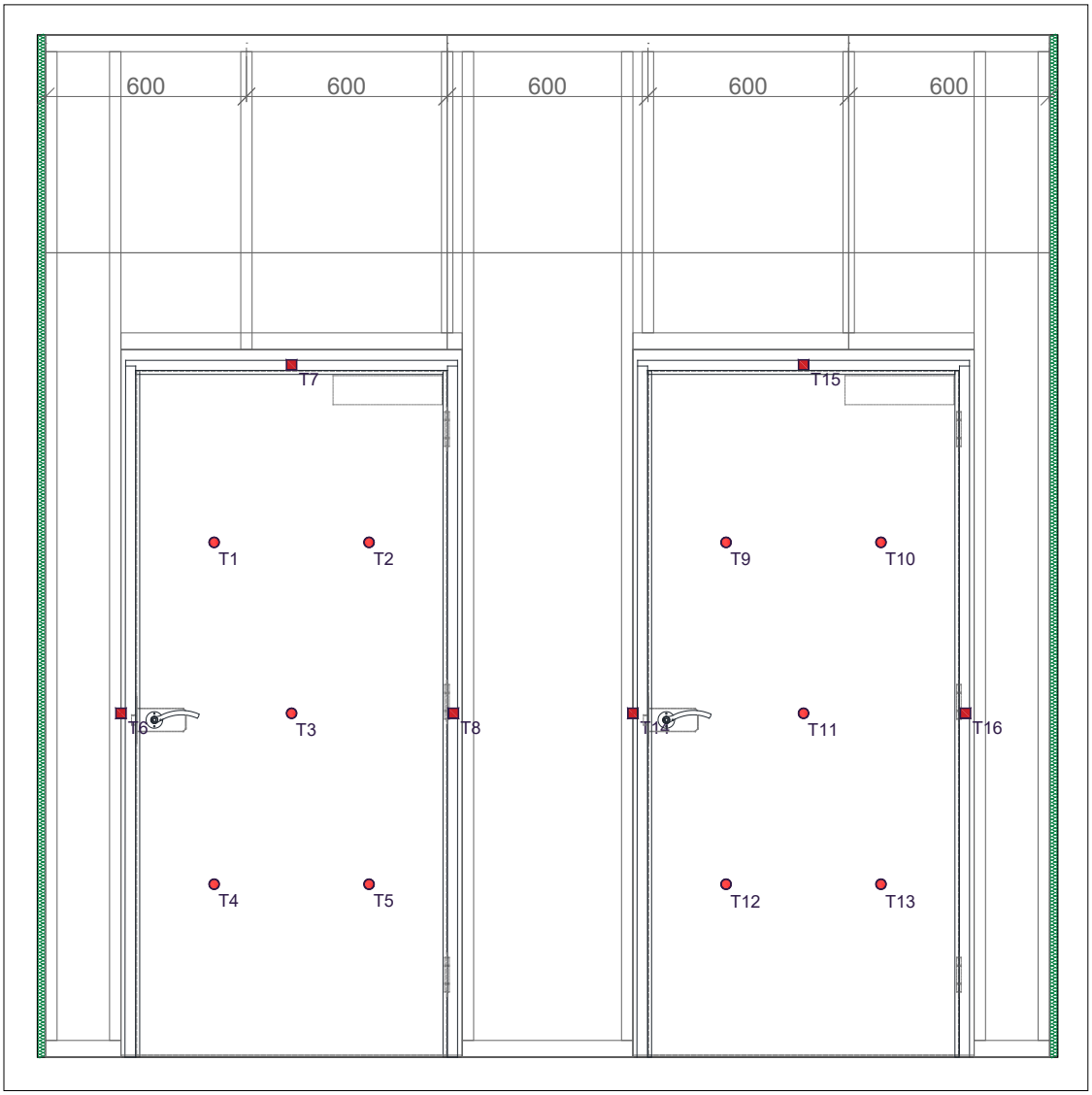


Figure 5 - Layout of instrumentation viewed from the unexposed surface of the test construction

4 Technical Schedule

All dimensions are in millimetres (mm) unless otherwise stated.

* Information provided by the Test Sponsor. Not verified by United Kingdom Testing and Certification.

** Nominal value.

*** Information is commercial in confidence. Full details are retained on file by United Kingdom Testing and Certification.

4.1 Specimen A

1. Frame	
Manufacturer	DorSuite Ltd
Reference	Softwood Frames
Material	Softwood Head and Softwood Jambs
Density	469.62 kg/m^3
Moisture content	11-12.9 % (Lab Measurement)
Orientation to heating conditions	Opening towards
a. Overall size	992 mm wide x 2072 mm high
i. Frame (Head)	70 mm wide x 30 mm thick
ii. Frame (Jambs)	70 mm wide x 30 mm thick
iii. Loose Stop	23 mm wide x 12 mm deep
Jamb to Head jointing method, fixing detail and location	Housed butt joint with PVA & 2 No. Ø 0.5 mm x 60 mm long wood screws. *
Stop to Frame jointing method, fixing detail and location	Pinned with 1.8 mm gauge x 38 mm long steel pins @ 150 mm centres. *
b. Adhesive(s)	N/A
2. Frame Fixing Method to Supporting Construction	
Manufacturer	Timco
Reference	Solo chipboard & wood screws
Type & material	Passivated Steel
Overall size	Ø 5 mm x 60 mm long
Spacing	150 mm from top corner of jamb, 150 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	MDF
Packing Material Dimension	100 mm long x 30 mm Wide x Various thicknesses (1 mm, 2 mm, 3 mm, 5 mm)
Packing Material Location	At each fixing location up frame
3. Intumescent to frame reveal (1)	
Quantity	1
Manufacturer	EXITEX *
Reference	0622081010 Exitex LT intumescent strip with brush
Material	Graphite *
Overall section size	10 mm wide x 4 mm thick
Application method	Adhesive strip to back *
Location (relative to the opening face of the door leaf)	20 mm from opening
a. Adhesive(s)	N/A
4. Frame to supporting construction fire stopping detail	
Manufacturer	EXITEX
Reference	Blue 60
Material	Fire Rated foam
Application method	Cartridge gunned
5. Architrave	
Manufacturer	DorSuite Ltd
Reference	MDF Architraves
Material	MDF
Overall section size	70 mm wide x 15 mm thick
Location	Each side of frame
Application method, fixings and fixing frequency required	Pinned with 1.8 mm gauge x 50 mm long steel pins @ 300 mm centres.
6. Door Leaf	
Manufacturer (blank)	J B Kind *

Reference	KINT926F *
Quantity of leaves on doorset	1
Glazing location relative to the head and closing edge	N/A
Overall leaf size supplied for testing	926 mm wide x 2040 mm high x 43.5 mm thick
Door Undercut (Top of cill / bottom of frame)	3 mm
7. Core element 1 (Door leaf premade marked BWF Certifire 154 A737788)	
Manufacturer	J B KIND *
Reference	Cellulosic *
Material	Flaxboard *
Density	350 kg/m^3 *
Overall thickness and reduced thickness if door leaf incorporates fielded areas	38 mm thick *
Application method	N/A
8. Lippings	
Manufacturer	Test sponsor did not declare
Reference	Lipping
Material	Test sponsor did not declare
Density	Test sponsor did not declare
Moisture Content	10.3 – 13 % (Lab Measurement)
Overall Size	43.5 mm x 4 mm
Fixing Method	Test sponsor did not declare
9. Facings (Door leaf premade marked BWF Certifire 154 A737788)	
Manufacturer	J B Kind *
Reference	KINT926F *
Material	Veneered wood *
Density	Test sponsor did not declare
Moisture Content	7 – 7.5 % (Lab Measurement)
Overall thickness and reduced thickness if door leaf incorporates fielded areas	3 mm thick
Application method	N/A

10. Stiles / Rails (Door leaf premade marked BWF Certifire 154 A737788)	
Manufacturer	J B Kind *
Reference	KINT926F
Material	Softwood *
Density	Test sponsor did not declare
Moisture Content	9.6 – 10 % (Lab Measurement)
a. Overall dimensions	
i. Stiles	43 mm x 38 mm
ii. Rails	Test sponsor did not declare
Application method	N/A
11. Hinges	
Supplier	DorSuite Ltd
Reference	PP20070102
Quantity	3 each leaf
Primary material	Stainless Steel
Type	Grade 13 concealed hinges
a. Size	
i. Knuckle	Ø 15 mm x 107 mm high
ii. Blades	102 mm high x 30 mm wide x 3 mm thick
b. Fixings	
i. Type	Countersunk Screws
ii. Material	Stainless Steel
iii. Size	Ø 4.7 mm x 31 mm long, 50 to leaf frame
iv. Number off per blade	4
Position of each hinge relative to the head of the leaf	Top: 120 Middle: 934 Bottom: 1748
Details of intumescent protection	No intumescent
Interruptions to Intumescent within the frame reveal	Fully

12. Door Closer	
Supplier	DorSuite Ltd
Reference	BR5004040307
a. Material	
i. Body	Mild Steel
ii. Closer arm	Mild Steel
iii. Cover	Stainless Steel
Configuration	
b. Overall size	
i. Body	55 mm high x 235 mm wide x 38 mm deep
ii. Cover	70 mm high x 269 mm wide x 40 mm deep
Fixing method	4No. Ø 4.8 mm x 50 mm on body and 2No. Ø 4.8 mm x 25 mm on bracket into frame
13. Tubular Latch	
Manufacturer	Zoo
Reference	AA36010245 Tubular latch *
a. Material	
i. Lockcase	Steel and Alloys *
ii. Forend plate	Steel and Alloys *
iii. Latch bolt	Steel and Alloys *
iv. Keeper	Steel and Alloys *
b. Overall size	
i. Lockcase	78 mm high x 21 mm wide x 15 mm thick *
ii. Forend plate	60 mm high x 25 mm wide x 2.2 mm thick *
iii. Latch bolt	12 mm high x 18 mm wide x 10.5 mm projection
iv. Keeper	65 mm high x 25 mm wide x 1.3 mm thick with 15 mm x 32 mm tongue
Fixing method, type and locations	Latch – 2 No 4 mm x 20 mm screws Keep – 2 No 4 mm x 20 mm screws

Location within leaf	Centre of the spindle measures 1000 mm from the bottom of the leaf
14. Lever handles	
Manufacturer	DorSuite Ltd *
Reference	PP11030407 19mm DIA RTD Lever on rose *
Material	Stainless Steel
Overall size	Lever -140 mm length x 19 mm wide x 65 mm projection Rose – 51 mm diameter x 9 mm thick
Fixing method, fixing material, sizes, quantity and location	2 No. bolt through 4 mm x 53 mm 4 No. 3.9 mm x 20 mm screws
Details of intumescent protection	N/A

4.2 Specimen B

15. Frame	
Manufacturer	DorSuite Ltd *
Reference	Softwood Frames
Material	Softwood Head and Softwood Jambs *
Density	469.62 kg/m^3 *
Moisture content	11 – 12.3 % (Lab Measurement)
Orientation to heating conditions	Opening towards
a. Overall size	992 mm wide x 2072 mm high
i. Frame (Head)	70 mm wide x 30 mm thick
ii. Frame (Jambs)	70 mm wide x 30 mm thick
iii. Loose Stop	23 mm wide x 12 mm deep
Jamb to Head jointing method, fixing detail and location	Housed butt joint with PVA & 2 No. Ø 0.5 mm x 60 mm long wood screws. *
Stop to Frame jointing method, fixing detail and location	Pinned with 1.8 mm gauge x 38 mm long steel pins @ 150 mm centres.
b. Adhesive(s)	N/A
16. Frame Fixing Method to Supporting Construction	

Manufacturer	Timco
Reference	Solo chipboard & wood screws
Type & material	Passivated Steel
Overall size	Ø 5 mm x 60 mm long
Spacing	150 mm from top corner of jamb, 150 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	Softwood
Packing Material Dimension	100 mm long x 30 mm Wide x Various thicknesses (1 mm, 2 mm, 3 mm, 5 mm)
Packing Material Location	At each fixing location up frame
17. Intumescent to frame reveal (1)	
Quantity	1
Manufacturer	EXITEX
Reference	0622081010 Exitex LT intumescent strip with brush *
Material	Graphite
Overall section size	10 mm wide x 4 mm thick
Application method	Adhesive strip to back *
Location (relative to the opening face of the door leaf)	20 mm from opening
a. Adhesive(s)	N/A
18. Frame to supporting construction fire stopping detail	
Manufacturer	EXITEX
Reference	Blue 60
Material	Fire Rated foam
Overall dimension	Depending on the gap
Application method	Cartridge gunned
19. Architrave	
Manufacturer	DorSuite Ltd
Reference	MDF Architraves

Material	MDF
Overall section size	70 mm wide x 15 mm thick
Location	Each side of frame
Application method, fixings and fixing frequency required	Pinned with 1.8 mm gauge x 50 mm long steel pins @ 300 mm centres.
20. Door Leaf	
Manufacturer (blank)	Halspan Optima
Reference	Halspan Optima 44
Quantity of leaves on doorset	1
Glazing location relative to the head and closing edge	N/A
Overall leaf size supplied for testing	926 mm wide x 2040 mm high 44 mm thick
Door Undercut (Top of cill / bottom of frame)	3 mm
21. Core element 1	
Manufacturer	Halspan 44
Reference	Optima 44 *
Material	Particle board
Density	620 kg/m^3
Overall thickness and reduced thickness if door leaf incorporates fielded areas	44 mm thick
Application method	N/A
22. Lippings / Edge banding	
Manufacturer	DorSuite Ltd
Reference	LIP-0000
Material	Sapele
Density	640 kg/m3
Moisture content	8.2 – 9.6 % (Lab Measurement)
Overall size	8 mm deep x 44 mm wide
Fixing method	Edge bander
Location	All edges of the door leaf
a. Adhesives	

i. Manufacturer	Henkel
ii. Type	PUR
iii. Reference	Technomelt PUR 270/7G *
iv. Curing method	Moisture Cured
v. Application method	Roller applied
b. Presence of Mechanical Fixings	
i. Type, size, Material, location and Frequency	No
23. Hinges	
Supplier	DorSuite Ltd
Reference	PP20070102
Quantity	3 each leaf
Primary material	Stainless Steel
Type	Grade 13 concealed hinges
a. Size	
i. Knuckle	Ø 15 mm x 107 mm high
ii. Blades	102 mm high x 30 mm wide x 3 mm thick
b. Fixings	
i. Type	Countersunk Screws
ii. Material	Stainless Steel
iii. Size	Ø 4.7 mm x 31 mm long, 50 to leaf frame
iv. Number off per blade	4
Position of each hinge relative to the head of the leaf	Top: 120 Middle: 934 Bottom: 1748
Details of intumescent protection	No intumescent
Interruptions to Intumescent within the frame reveal	Fully

24. Door Closer	
Supplier	DorSuite Ltd
Reference	BR5004040307
a. Material	
i. Body	Mild Steel
ii. Closer arm	Mild Steel
iii. Cover	Stainless Steel
Configuration	
b. Overall size	
i. Body	55 mm high x 235 mm wide x 38 mm deep
ii. Cover	70 mm high x 269 mm wide x 40 mm deep
Fixing method	4No. Ø 4.8 mm x 50 mm on body and 2No. Ø 4.8 mm x 25 mm on bracket into frame
25. Tubular Latch	
Manufacturer	Zoo
Reference	AA36010245 Tubular latch *
a. Material	
i. Lockcase	Steel and Alloys *
ii. Forend plate	Steel and Alloys *
iii. Latch bolt	Steel and Alloys *
iv. Keeper	Steel and Alloys *
b. Overall size	
i. Lockcase	78 mm high x 21 mm wide x 15 mm thick *
ii. Forend plate	60 mm high x 25 mm wide x 2.2 mm thick *
iii. Latch bolt	12 mm high x 18 mm wide x 10.5 mm projection
iv. Keeper	65 mm high x 25 mm wide x 1.3 mm thick with 15 mm x 32 mm tongue
Fixing method, type and locations	Latch – 2 No 4 mm x 20 mm screws Keep – 2 No 4 mm x 20 mm screws

Location within leaf	Centre of the spindle measures 1000 mm from the bottom of the leaf
26. Lever handles	
Manufacturer	DorSuite Ltd *
Reference	PP11030407 19mm DIA RTD Lever on rose *
Material	Stainless Steel
Overall size	Lever -140 mm length x 19 mm wide x 65 mm projection Rose – 51 mm diameter x 9 mm thick
Fixing method, fixing material, sizes, quantity and location	2 No. bolt through 4 mm x 53 mm 4 No. 3.9 mm x 20 mm screws
Details of intumescent protection	N/A

4.3 Supporting Construction

27. Lining(s)	
Supplier	United Kingdom Testing and Certification
Type & Material	Paper faced, gypsum plasterboard type F
Density	760 Kg/m^3
Layer Quantity	1
Dimensions	12.5 mm thick x 1200 mm wide x 2400 mm high
Fixings	Plasterboard Screw Fixings Ø 5 mm x 25 mm
Joints Filled & Taped With	No nonsense
28. Wall Insulation	
Supplier	United Kingdom Testing and Certification
Type & Material	Mineral Wool
Density	33 Kg/m^3
Installation Method	Compression Fitted
Thickness	50 mm
Locations	Centrally Located in the wall
Additional Wall Construction Requests	N/A

29. Free Edge Gasket	
Manufacturer	Morgan Advanced Materials
Reference	Superwool
Density	128 Kg/m^3
Dimensions	20 mm thick x 3025 mm long x 100 mm wide
Fixing(s)	Compression fitted between the supporting construction & restraint frame
30. Board for Simulated Floor Level	
Manufacturer	British Gypsum
Reference	Glasroc F MultiBoard 6mm
Density	833 Kg/m^3
Dimensions	6 mm thick x Opening width + 400 mm long x Wall Depth + 500 mm wide
Fixing(s)	Compression fitted between restraint frame and specimen.

5 Specimen Photographs

Figure 6 - Item 12 & Item 24

Figure 7 - Item 15, Item 18, item 19

Figure 8 - Item 6 & Item 20

Figure 9 - Item 25

Figure 10 - Item 1 & Item 15

Figure 11 - Item 23

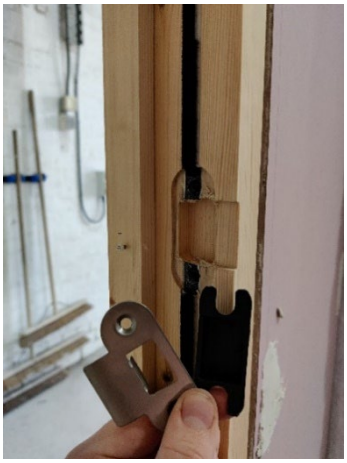


Figure 12- Item 25

Figure 13 – Item 20

Figure 14 - Item 25

6 Test Procedure

6.1 Heating Conditions

The specimens were subject to heating conditions in accordance with BS 476-20:1987 § 3.1. This was monitored and controlled for the duration of the test using type K thermocouples which were distributed across a vertical plane 100 ± 10 mm from the exposed surface of the test construction. The resulting Time-Temperature distribution is presented in Figure 21.

6.2 Pressure Conditions

The specimens were subject to a pressure regime in accordance with BS 476-20: 1987 § 3.2. The calculated pressure differential relative to the laboratory atmospheric pressure at a height of 365, 1612 and 2850 mm from the furnace floor level was -5.4, 5.2 and 15.7 Pa respectively which equates to 0 Pa at a height of 1000 mm from the furnace floor level. The furnace was maintained at these pressures within ± 2 Pa five minutes after the commencement of the test and for the remainder of the test duration. The pressure deviated from the specified conditions on no instances throughout the duration of the test. The Time-Pressure distribution is presented in Figure 22.

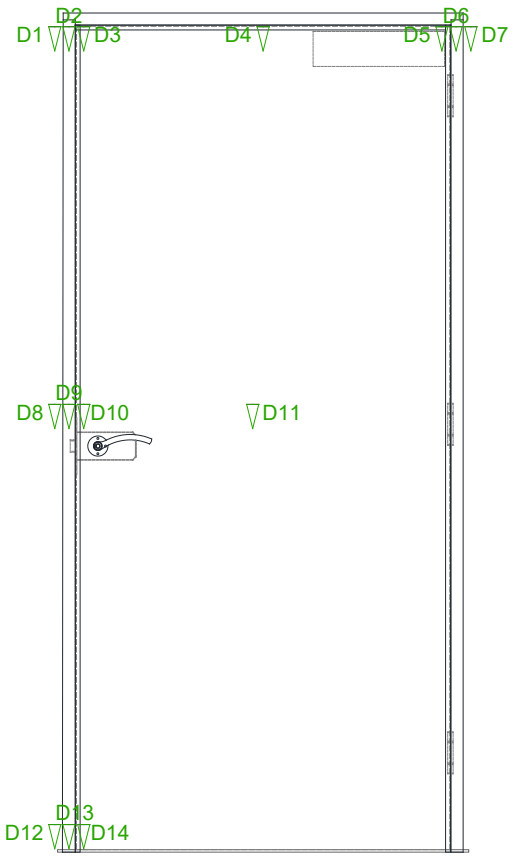
6.3 Unexposed Surface Temperature

A roving thermocouple was available for the evaluation of the maximum temperature rise criteria in accordance with BS 476-20: 1987 § 10.4. Any measurements using the roving thermocouple are presented on page 17.

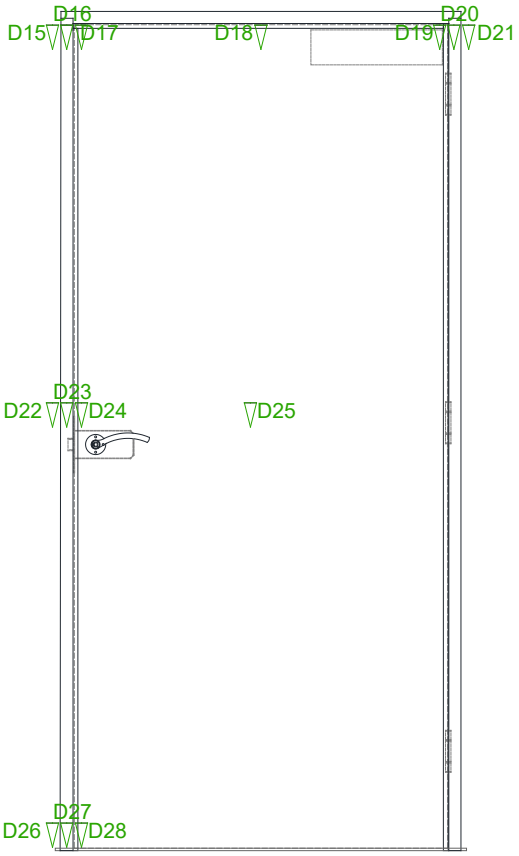
Disc thermocouples were affixed to the unexposed surface of the specimens in accordance with BS 476-22:1987 to measure and monitor the maximum and the mean temperature rise of the unexposed face of the specimen for the duration of the test. A summary of the measurements is presented in Figure 23 and Figure 24 and the locations of these thermocouples is illustrated in Figure 4.

6.4 Deflection

All measurements are in millimeters (mm) unless stated otherwise. Positive values indicate movement towards the heating conditions.



Time (mins)	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	1	4	1	2	0	3	-2	-2	5	7	-1	0	0
20	0	1	6	3	4	-1	-1	-2	-3	6	7	0	0	3
25	-1	-2	6	1	0	-1	-2	-2	-4	5	9	1	-1	3
30	-2	-2	12	-1	-3	-6	-6	-3	-4	3	0	0	0	1



Time (mins)	D15	D16	D17	D18	D19	D20	D21	D22	D23	D24	D25	D26	D27	D28
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	2	2	0	1	2	3	1	-1	0	-1	1	0	-1
20	-1	-1	7	-1	0	3	2	-1	-3	-1	-6	0	0	2
25	-1	0	6	-1	-2	2	3	-2	-4	-2	-8	-1	-1	6
30	-6	-3	8	-3	-2	1	2	-5	-6	-5	-13	0	-1	11

7 Observations

Specimen	HH	MM	SS	E[3]	U[4]	Observation
	00	**00**	**00**			**The test commences.**
A	00	02	21		X	Steam/steam releases from perimeter of the door leaf.
B	00	03	21		X	Steam/smoke releases from around the perimeter of the door leaf.
A	00	04	32		X	Volume of steam/smoke increases from the perimeter of the door leaf.
A	00	06	21		X	Moisture and discolouring along the head of specimen.
A	00	10	24	X		Facings burnt away and the charred core can be seen, the core cosists of 2 sections with a visible joint line.
B	00	16	21		X	Core discoloured on top left.
A	00	18	21		X	Face of the door leaf is discolouring black in proximity to the top hinge location.
B	00	21	24		X	Top hanging corner is discolouring black.
A+B	00	24	18	X		Architraves have mostly burnt/fallen away from the perimeter of the specimens.
A	00	32	18			Glow from top right.
A	00	33	24		X	Cotton pad test top right – the cotton pad is discoloured.
	00	**33**	**33**			**The test is discontinued at the request of the Test Sponsor.**

[3] Viewed from exposed surface of the test construction.
[4] Viewed from unexposed surface of the test construction.

8 Test Images

Figure 15 – The exposed surface of the test construction prior to commencement of the test

Figure 16 - The unexposed surface of the test construction prior to the commencement of the test

Figure 17 - The unexposed surface of the test construction after a test duration of 10 minutes

Figure 18 - The unexposed surface of the test construction after a test duration of 20 minutes

Figure 19 - The unexposed surface of the test construction after a test duration of 33 minutes

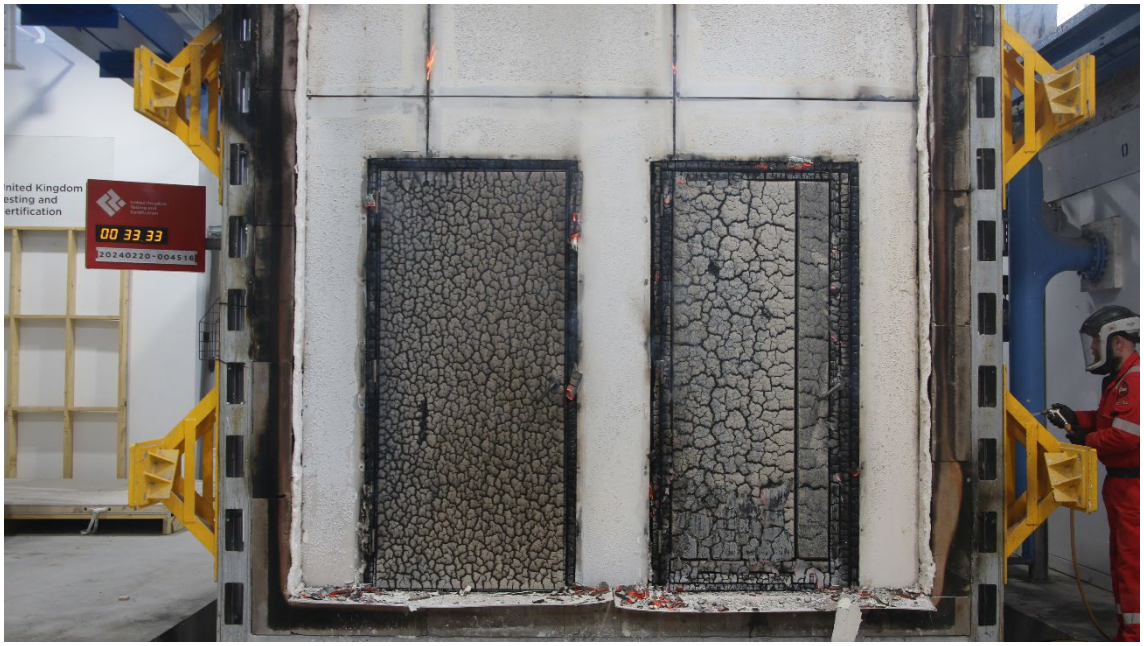


Figure 20 - The exposed surface of the test construction after the test was discontinued

9 On-going Implications

9.1 Limitations

The results relate only to the behaviour of the specimen of the element of construction under the particular conditions of test. They are not intended to be the sole criteria for assessing the potential fire performance of the element in use, nor do they reflect the actual behaviour in fires.

BS 476-20: 1987 § Appendix A provides guidance information on the application of fire resistance tests and the interpretation of results. Application of the results to products of different specification, including but not limited to differences in dimension; installation methodologies; supporting construction and components should be subject to design appraisal by a competent individual.

The tested specimens were asymmetrical and were tested such that the door leaves opened towards the heating conditions of the test. The test results may not be appropriate to situations where the door leaves open away from the heating conditions.

9.2 Accuracy of Results

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.

No statement of conformity with the testing specifications is made or implied in this report. However, measurement results are reviewed, where applicable, to establish where measurement results exceed the control parameters established in the relevant resistance to fire test standard.

9.3 Fire Test Study Group (FTSG)

Where areas of the test specification are ambiguous or open to interpretation the Fire Test Study Group (FTSG) Resolutions have been followed (where appropriate). These Resolutions provide the basis of common agreements between the fire test laboratories which are members of this Group.

10 Figures

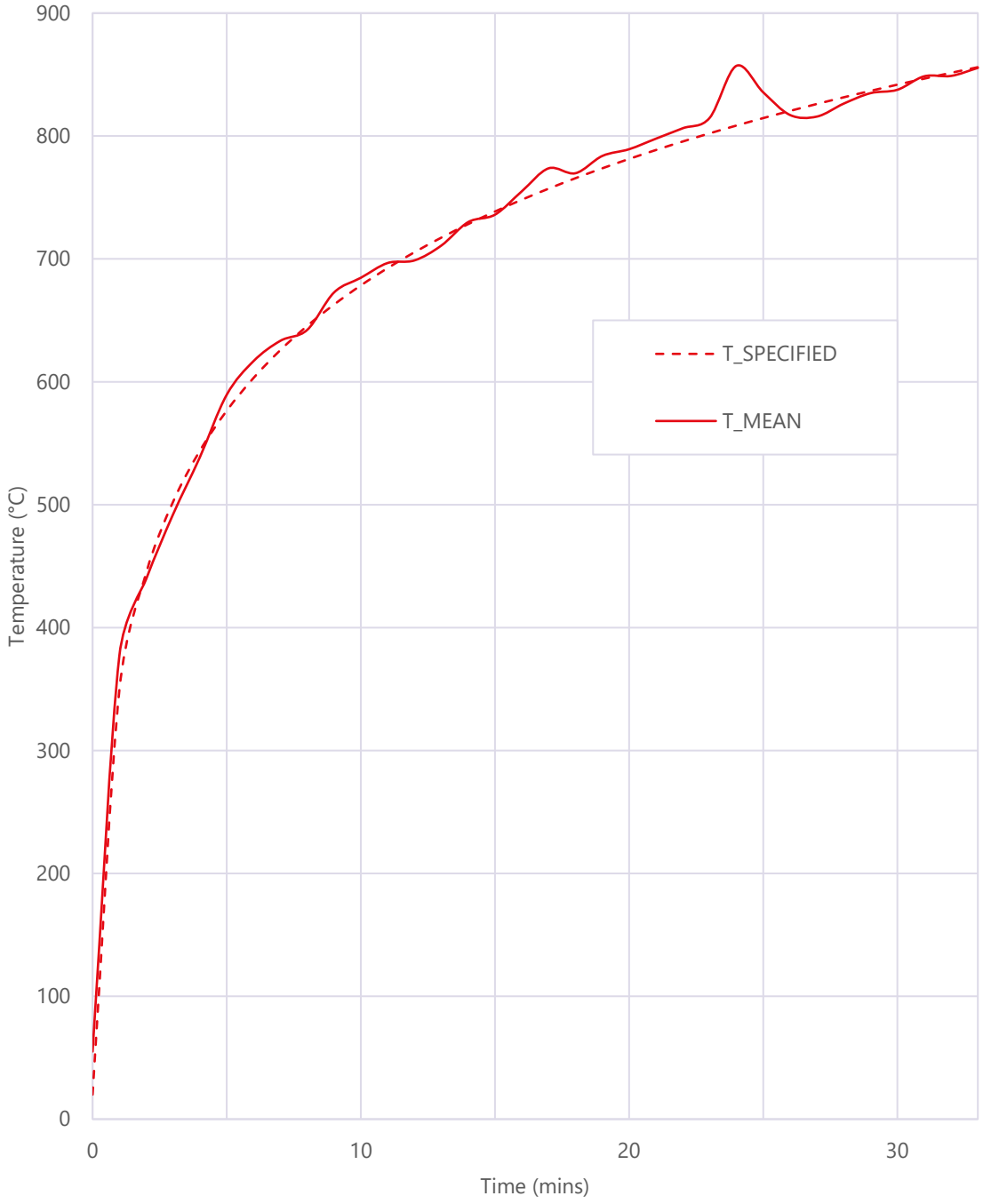


Figure 21 – Graph presenting the Time-Temperature distribution of the furnace

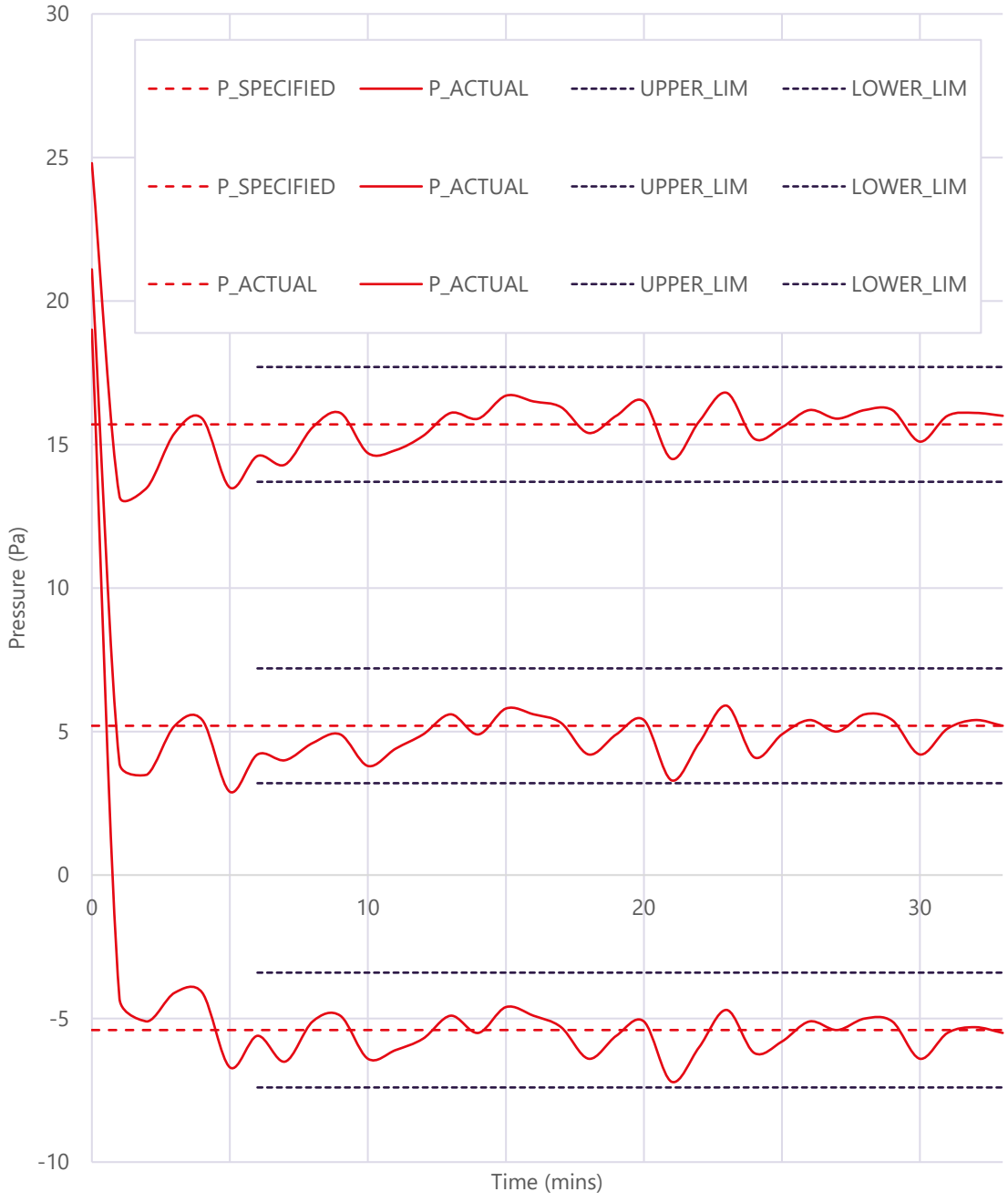


Figure 22 – Graph presenting the Time-Pressure distribution of the furnace

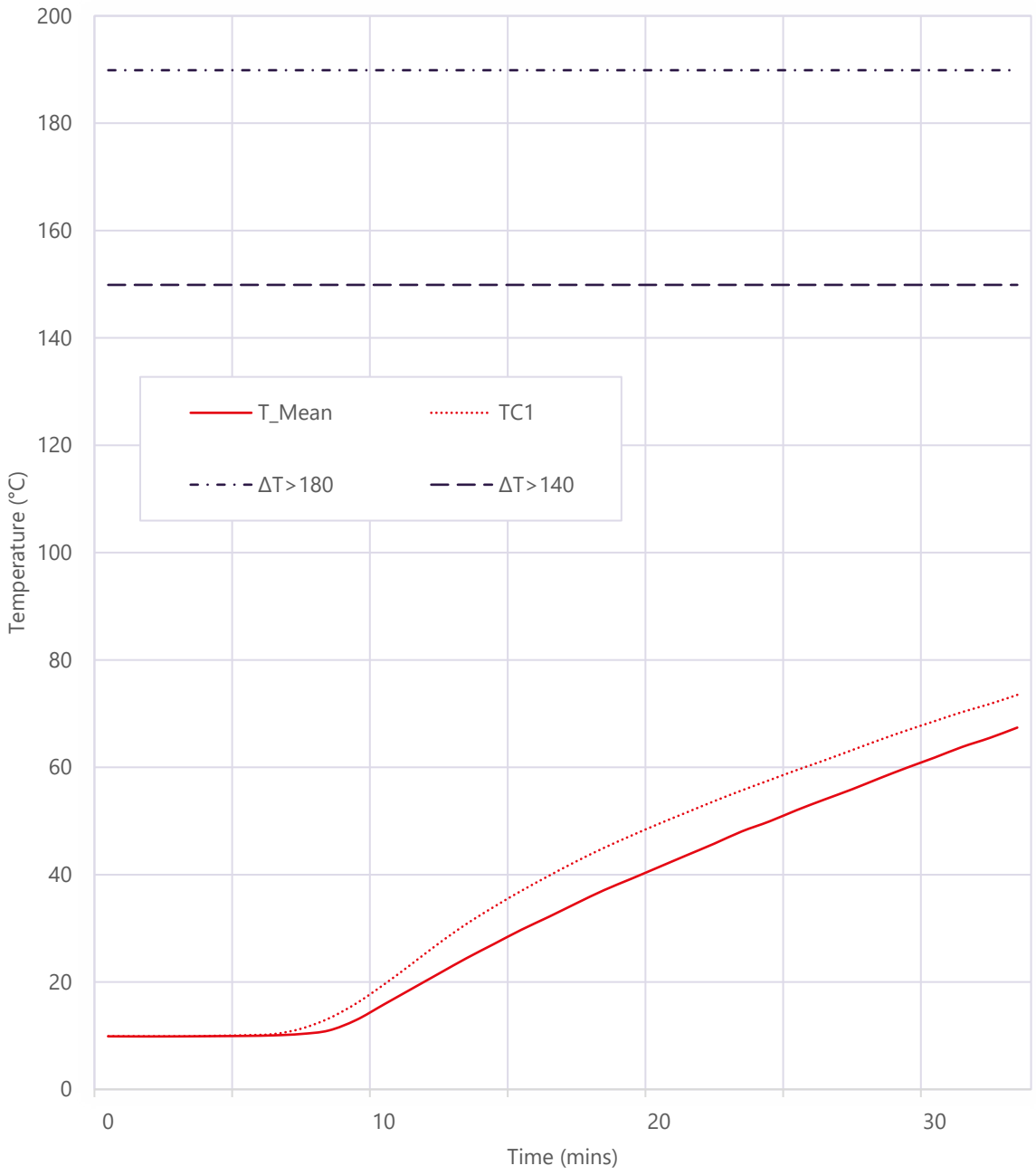


Figure 23 - Graph presenting the Time-Temperature distribution of the unexposed surface of Specimen A

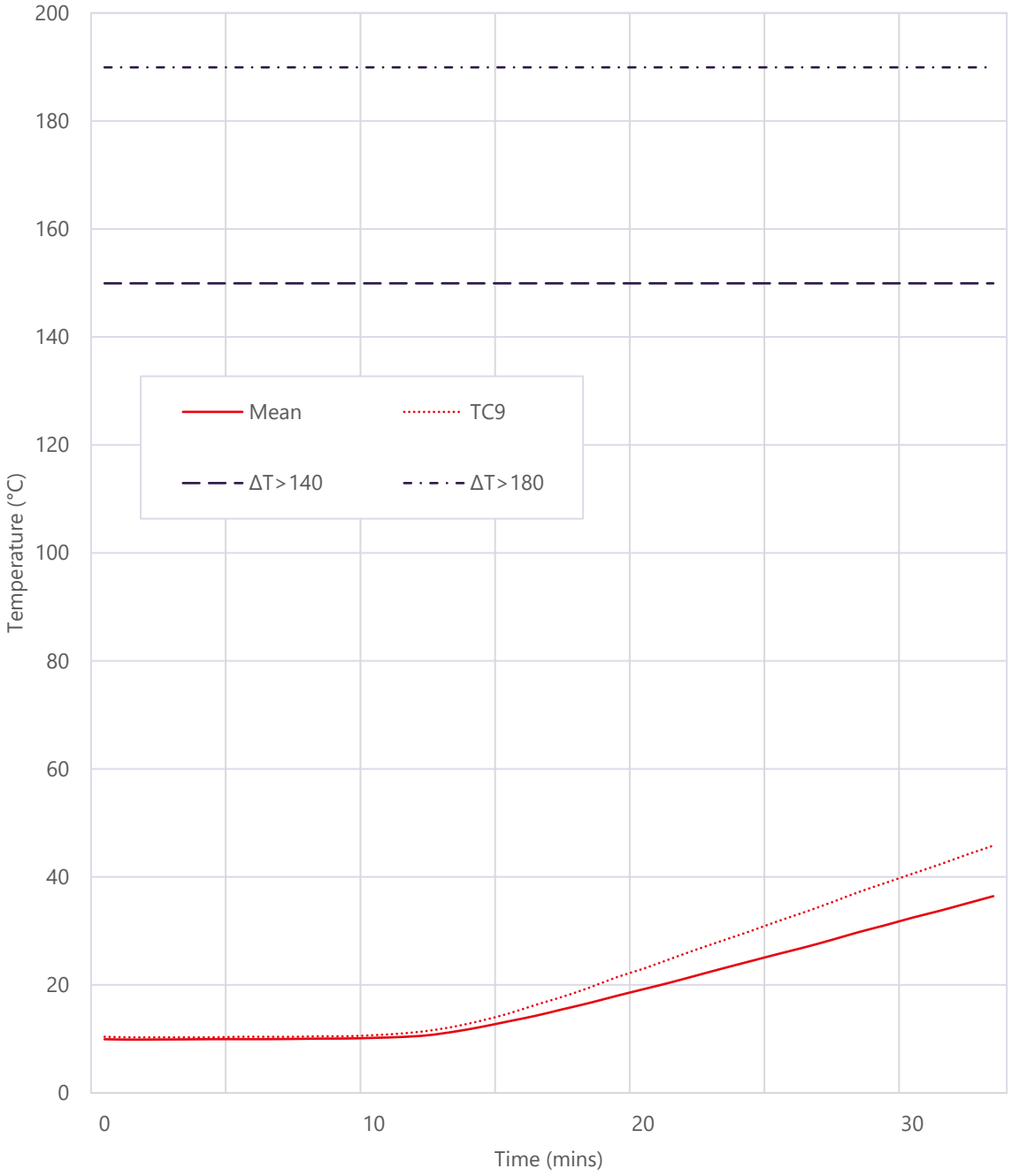


Figure 24 - Graph presenting the Time-Temperature distribution of the unexposed surface of Specimen B

11 Tables

Table 1 – The temperatures recorded by the disc thermocouples used evaluate the mean and maximum temperature rise of the unexposed surface of Specimen A. Values are in Degrees Celsius (°C) unless otherwise stated.

Time (mins)	TC1	TC2	TC3	TC4	TC5
0	9.9	10.1	9.8	9.9	9.7
2	9.9	10.1	9.7	9.9	9.7
4	10.0	10.1	9.8	9.9	9.8
6	10.3	10.3	9.9	10.0	9.8
8	13.2	10.7	10.3	10.5	10.1
10	19.5	13.0	11.7	17.6	17.2
12	27.2	17.9	14.2	24.4	24.1
14	34.0	23.9	17.7	30.7	29.1
16	39.8	29.5	21.9	36.6	33.0
18	45.0	34.6	26.8	41.8	37.4
20	49.5	39.1	31.9	45.9	40.8
22	53.7	43.4	37.0	50.6	44.2
24	57.6	47.5	42.1	54.8	47.6
26	61.3	51.7	47.0	59.0	51.0
28	65.1	55.8	51.7	63.1	54.1
30	68.6	59.7	56.2	67.1	57.5
32	71.8	63.6	60.6	70.7	60.7
33	73.5	65.6	62.8	72.6	62.5

Table 2 – The temperatures recorded by the disc thermocouples used to evaluate the maximum temperature rise of Specimen A. Values are in Degrees Celsius (°C) unless otherwise stated.

Time (mins)	TC6	TC7	TC8
0	9.7	9.1	9.7
2	9.7	9.1	9.8
4	9.7	9.3	9.9
6	9.7	9.2	9.9
8	9.8	9.6	9.9
10	10.0	10.6	10.2
12	10.1	11.2	10.5
14	10.4	12.4	10.6
16	10.5	13.2	10.8
18	10.8	13.0	11.1
20	11.4	13.9	11.3
22	11.8	15.3	11.8
24	12.2	15.9	12.4
26	12.6	16.6	12.9
28	12.8	17.1	13.4
30	13.3	17.3	14.2
32	13.9	18.0	15.0
33	14.0	18.6	15.5

Table 3 – The temperatures recorded by the disc thermocouples used evaluate the mean and maximum temperature rise of the unexposed surface of Specimen B. Values are in Degrees Celsius (°C) unless otherwise stated.

Time (mins)	TC9	TC10	TC11	TC12	TC13
0	10.4	9.7	10.0	9.8	9.8
2	10.3	9.7	10.0	9.8	9.7
4	10.3	9.8	10.0	9.9	9.8
6	10.4	9.7	10.0	9.9	9.8
8	10.5	9.8	10.1	10.0	9.9
10	10.7	9.8	10.3	10.2	10.0
12	11.5	9.4	11.0	10.8	10.7
14	13.4	9.8	13.0	12.4	12.6
16	16.3	9.7	15.9	14.4	15.1
18	19.5	9.7	19.4	16.8	17.9
20	23.0	9.9	22.9	19.5	20.7
22	26.6	9.9	26.4	22.4	23.6
24	30.0	10.1	29.9	25.5	26.6
26	33.5	10.0	33.1	28.8	29.5
28	37.2	10.1	36.5	32.4	32.7
30	40.6	10.3	39.8	35.9	35.7
32	44.1	10.3	42.8	39.3	38.9
33	45.8	10.4	44.4	41.1	40.5

Table 4 – The temperatures recorded by the disc thermocouples used to evaluate the maximum temperature rise of Specimen B. Values are in Degrees Celsius (°C) unless otherwise stated.

Time (mins)	TC14	TC15	TC16
0	9.6	9.5	9.2
2	9.5	9.5	9.2
4	9.6	9.5	9.2
6	9.6	9.5	9.2
8	9.7	9.5	9.3
10	10.1	9.6	9.3
12	10.8	9.9	9.4
14	10.9	10.1	9.5
16	11.5	10.5	9.6
18	12.1	11.2	9.9
20	12.3	15.9	10.1
22	13.1	14.8	10.3
24	14.0	14.8	10.7
26	14.4	15.1	11.2
28	14.6	15.7	11.5
30	15.2	16.5	12.1
32	15.9	18.1	12.8
33	16.0	19.0	13.1

Appendix A Sample Report

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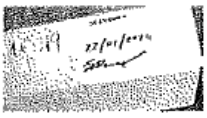
SAMPLING VISIT REPORT

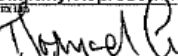
Company Name	Exitex UK Sales LTD
Establishment No.	05C/21255 (E002626)
BM TRADA Notified Body ID:	1224

Company Head Office Address	Exitex UK Sales LTD St Johns Chambers Love St Chester CH1 1QN	Contact Name	Des Gray
		Telephone	
		Email Address	Des.Gray@exitex.com

Location where sampling was conducted if different from Head Office Address	Visit Date	BMT Representative
Dorsuite, 17 Law Place, Nerston Industrial Estate, East Kilbride, Glasgow G74 4QL	22/02/2024	Chris Blount

Requirement	Evidence / Comments
Opening Meeting (names of those present)	Achilleas Sarrigiannidis & Robertas Zioba (Dorsuite) / Chris Blount (BM TRADA)
Contract Reference	SC24000T
Technical Specification document / FoA reference Photographs to be taken of all critical areas highlighted in the Technical Specification	BM Trada Signed Contract SC4000T TS T - Technical Specification - JB KIND 44 single- Timber doorset - Iss 3 Drawings - JB KIND 44 single
Description of product(s) sampled	JB Kind 44mm (BWF Certifire 154 A737788) unglazed door leaf prelipped and faced, hung in a softwood frame on 3 no hinges and 1no. Exitex 10x4mm intumescent seal. Fitted with tubular latch (latch disengaged), lever handle and face fix door closer.
Product identification / reference numbers / codes	SC24000T
Batch number(s)	N/A
Date of manufacture	22/02/2024
Quantity of stock and size of sample(s) taken	1no. single doorset (Frame 992mm x 2076mm) (Leaf 926mm x 2040mm)
Traceability of material records ie Purchase Orders and delivery notes	PO 85440 – JB Kind Door leaf – Buildbase 24/01/2024 D/N S-480323-1– LT 10x4mm intumescents – Exitex 19/01/2024 PO 82667 – Hinges - Zoo Architectural Hardware 26/10/2021 PO 82461 – Tubular Latch - Zoo Architectural Hardware 18/01/2023 PO 71819 – Handle - Zoo Architectural Hardware 16/09/2022 All Purchase orders held on file at BM TRADA
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	☐ Glazing assembly (where applicable) ✓ Finished doorset with markings ✓ Hardware prep and fitting (where applicable) ✓ Sampling pack discussion
Details of any further FPC processes witnessed during the visit.	none
Determine the essential characteristics of the product and confirm the details of in-process checks conducted on the sample to ensure conformity.	JB Kind 44mm (BWF Certifire 154 A737788) unglazed door leaf prelipped and faced, hung in a 70mm x 30mm softwood frame with 23mm x 12mm planted stop on 3 no hinges and 1no. Exitex 10x4mm LT intumescent seal. Fitted with tubular latch, lever handle and face fix door closer (no intumescent fitted to hardware). Face fix door closer parts verifie(latch disengaged), and signed – to be fitted on installation.
State any items from the Technical Specification / FoA that were not witnessed and require further lab sampling	☐ Side screen / overpanel ☐ Handles ✓ Other (see tech spec marked with 'not seen') ✓ Door closer ☐ Door re-hanging
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***	TS T - Technical Specification - JB KIND 44 single- Timber doorset - Iss 3 original spec updated to TS T - Technical Specification - JB KIND 44 single- Timber doorset - Iss 3 _Verified by CGB 220224 within sections; 1, 3, 5, 7, 9, 10, 11, 12, 13, 14 & 15 Note – Sections 7 to 11 not verified during sampling premade door leaf under BWF Certifire 154 A737788
Closing Meeting (names of those present)	Achilleas Sarrigiannidis & Robertas Zioba (Dorsuite) / Chris Blount (BM TRADA)

Declaration I declare that the product/s witnessed during this sampling visit are representative of normal production.

Company Representative Name (Print)		Company Representative Position	
Exitex Ltd: Des Gray	Dorsuite: Achilleas Sarrigiannidis	Exitex Ltd: Director	Dorsuite:
BM TRADA Representative Signature		**Company Representative Signature**	
		Exitex Ltd: 	Dorsuite: 

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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SAMPLING VISIT REPORT

Company Name	Exitex UK Sales LTD
Establishment No.	05C/21255 (E002626)
BM TRADA Notified Body ID: 1224	

Company Head Office Address	Exitex UK Sales LTD St Johns Chambers Love St Chester CH1 1QN	Contact Name	Des Gray
		Telephone	
		Email Address	Des.Gray@exitex.com

Location where sampling was conducted if different from Head Office Address	Visit Date	BMT Representative
Dorsuite, 17 Law Place, Nerston Industrial Estate, East Kilbride, Glasgow G74 4QL	22/02/2024	Chris Blount

Requirement	Evidence / Comments
Opening Meeting (names of those present)	Achilleas Sarrigiannidis & Robertas Zioba (Dorsuite) / Chris Blount (BM TRADA)
Contract Reference	SC24001T
Technical Specification document / FoA reference Photographs to be taken of all critical areas highlighted in the Technical Specification	SC24001T Rev 1 - Initial Type Test Doorset Sampling Contract - Exitex Ltd – Signed TS T - Technical Specification - Halspan 44 single- Timber doorset - Iss 3 Drawings - Halspan 44 single
Description of product(s) sampled	Halspan Optima 44mm (Q-Marked) unglazed door leaf lipped with 8mm sapele lippings, hung in a softwood frame on 3 no hinges and 1no. Exitex 10x4mm intumescent seal. Fitted with tubular latch (latch disengaged), lever handle and face fix door closer.
Product identification / reference numbers / codes	SC24001T
Batch number(s)	N/A
Date of manufacture	22/02/2024
Quantity of stock and size of sample(s) taken	1no. single doorset (Frame 992mm x 2076mm) (Leaf 926mm x 2040mm)
Traceability of material records ie Purchase Orders and delivery notes	PO 82122– Halspan Optima 44m core – Halspan Ltd 20/09/2023 D/N S-480323-1– LT 10x4mm Intumescents – Exitex 19/01/2024 PO 62667 – Hinges - Zoo Architectural Hardware 26/10/2021 PO 82461 – Tubular Latch - Zoo Architectural Hardware 16/01/2023 PO 71819 – Handle - Zoo Architectural Hardware 16/09/2022 All Purchase orders held on file at BM TRADA
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	☐ Glazing assembly (where applicable) ✓ Finished doorset with markings ✓ Hardware prep and fitting (where applicable) ✓ Sampling pack discussion
Details of any further FPC processes witnessed during the visit.	none
Determine the essential characteristics of the product and confirm the details of in-process checks conducted on the sample to ensure conformity.	Halspan Optima 44mm (Q-Marked) unglazed door leaf lipped with 8mm sapele lippings, hung in a 70mm x 30mm softwood frame with 23mm x 12mm planted stop on 3 no hinges and 1no. Exitex 10x4mm LT intumescent seal. Fitted with (latch disengaged), lever handle and face fix door closer (no intumescent fitted to hardware), Face fix door closer parts verified and signed – to be fitted on installation.
State any items from the Technical Specification / FoA that were not witnessed and require further lab sampling	☐ Side screen / overpanel ☐ Handles ✓ Other (see tech spec marked with 'not seen') ✓ Door closer ☐ Door re-hanging
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***	TS T - Technical Specification - Halspan 44 single- Timber doorset - Iss 3 original spec updated to TS T - Technical Specification - Halspan 44 single- Timber doorset - Iss 3_Verified by CGB 220224 within sections; 1, 3, 5, 7, 9, 10, 11, 12, 13, 14 & 15
Closing Meeting (names of those present)	Achilleas Sarrigiannidis & Robertas Zioba (Dorsuite) / Chris Blount (BM TRADA)

Declaration I declare that the product/s witnessed during this sampling visit are representative of normal production.

Company Representative Name (Print)	Company Representative Position
EXITEX LTD: Des Gray / DORSUITE: Achilleas Sarrigiannidis	EXITEX LTD: Director / DORSUITE
BM TRADA Representative Signature	**Company Representative Signature**
	EXITEX LTD / DORSUITE