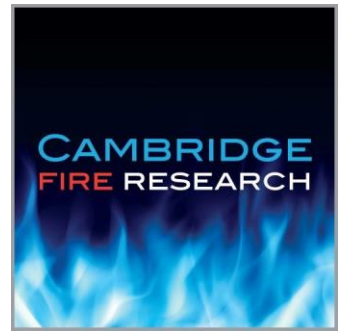


TEST REPORT NUMBER CFR2312141 Revision 1



FIRE RESISTANCE TEST IN ACCORDANCE WITH BS 476:PART 22: 1987

Sponsor:	Wood International Agency Ltd
Address:	Wood House, 16 King Edward Road, Brentwood, Essex, CM14 4HL
Date of test:	14 th December 2023

Results:	
Test duration:	33 minutes (discontinued at the request of the sponsor)
Integrity:	32 minutes



Summary of test specimen (mm) :

An unlatched glazed single acting double leaf timber doorset, tested as uninsulated opening towards the heating conditions of the test.

Overall size (h x w x d):

Frame: 2223 x 1888 x 71

Left hand leaf: 2183 x 933 x 44

Right hand leaf: 2183 x 886 x 44

Left hand glazing pane: 1394** x 394** x 7**

Right hand glazing pane: 1394** x 394** x 7**

This test report is only valid when presented in full.

Cambridge Fire Research Ltd Brewery Road Pampisford Cambridge CB22 3HG

Tel. +44 (0) 1223 834752 **Email.** testing@camfirelab.co.uk

Registered in England No. 5602112 Registered Office Brewery Road Pampisford Cambridge CB22 3HG

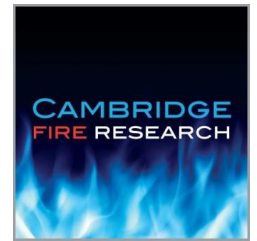


4319



0 CONTENTS PAGE

0 CONTENTS PAGE	2
1 PREPARATION FOR TESTING	4
1.1 Specimen conditioning.....	4
1.2 Associated construction	4
1.3 Specimen construction	4
1.4 Specimen verification.....	4
1.5 Specimen installation and fixity	4
1.6 Specimen selection.....	4
2 PRE-TEST MEASUREMENTS AND SETTING	5
2.1 Closing force measurement	5
2.2 Gap measurements – Frame edge to associated construction aperture	6
2.3 Gap measurements – Leaf edge to frame	7
2.4 Final setting	7
3 TEST CONDITIONS, INSTRUMENTATION AND MEASURING	8
3.1 Furnace temperature	8
3.2 Furnace pressure.....	9
3.3 Ambient temperature	9
3.4 Unexposed face specimen thermocouples	10
3.5 Irradiance.....	11
3.6 Deflection.....	12
4 TEST OBSERVATIONS	13
5 LIMITATIONS	14
APPENDIX 1 SPECIMEN CONSTRUCTION	15
Appendix 1 Table 1.....	15
Appendix 1 Figure 1 – Specimen elevation (unexposed face view) incl. hidden detail	21
Appendix 1 Figure 2 – Section A – A.....	22
Appendix 1 Figure 3 – Section B – B.....	22
Appendix 1 Figure 4 – Section C – C.....	23
Appendix 1 Figure 5 – Section D – D.....	23
APPENDIX 2 PHOTOGRAPHS	24
Appendix 2.1 Pre-test photos	24
Appendix 2.2 During test photos.....	29
Appendix 2.3 Post-test photos	31
APPENDIX 3 POSITIONING OF INSTRUMENTATION	32
APPENDIX 4 RECORDED THERMOCOUPLE DATA.....	33
APPENDIX 5 INDEPENDENT REPORT	34
APPENDIX 6 REVISION HISTORY	38



Key to symbols used throughout report:

* Nominal value

** Declared value or detail, not verified by laboratory

*** Constructional details omitted at the request of the Sponsor. Full details are held on file by the laboratory

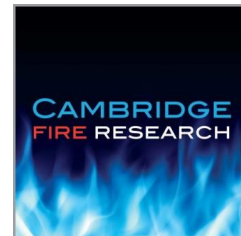
‡ Identified post-test from remains of specimen

EX – exposed face of the specimen, subject to the heating conditions of the test.

UX – unexposed face of the specimen, not subject to the heating conditions of the test.

All dimensions in mm unless stated otherwise.

Figures shown in Appendix 1 are not to scale.



1 PREPARATION FOR TESTING

1.1 Specimen conditioning

The specimen was received by Cambridge Fire Research on 11/12/2023.

The specimen was on site for a total period of 3 days and during this time the temperature and relative humidity were measured and recorded within the range of 8°C to 17°C and 62% to 91% respectively.

1.2 Associated construction

Cambridge Fire Research constructed a timber stud partition with 1No. layers of 15 mm thick British Gypsum FireLine board to the exposed face and 1No. layer of 12.5 mm thick British Gypsum FireLine board to the unexposed face.

The aperture for the specimen was 2220 mm high x 1900 mm wide.

In accordance with Fire Test Study Group Resolution No. 51 continuity of the threshold was simulated by the installation of a solid non-combustible threshold extension by Cambridge Fire Research, such that the extension was flush with the threshold onto which the specimen was positioned.

1.3 Specimen construction

The specimen was received complete from the sponsor.

1.4 Specimen verification

Cambridge Fire Research carried out a detailed survey of the specimens to verify the information provided by the sponsor. This included verifying the weight, densities, materials and dimensions of construction components wherever possible.

Details and drawings of the construction are shown in Appendix 1.

Photographs of details of the construction taken before the test are shown in Appendix 2.

1.5 Specimen installation and fixity

The sponsor installed the specimen into the associated construction, affixed as described in Appendix 1.

The specimen was asymmetrical and installed such that it opened towards the heating conditions of the test at the request of the sponsor.

The specimen was unlatched prior to the start of the test.

The left hand leaf was the primary leaf.

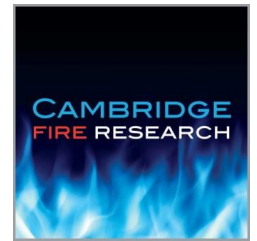
The flush bolt of the right hand leaf was disengaged prior to the start of the test.

1.6 Specimen selection

Cambridge Fire Research was not involved in any selection or sampling procedures.

The sponsor provided the independent report shown in Appendix 5.

Appendix 2, photo 2.1.21 show corresponding identification.



2 PRE-TEST MEASUREMENTS AND SETTING

2.1 Closing force measurement

The door opening and closing forces for both leaves were measured in accordance with Fire Test Study Group Resolution No. 63 and the calculated moments are shown in the following table.

Direction	Leaf	Closing force (N)	Closing moment (Nm)	Opening force (N)	Opening moment (Nm)
Opening towards heating conditions	Left	38.6	29.0	67.4	50.6
	Right	33.9	25.4	70.1	52.6

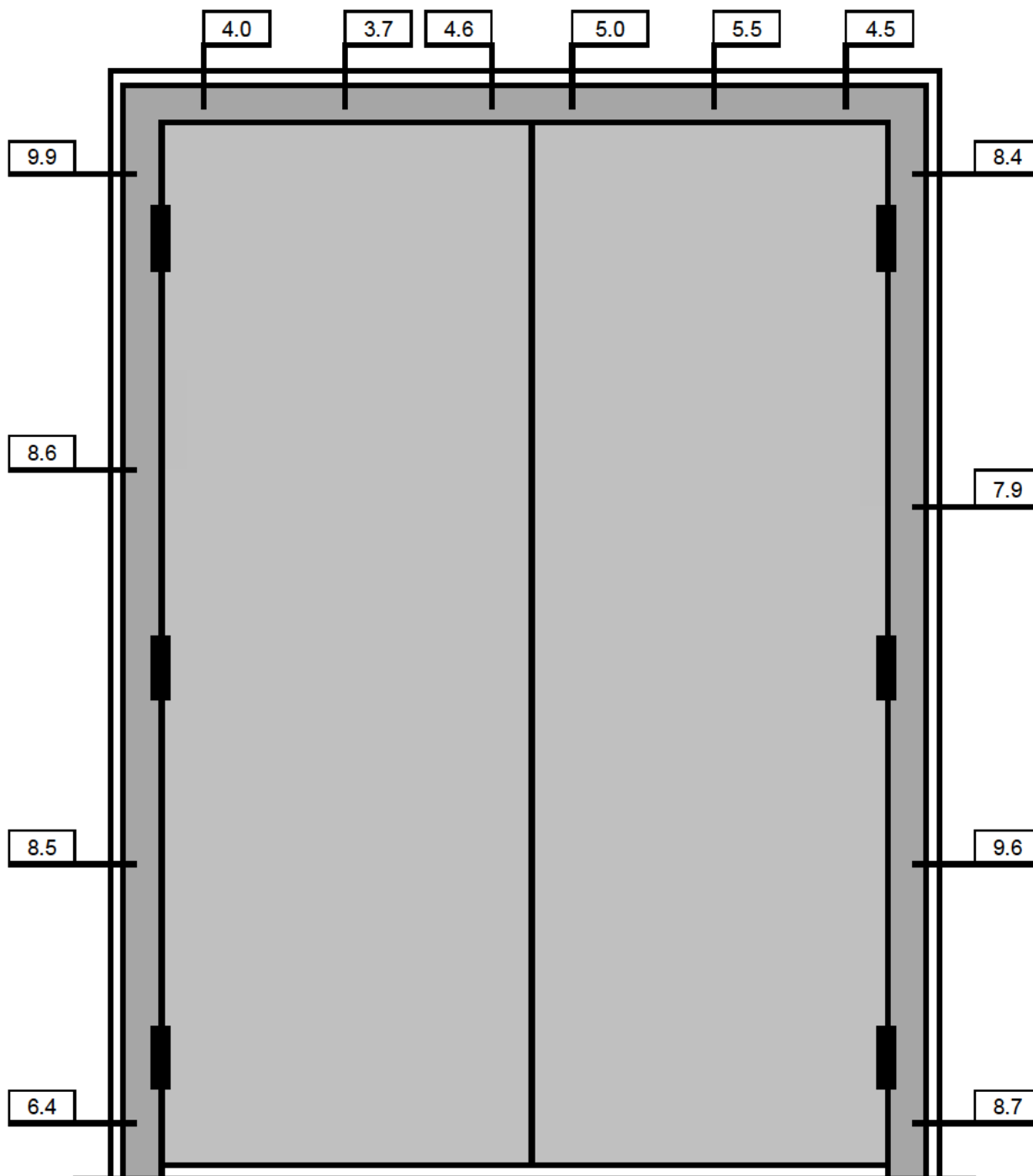


2.2 Gap measurements – Frame edge to associated construction aperture

The gap between the specimen frame and the associated construction was measured prior to the start of the test.

The position at which the measurements were made and the recorded gap at those positions are shown in the following figure(s).

Specimen viewed as measured from the exposed face.



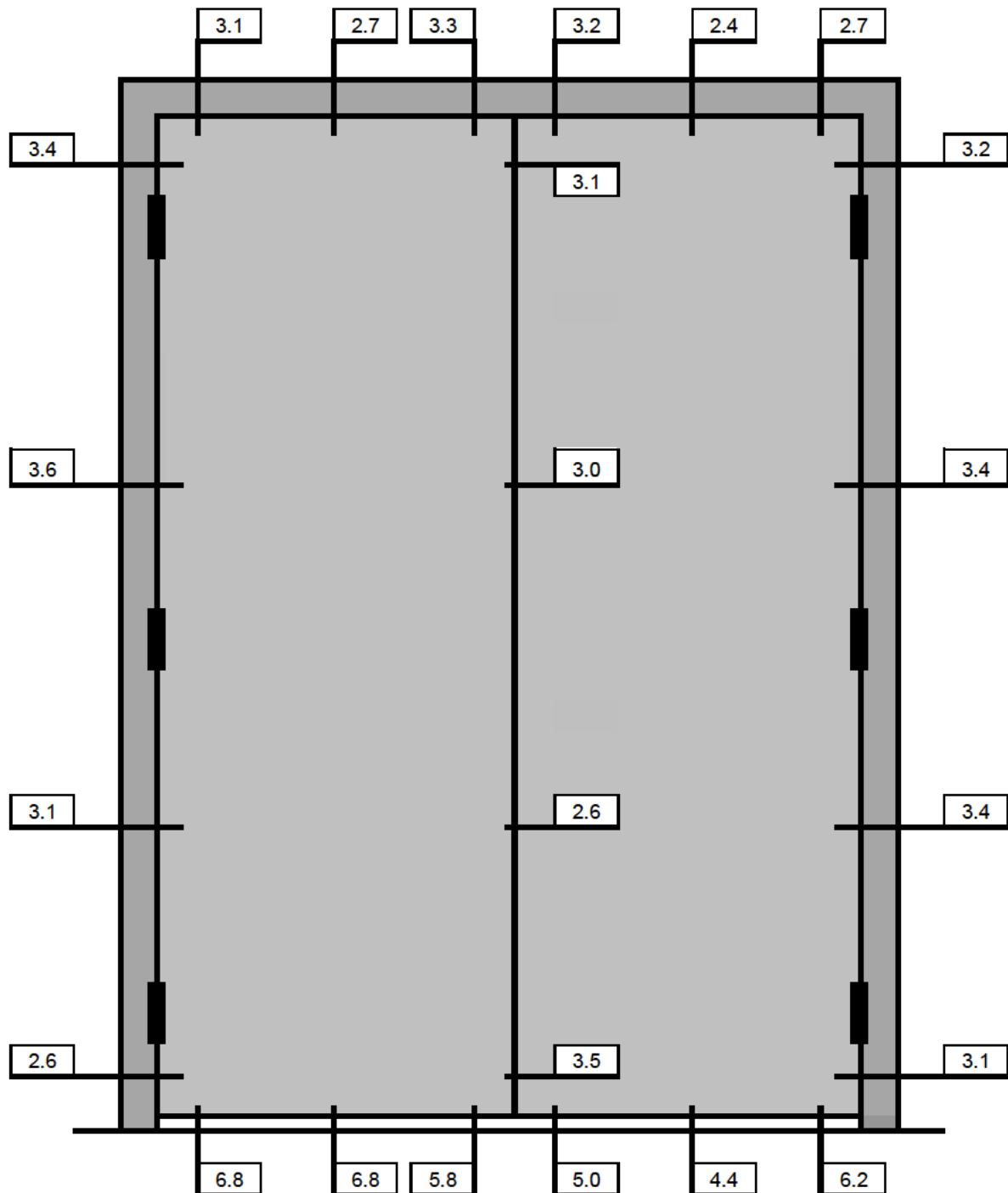


2.3 Gap measurements – Leaf edge to frame

The primary gaps between the leaf edges and the frame, between the base of the leaf and the threshold and between the meeting stiles were measured prior to the start of the test.

The position at which the measurements were made and the recorded gap at those positions are shown in the following figure(s).

Specimen viewed as measured from the exposed face.



2.4 Final setting

Prior to the start of the fire test, each doorset leaf was subjected to a final closing involving opening to a distance of approximately 300 mm and allowing them to close by the closing device or closed manually where not fitted.

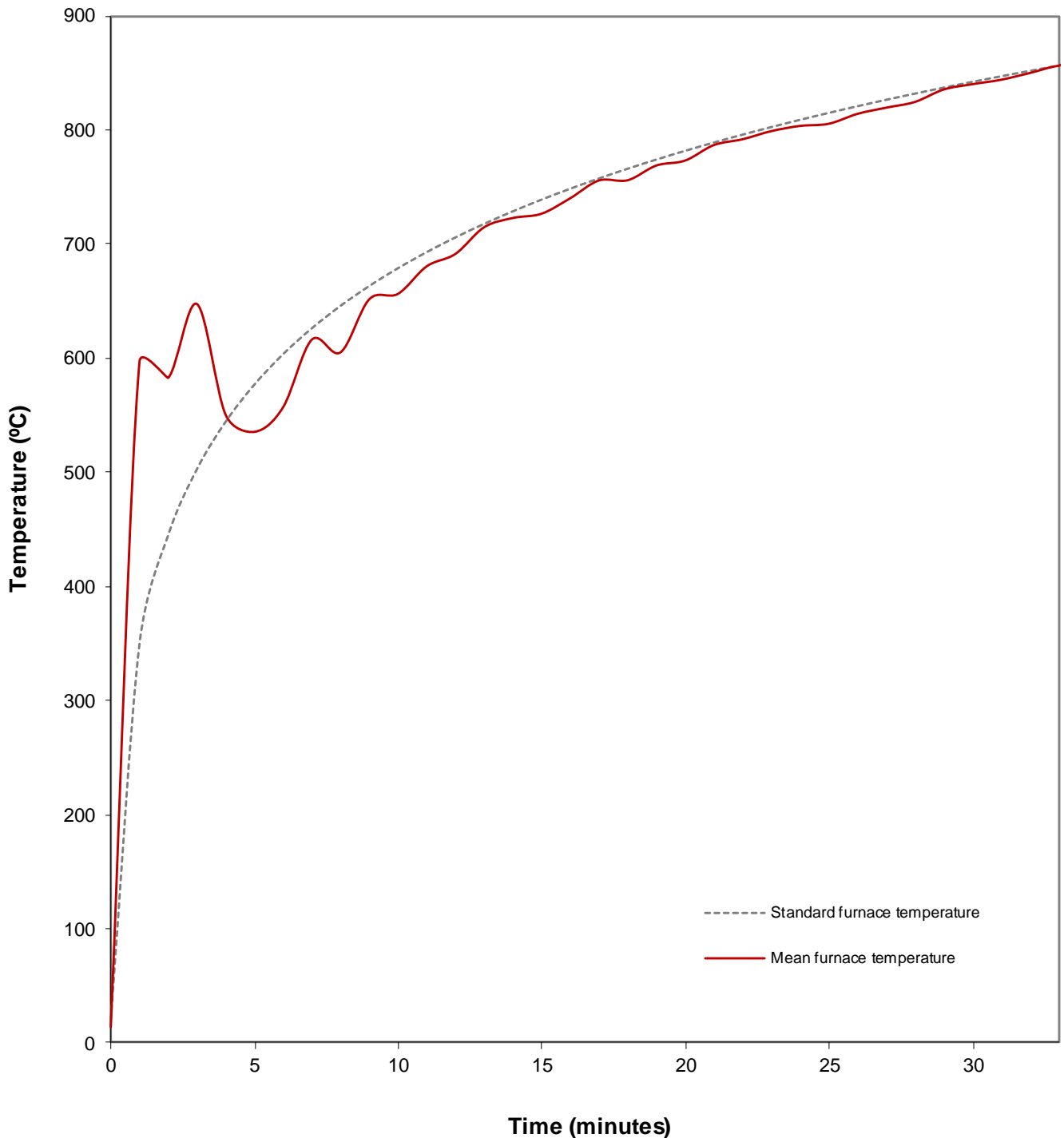


3 TEST CONDITIONS, INSTRUMENTATION AND MEASURING

3.1 Furnace temperature

Furnace temperature was controlled so as to follow the standard temperature/time curve defined in the test standard and within the tolerances permitted. The furnace mean temperature was calculated from the output recorded using nine furnace thermocouples of the design specified in the test standard.

The following graph shows the standard and mean furnace temperature/time data.

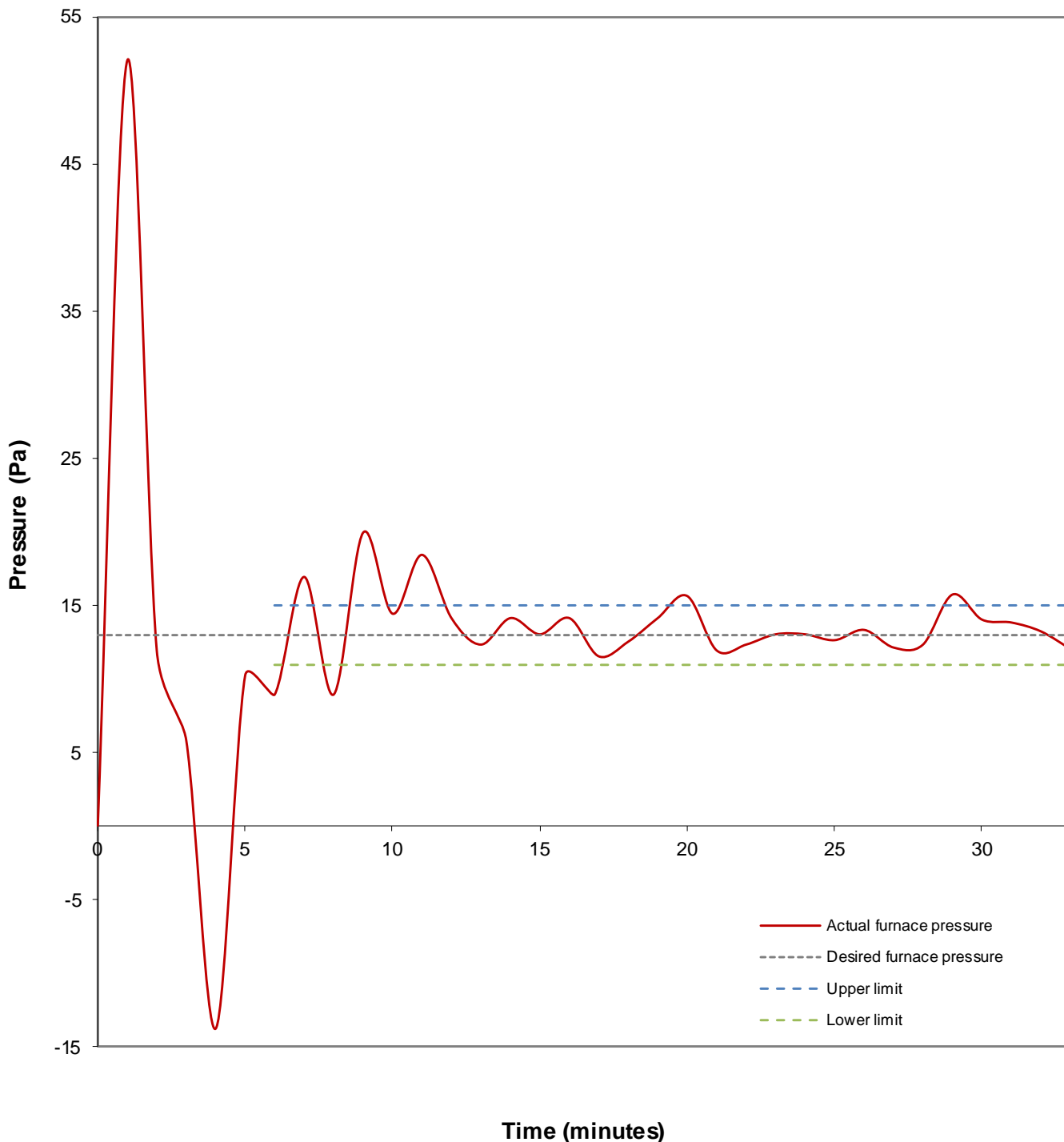




3.2 Furnace pressure

Furnace pressure was maintained for the duration of the test at a nominal + 13.0 Pa measured at the pressure sensing head. When a linear pressure gradient of 8.5 Pa/m is applied this equates to + 0 Pa at 1 m above the notional floor level. The furnace pressure was controlled within the tolerances permitted in the test standard, except for 8 instantaneous occasions which were transient events.

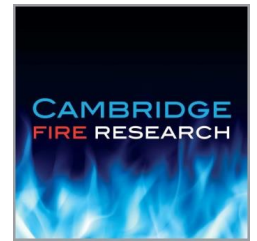
The following graph shows the actual and desired furnace pressure/time data.



3.3 Ambient temperature

Ambient temperature at the start of the test was 11°C.

Ambient temperature ranged between 10°C and 11°C during the test.

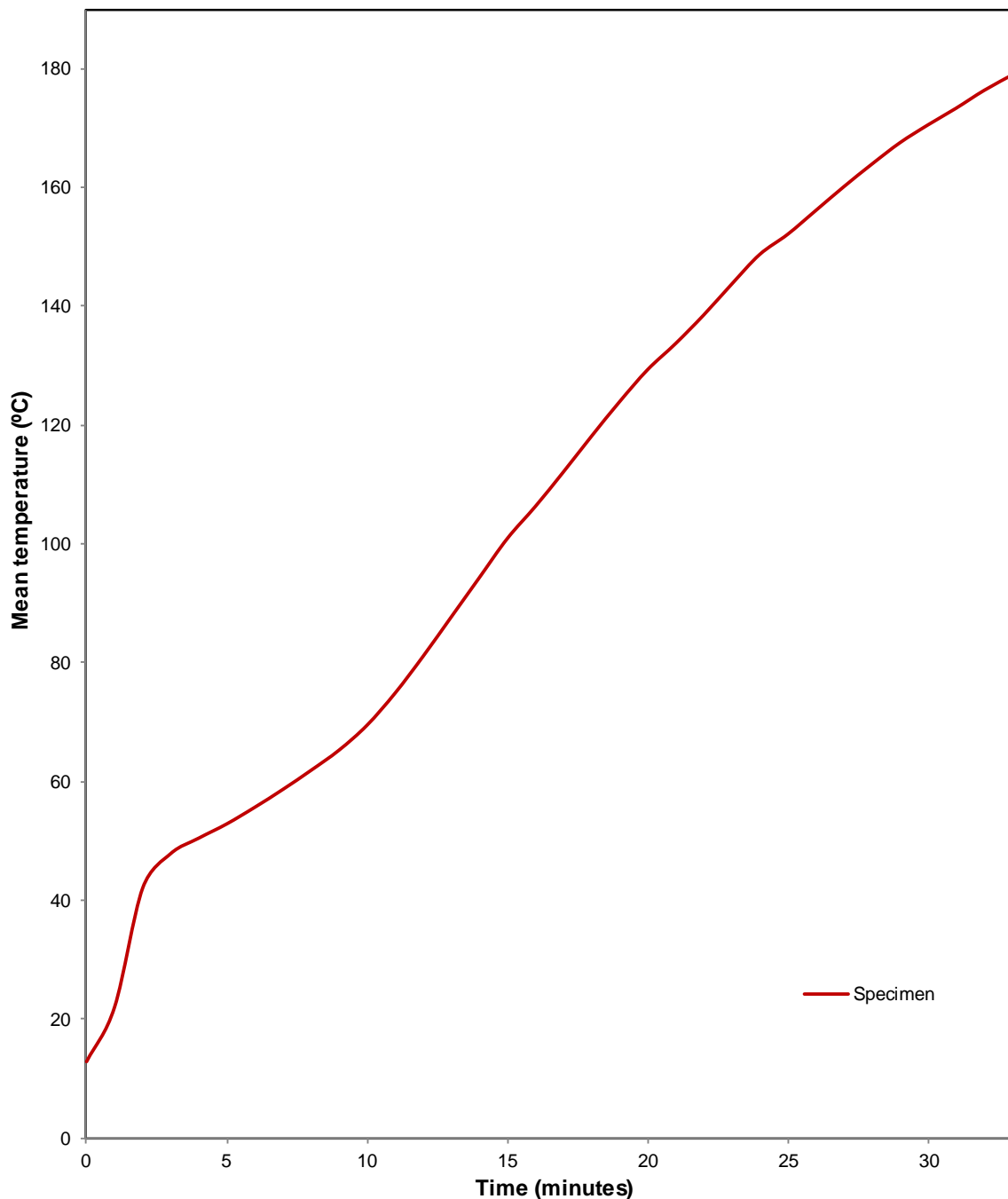


3.4 Unexposed face specimen thermocouples

Surface temperature measuring thermocouples of the design specified in the test standard were affixed to the unexposed face of the specimen(s) to monitor the temperature rise as follows:

Leaves	Channels 16 to 20	(mean & information only)
Frame	Channels 21 to 24	(information only)

The positions of these thermocouples are shown in Appendix 3.
A roving thermocouple was available for measurement of any specific hotspots.
Any instances of the use of the roving thermocouple are noted in the observations in Section 4.
The recorded data of all individual fixed thermocouples is shown in Appendix 4.
The following time/temperature graph shows the mean temperature.



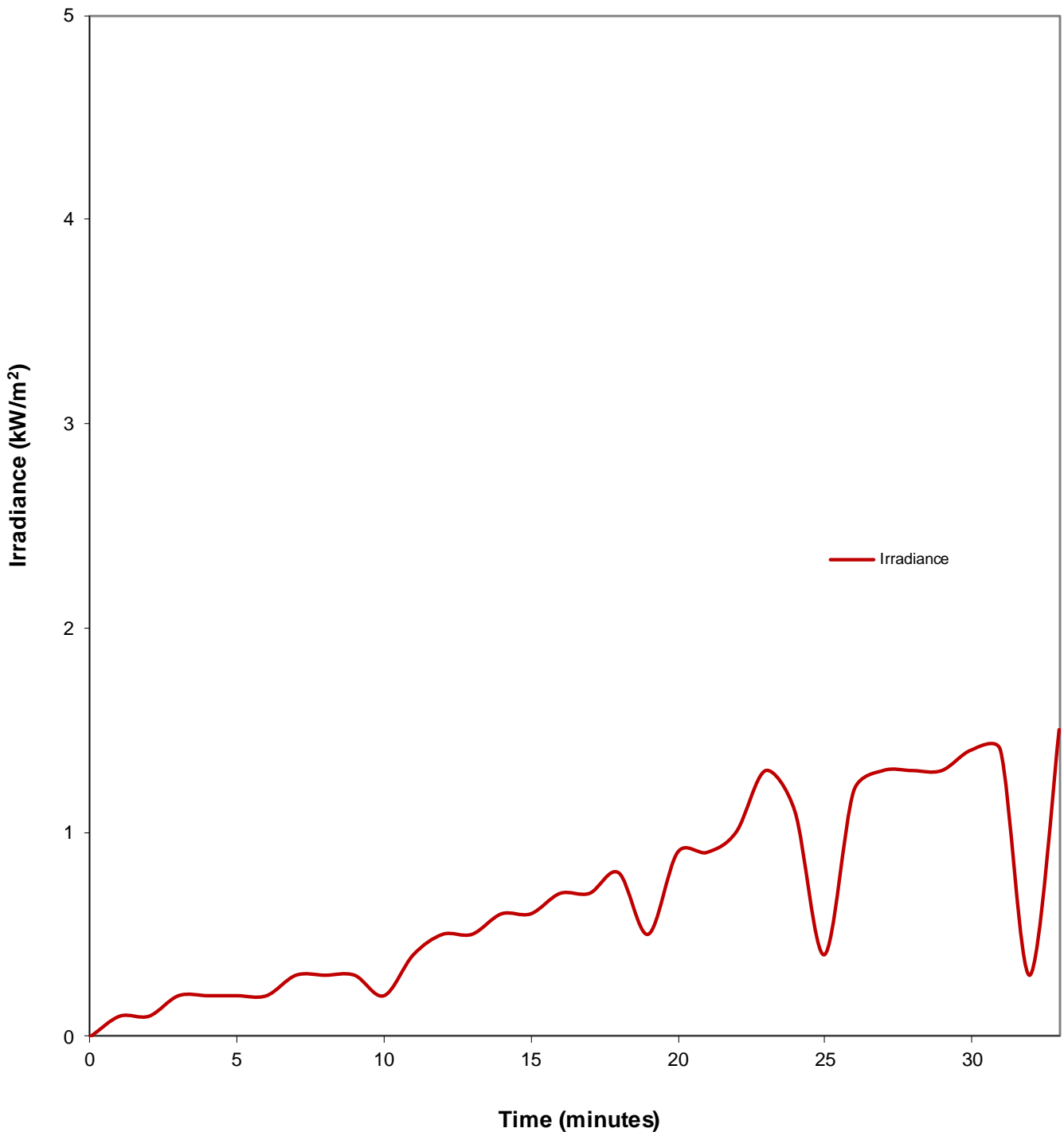


3.5 Irradiance

Irradiance from the unexposed face was monitored during the test. A 180° field of view water cooled heat flux meter was positioned with its target 1.0m from and parallel to the unexposed face of the specimen and at its geometric centre.

This location represents both the average irradiance level and the point of expected maximum heat flux.

The following graph shows the recorded irradiance/time data.



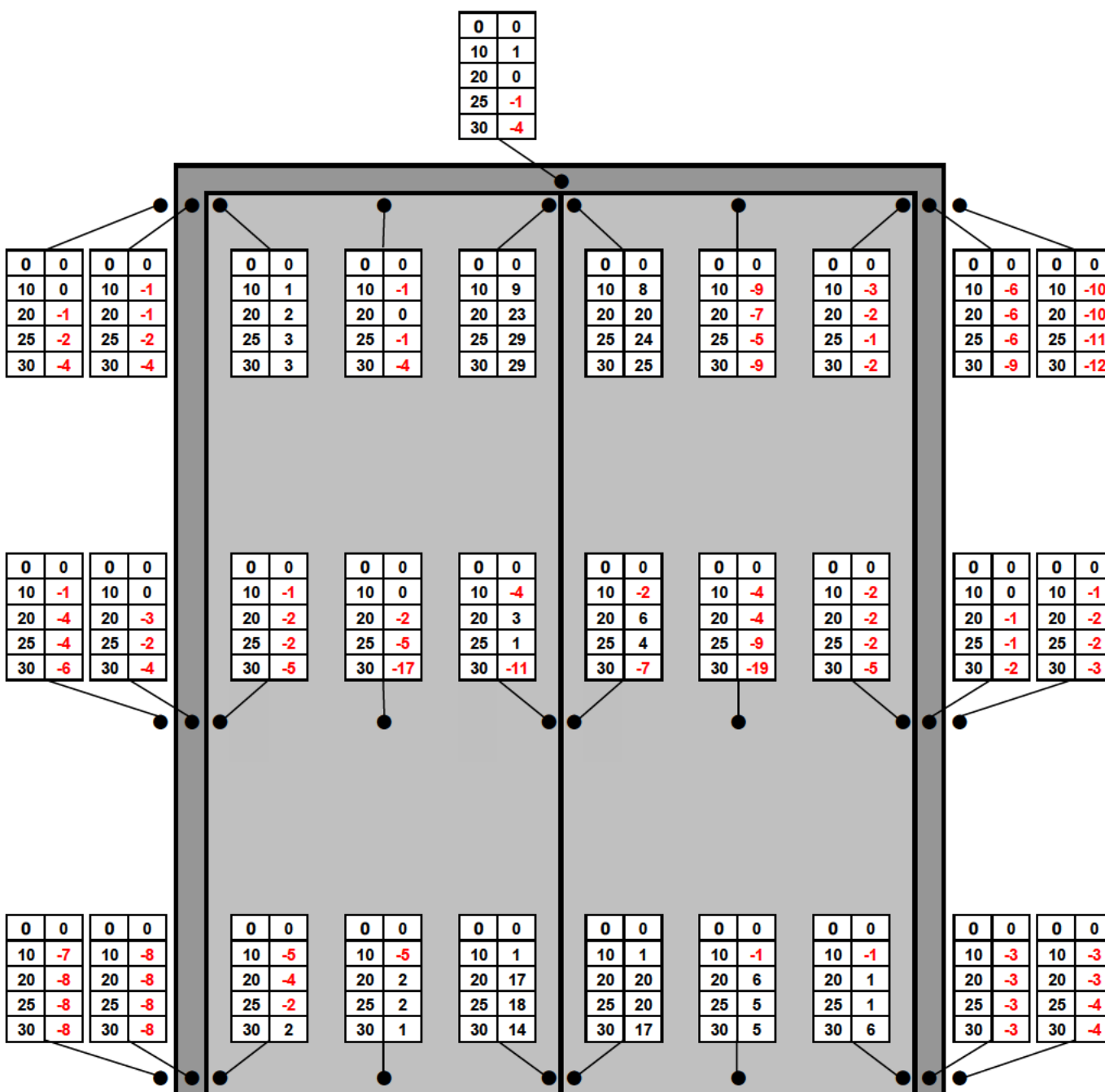
It should be noted that the recorded value of heat flux drops when the field of view is physically interrupted during the measurement of deflection.

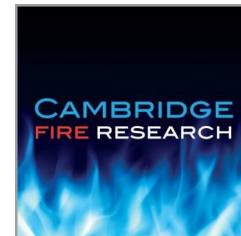


3.6 Deflection

Taut stainless steel wires anchored horizontally across the unexposed face of the restraint frame, such that any deflection experienced by the test construction could be measured, were positioned at mid-height and at 10 mm vertically from the head and base within the visible area of the leaves.

The following figure(s) show these positions with the elapsed time (minutes) in the left-hand column and the recorded deflection (mm) in the right-hand column. Positive values indicate deflection towards the heating conditions of the test.

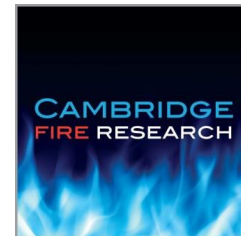




4 TEST OBSERVATIONS

Photographs taken during the test are shown in Appendix 2.

TEST OBSERVATIONS (E = Exposed face: U = Unexposed face)		
Time (min:sec)	Face	Observation
00:00		Start of the test.
00:45	U	Cracks apparent at right hand glazing pane.
01:00	U	Cracks apparent at left hand glazing pane.
01:20	U	Interlayer activated at right hand glazing pane.
01:24	U	Interlayer activated at left hand glazing pane.
06:22	U	Smoke/steam issues across the head of the left hand leaf.
06:39	U	Smoke/steam issues at meeting stiles at mid height.
07:08	U	Smoke/steam issues at left hand jamb, nominally 1500mm above base.
07:34	U	Smoke/steam issues through cracks in both glazing panes.
08:32	U	Smoke/steam issues at top left hand corner of left hand beading.
09:13	U	Smoke/steam issues at both top corners of the right hand beading.
09:50	U	Smoke/steam issues at latch position.
10:27	U	Smoke/steam issues at right hand jamb at nominally mid height.
10:54	U	Smoke/steam issues at top of the meeting stiles.
14:02	E	All timber fissured.
17:02	U	Right hand glazing pane intumescent activated.
18:47	U	Glowing is apparent at top of the meeting stiles.
20:36	U	Smoke/steam issues at the euro cylinder position.
21:43	E	Nominally 90% of beading missing.
24:03	E	Both closers detached.
24:38	U	Smoke/steam issues at meeting stiles, nominally 400mm above base.
29:08	U	Left hand glazing pane intumescent activated.
31:18	U	Flash flaming occurs at top of the meeting stiles.
32:40	U	Flaming commences at top of the meeting stiles.
32:50	U	INTEGRITY FAILURE due to sustained flaming.
33:25		The test is terminated.



5 LIMITATIONS

1. The test results relate only to the specimens tested. Appendix A of BS476: Part 22: 1987 provides guidance information on the application of fire resistance tests and the interpretation of test data. Application of the results to specimens of different dimensions, orientation or incorporating different components should be the subject of a design appraisal or further testing.
2. 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.
3. 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.
4. The results apply to the specimen(s) tested with orientation and symmetry as described in Section 1.5 of this report. The test results may not be appropriate to situations where the heating conditions are from the opposite direction.
5. The results apply to the specimen(s) as received from the sponsor.
6. Cambridge Fire Research is not responsible for the content of this report where information has been identified (using **) as supplied by the sponsor.

This report is the property of the test sponsor and may not be reproduced or passed to a third party without their prior agreement.

Report prepared by:

A handwritten signature in blue ink, appearing to read "M Wadson".

**M Wadson
Test Engineer**

Report checked by:

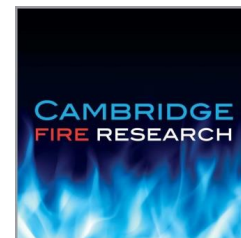
A handwritten signature in blue ink, appearing to read "Tom Smith".

**Tom Smith
Senior Test Engineer**

Revision 1 issued: 11th September 2024

Report originally issued: 11th July 2024

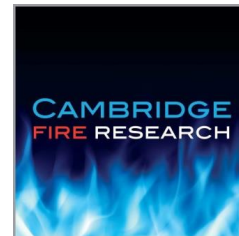
Please see Appendix 6 for Revision History



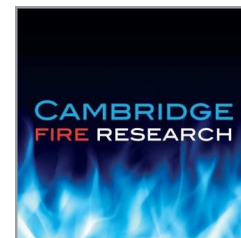
APPENDIX 1 SPECIMEN CONSTRUCTION

Appendix 1 Table 1

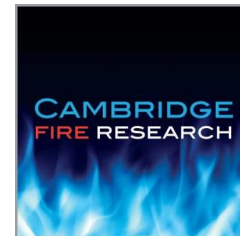
Item	Component	Information
1	<p>Frame Manufacturer: Description: Fixings to associated construction: Density (kg/m³): Overall size (h x w x d): Cross section size (w x d):</p>	<p>Wood International Agency A 3-sided rebated Redwood** frame with 10h rebate joints and planted stops. Corner joints affixed using 2No. Ø5 x 70 steel countersunk screws at 40 centres. Ø5 x 100 steel countersunk screws, set 200 to 240 from the internal corners and at 360 to 510 centres at the jambs. Additionally 1No. set at centre of flush bolt keep. Nominally 510** 2223 x 1888 x 71 30 x 71</p>
2	<p>Stops Manufacturer: Description: Density (kg/m³): Cross section size (w x d):</p>	<p>Wood International Agency Redwood** stops, affixed using 16swg x 30** pneumatically fired steel pins, 50** from internal corners and 300** centres. Nominally 510** 12 x 20</p>
3	<p>Left hand leaf Manufacturer: Reference: Description: Overall size (h x w x d): Weight (kg): Sub-components: Core: Manufacturer: Reference: Description: Density (kg/m³): Thickness (t): Lippings: Manufacturer: Description: Density (kg/m³): Overall size (w x d): Glazing aperture: Description: Overall size (h x w):</p>	<p>Wood International Agency Marksman 44** A particleboard core with lippings and an aperture for glazing. 2183 x 933 x 44 49.2 including ironmongery. Wood International Agency** Marksman 44** A graduated density particleboard core. Nominally 535** 44 By DeSIGN Carpentry** Sapele** lippings, with 3 x 3 chamfer edges, adhered to all edges of the core using Wurth Rapid PUR adhesive**. Vertical lippings oversail the horizontals. Nominally 640** 6 x 44 An aperture set 100± below the head of the leaf and 150± from the meeting stile. 1410± x 404±</p>



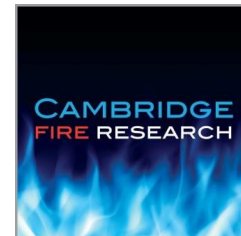
Item	Component	Information
4	<p>Right hand leaf Manufacturer: Reference: Description:</p> <p>Overall size (h x w x d): Weight (kg): Sub-components: Core: Manufacturer: Reference: Description: Density (kg/m³): Thickness (t): Lippings: Manufacturer: Description:</p> <p>Density (kg/m³): Overall size (w x d): Glazing aperture: Description:</p> <p>Overall size (h x w):</p>	<p>Wood International Agency** Marksman 44** A particleboard core with lippings and an aperture for glazing. 2185 x 886 x 44 35.2 including ironmongery.</p> <p>Wood International Agency** Marksman 44** A graduated density particleboard core. Nominally 535** 44</p> <p>By Dezign Carpentry** Sapele** lippings with 3 x 3 chamfer edges, adhered to all the edges of the core using Wurth Rapid PUR adhesive**. Vertical lippings oversail the horizontals. Nominally 640** 6 x 44</p> <p>An aperture set 100 below the head of the leaf and 150 from the meeting stile. 1404 x 400</p>
5	<p>Left hand glazing pane Manufacturer: Reference: Overall size (h x w x t): Sight size (h x w): Setting blocks Description: Overall size (h x w x d):</p>	<p>AGC (Supplied by Fire Glass UK Ltd). Pyrobelite 7 - 3(B)3 - 34dB 1394** x 394** x 7** 1370 x 370</p> <p>Calcium silicate** setting blocks set 15 from each bottom corner of the glazing aperture. 3.7 x 50 x 10</p>
6	<p>Right hand glazing pane Manufacturer: Reference: Overall size (h x w x t): Sight size (h x w): Setting blocks Description: Overall size (h x w x d):</p>	<p>Pyroguard UK Pyroguard Advance 2-EW30/7-1 1394 x 394 x 7 1370 x 370</p> <p>Calcium silicate** setting blocks set 15 from each bottom corner of the glazing aperture. 3.7 x 50 x 10</p>



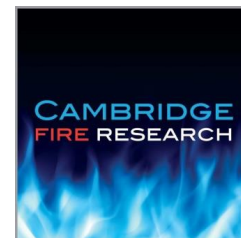
Item	Component	Information
7	Glazing beads Manufacturer: Description: Density (kg/m ³): Overall size (h x w): Section size (w x d): Splay angle (°):	By Dezign Carpentry** Mitred Sapele** bolection beading, set 96 below the head of each leaf and 146 from each meeting stile, affixed to each leaf and affixed using 16swg** x 38** pneumatically fired steel pins, set 50 from the internal corners and 70 to 200 centres. Nominally 640** 1410 x 408 18 x 20 15
8	Hinges Manufacturer: Reference: Description: Overall size: Blade size (h x w x d): Knuckle size (Ø): Fixings to frame: Fixings to leaf:	ASSA Abloy Union JH603BU 3No. steel butt hinges with bearings, set 150, 1026 and 1908 below the top of leaf to top of the blades. 100 x 35 x 3 14 5No. Ø5 x 30 steel countersunk screws. 5No. Ø5 x 32 steel countersunk screws.
9	Closer Manufacturer: Reference: Description: Overall size: Body (h x w x d): Cover (h x w x d x t):	Rutland TS.9205BC size 2-5 A cast alloy overhead door closer with steel sub components, cover and track, affixed to both leaves on the exposed face using 4No. Ø4 x 51 steel raised countersunk screws. Arm affixed to the frame using 2No. Ø4.5 x 25 steel countersunk screws. 55 x 235 x 39 70 x 270 x 40 x 1
10	Latch/lock Manufacturer: Reference: Description: Overall size: Forend (h x d x t): Body (h x w x d): Strike (h x d x t):	Vier Precision Design ZDL00060 Sashlock** A mainly steel mortice latch with stainless steel forend, strike and polymeric dust box, set with the vertical centreline of the latch bolt 996 above the base of the leaf. Affixed using 2No Ø3.5 x 32 stainless steel countersunk screws. Strike affixed using 3No Ø3.5 x 20 stainless steel countersunk screws. 234 x 22 x 3 165 x 86 x 14 180 x 24 x 1.5 including a 136h x 16d tongue.



Item	Component	Information
11	Handleset Manufacturer: Reference: Description: Overall size: Handle (Ø x w): Body (Ø x d x t): Cover (Ø x d x t):	Arrone AR961/10-4-SP-SSS A mainly stainless steel lever on rose handleset with steel rose, stainless steel cover and handle, affixed using 2No. M4 x 50 stainless steel through machine screws into threaded posts. 20 x 140 51 x 8 x 1.5 53 x 9 x 1
12	Eurocylinder Manufacturer: Reference: Description: Overall size:	Yale KMT3030-NP 30:10:30 35/35 Key/Turn Euro 70mm Cylinder** A mainly brass eurocylinder with steel sub components and thumbturn on the exposed face. 35/35
13	Escutcheon Manufacturer: Reference: Description: Overall size: Body (Ø x d x t): Cover plate (Ø x d x t):	Zoo Hardware Ltd. ZPS001SS** A mainly stainless steel escutcheon and cover affixed using 2No. Ø3 x 20 stainless steel countersunk screws. 48 x 8 x 1 50 x 8 x 1
14	Flush bolt Manufacturer: Reference: Description: Overall size: Body (h x w x d): Rebate (h x w x d): Keep (h x w x d):	Zoo Hardware Ltd** ZAS02SS** A mainly stainless steel flush bolt with steel sub components and keep, set in a rebate central to the thickness of the leaf at the top of the meeting stile and affixed using 2No. Ø3.5 x 38 stainless steel countersunk screws. Keep affixed to the head of the frame using 2No. Ø3.5 x 19 stainless steel countersunk screws. 153 x 36 x 20 154 x 36 x 20 2 x 42 x 19



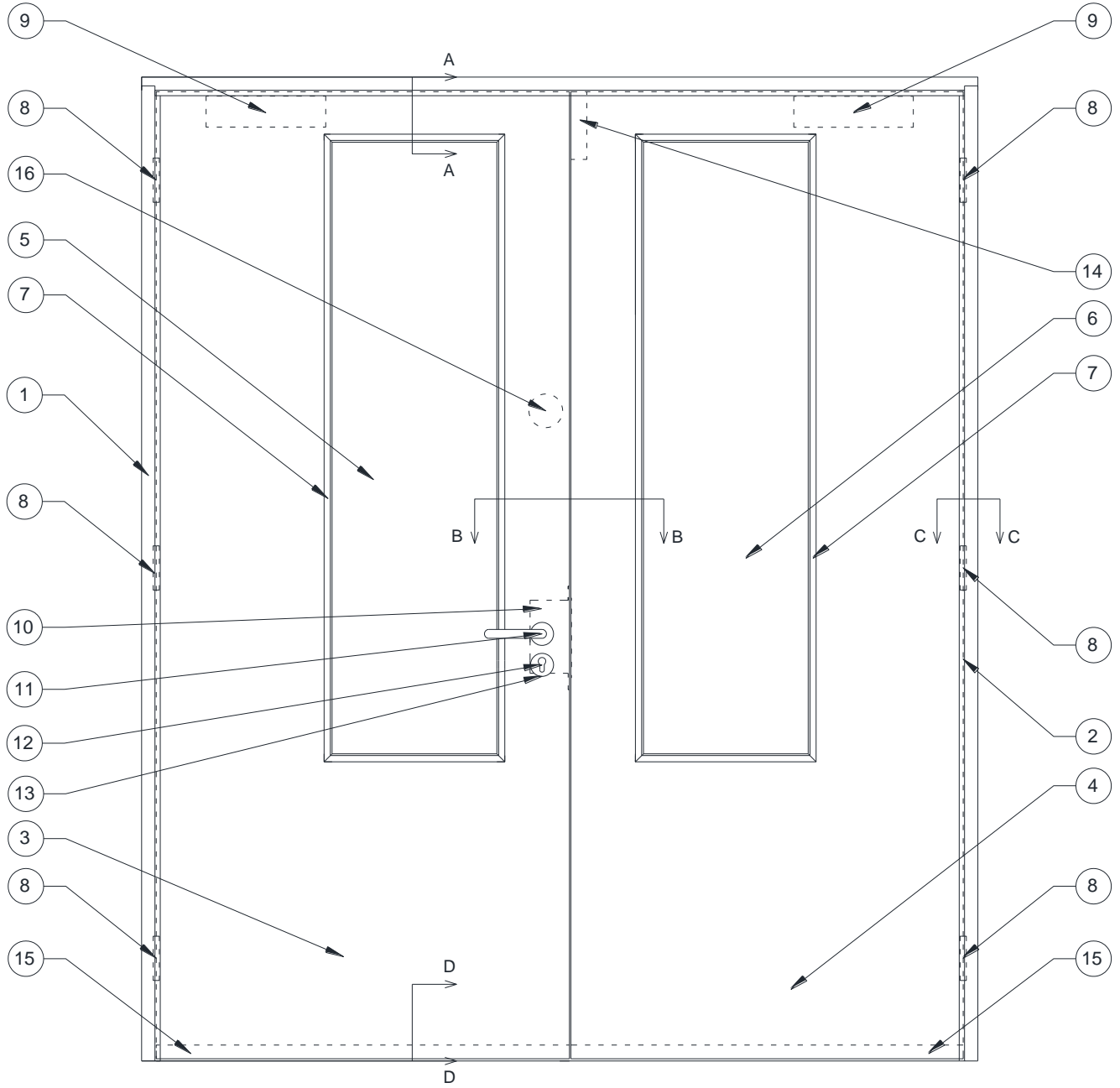
Item	Component	Information
15	Automatic door bottom Manufacturer: Reference: Description: Overall size: Body (h x w x d): Left hand: Right hand: Rebate (h x d):	Mann McGowan** 1703 ACU** A mainly aluminium body with elastomeric sub components, set within a rebate at the base of both leaves and affixed using 2No. Ø3.5 x 25 steel panhead screws. 31 x 926 x 14 31 x 876 x 14 29 x 17
16	Signage Manufacturer: Reference: Description: Overall size (Ø x t):	Zoo Hardware Ltd** ZSS09SS** A stainless steel “Fire door keep shut” sign, set 15.5 from the meeting stile and 683 below the head of the leaf, affixed using 2No. Ø3.4 x 19 stainless steel countersunk. 76 x 1.4
17	Intumescent – Frame Manufacturer: Reference: Description: Overall size (w x d):	Mann McGowan Pyrostrip 500P/PSS A graphite based intumescent strip in a PVC holder with self-adhesive on one side, set within a rebate 15 from the exposed face, fully interrupted at the hinges and flush bolt keep. 15 x 4
18	Intumescent – Meeting stile 1 Manufacturer: Reference: Description: Overall size (w x d):	Mann McGowan Pyrostrip 500P/PSS A graphite based intumescent strip in a PVC holder with twin elastomeric fins and self-adhesive on one side, set within a rebate in the left hand leaf 6 from the exposed face, partially interrupted at the latch with nominally 30% remaining. 10 x 4
19	Intumescent – Meeting stile 2 Manufacturer: Reference: Description: Overall size (w x d):	Mann McGowan Pyrostrip 500P/PSS A graphite based intumescent strip in a PVC holder with self-adhesive on one side, set within a rebate in the left hand leaf 26 from the exposed face, partially interrupted at the latch with nominally 30% remaining. 10 x 4



Item	Component	Information
20	Intumescent – Glazing seal Manufacturer: Reference: Description: Overall size (w x t):	Mann McGowan Pyroglaze A graphite based intumescent strip in a PVC holder with self-adhesive on one side, adhered to both leaves at the interface of the glazing and glazing beads. 10 x 3
21	Intumescent – Latch Manufacturer: Reference: Description: Overall size (t):	Mann McGowan** Pyrolock** A graphite based intumescent pad with self-adhesive on one side, encasing the latch body and beneath the forend. 1
22	Intumescent – Strike Manufacturer: Reference: Description: Overall size (t):	Mann McGowan** Pyrolock** A graphite based intumescent pad with self-adhesive on one side, adhered beneath strike and encasing the dust box. 1
23	Intumescent – Hinges Manufacturer: Reference: Description: Overall size (t):	Mann McGowan** Pyrohinge** A graphite based intumescent pad with self-adhesive on one side, adhered beneath all blades. 1
24	Intumescent – Flush bolt Manufacturer: Reference: Description: Overall size (t):	Mann McGowan** Pyrostrip** A graphite based intumescent pad with self-adhesive on one side, lining the bolt rebate. 1
25	Intumescent – Drop seal Manufacturer: Reference: Description: Overall size (t):	Mann McGowan** Pyrostrip** An ammonium phosphate based intumescent pad with self-adhesive on one side, encasing the body. 1
26	Smoke seal Manufacturer: Reference: Description: Overall size (w x d):	Mann McGowan ACS 1 An elastomeric bat wing smoke seal with self-adhesive on one side, adhered to the stops and frame reveal. 12 x 12
27	Fire stopping detail Description:	Gaps between the frame and the associated construction were filled with Unifrax Insulfrax LTX blanket and capped with Firewise Intumescent & Acoustic Acrylic Sealant.

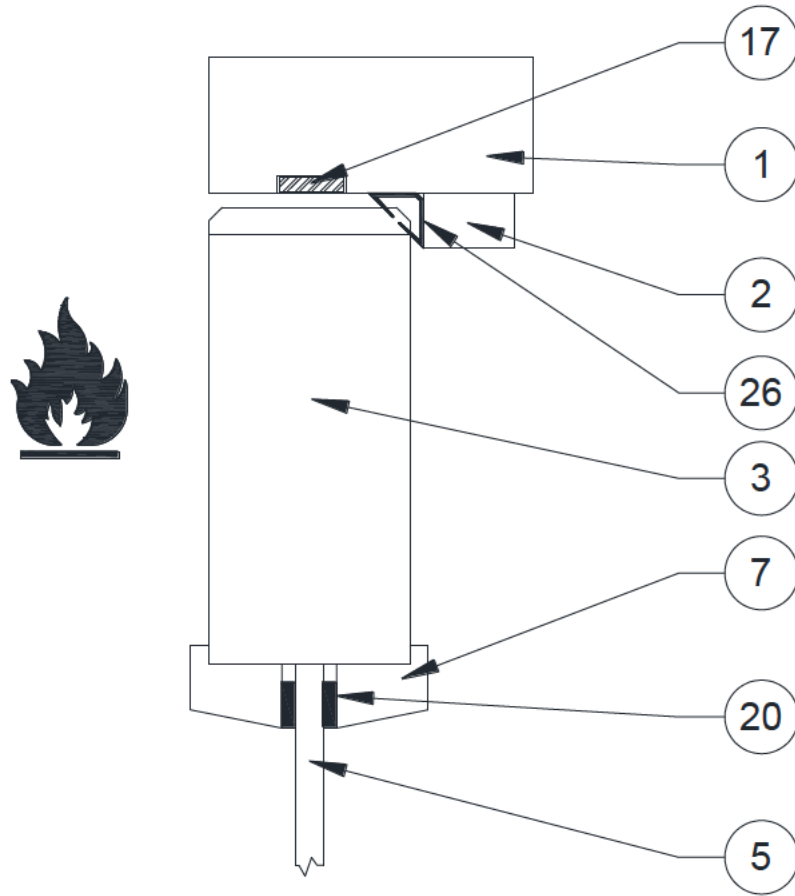


Appendix 1 Figure 1 – Specimen elevation (unexposed face view) incl. hidden detail

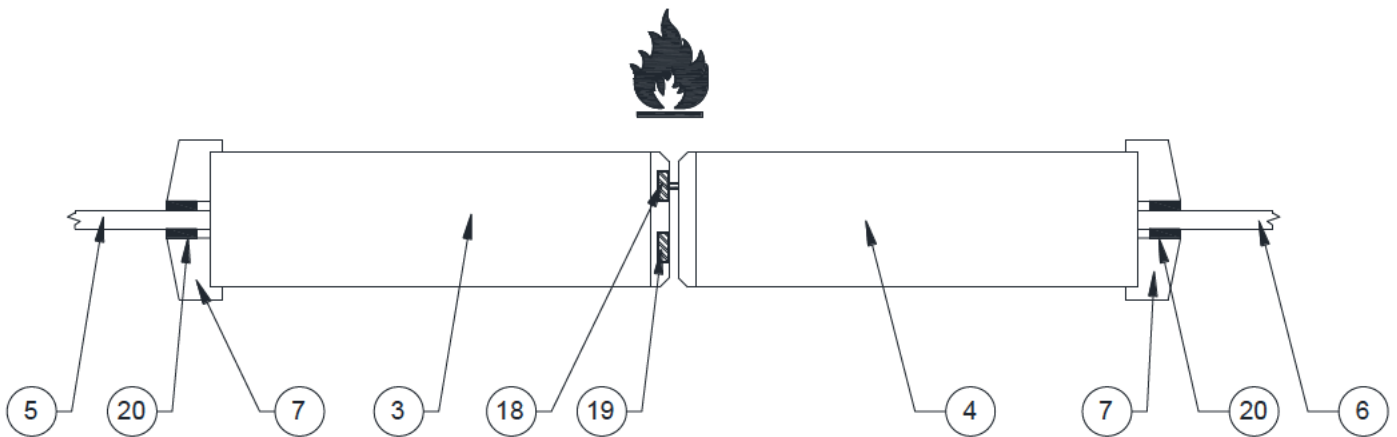




Appendix 1 Figure 2 – Section A – A

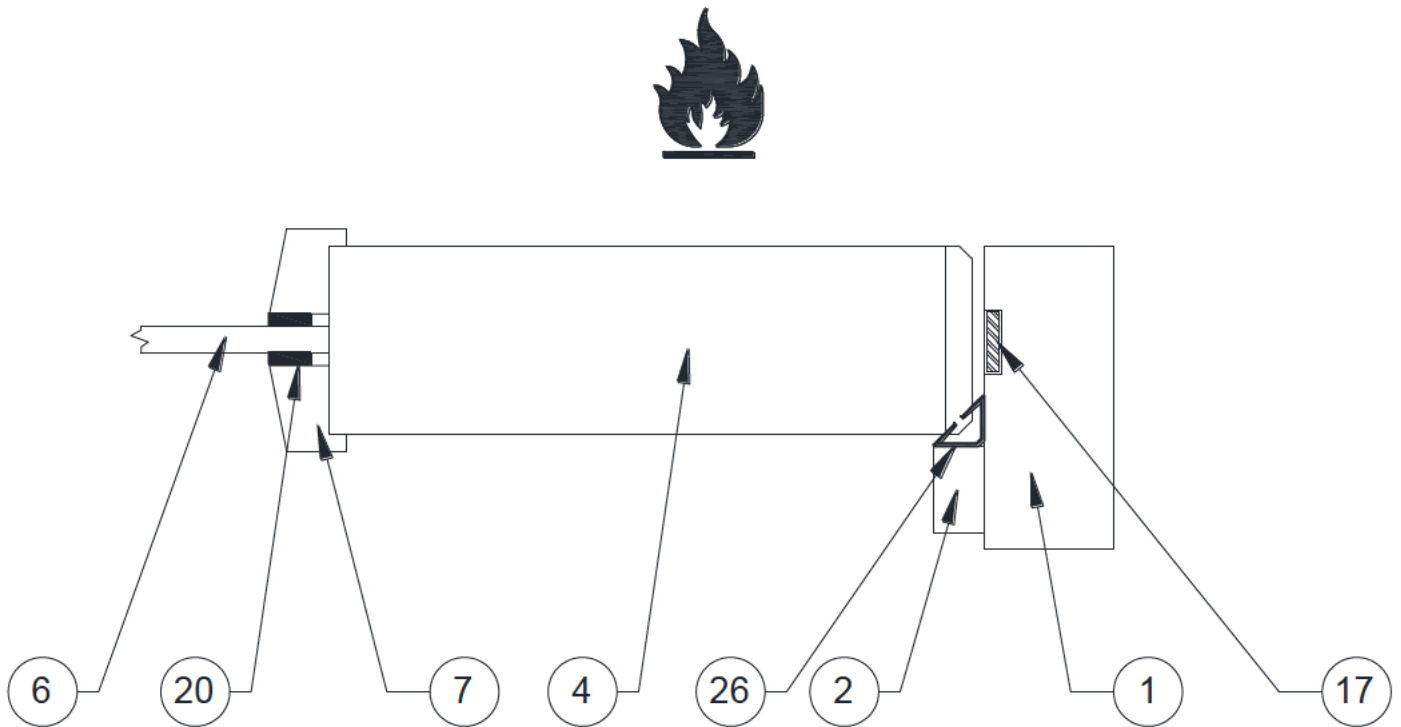


Appendix 1 Figure 3 – Section B – B

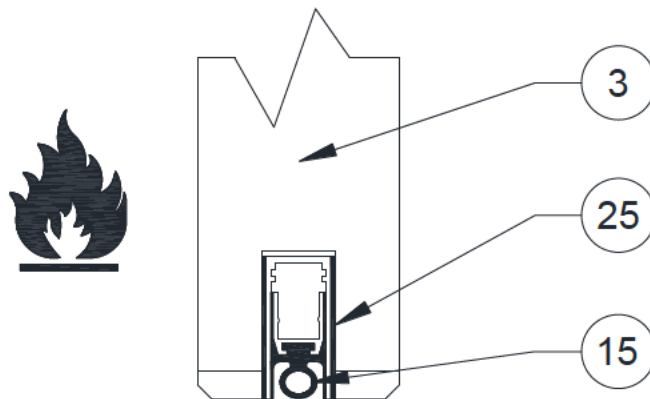




Appendix 1 Figure 4 – Section C – C



Appendix 1 Figure 5 – Section D – D





APPENDIX 2 PHOTOGRAPHS

Appendix 2.1 Pre-test photos

Photo 2.1.1 Left hand leaf



Photo 2.1.2 Left hand leaf



Photo 2.1.3 Left hand leaf



Photo 2.1.4 Left hand leaf



Photo 2.1.5 Left hand leaf



Photo 2.1.6 Left hand leaf





Photo 2.1.7 Left hand leaf



Photo 2.1.8 Left hand leaf



Photo 2.1.9 Left hand leaf



Photo 2.1.10 Left hand leaf



Photo 2.1.11 Right hand leaf



Photo 2.1.12 Right hand leaf



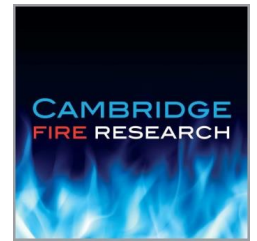


Photo 2.1.13 Right hand leaf



Photo 2.1.14 Right hand leaf



Photo 2.1.15 Right hand leaf



Photo 2.1.16 Right hand leaf



Photo 2.1.17 Right hand specimen



Photo 2.1.18 Right hand specimen





Photo 2.1.19 Right hand specimen



Photo 2.1.20 Right hand specimen



Photo 2.1.21

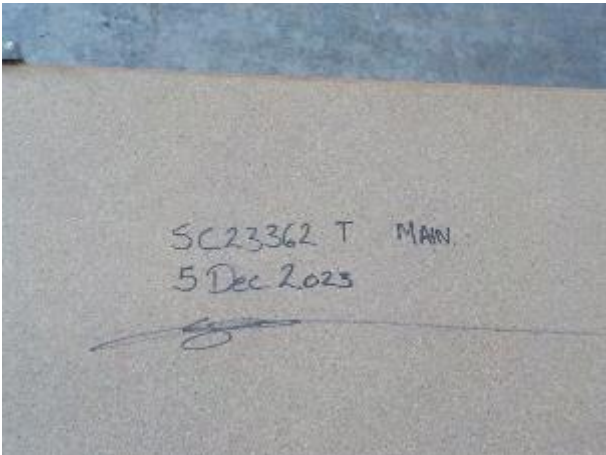




Photo 2.1.22





Appendix 2.2 During test photos

Photo 2.2.1



Photo 2.2.2





Photo 2.2.3



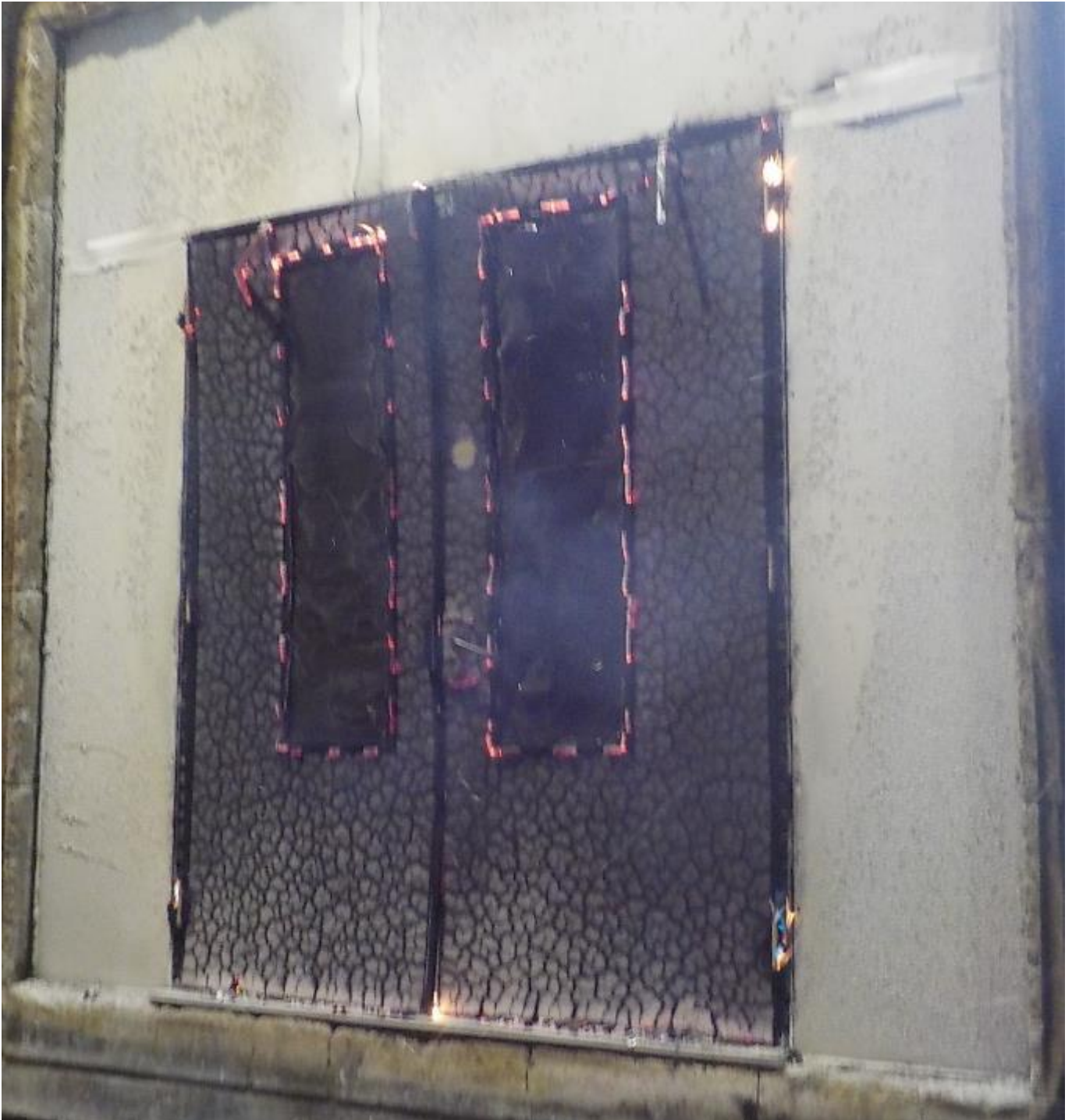
Photo 2.2.4





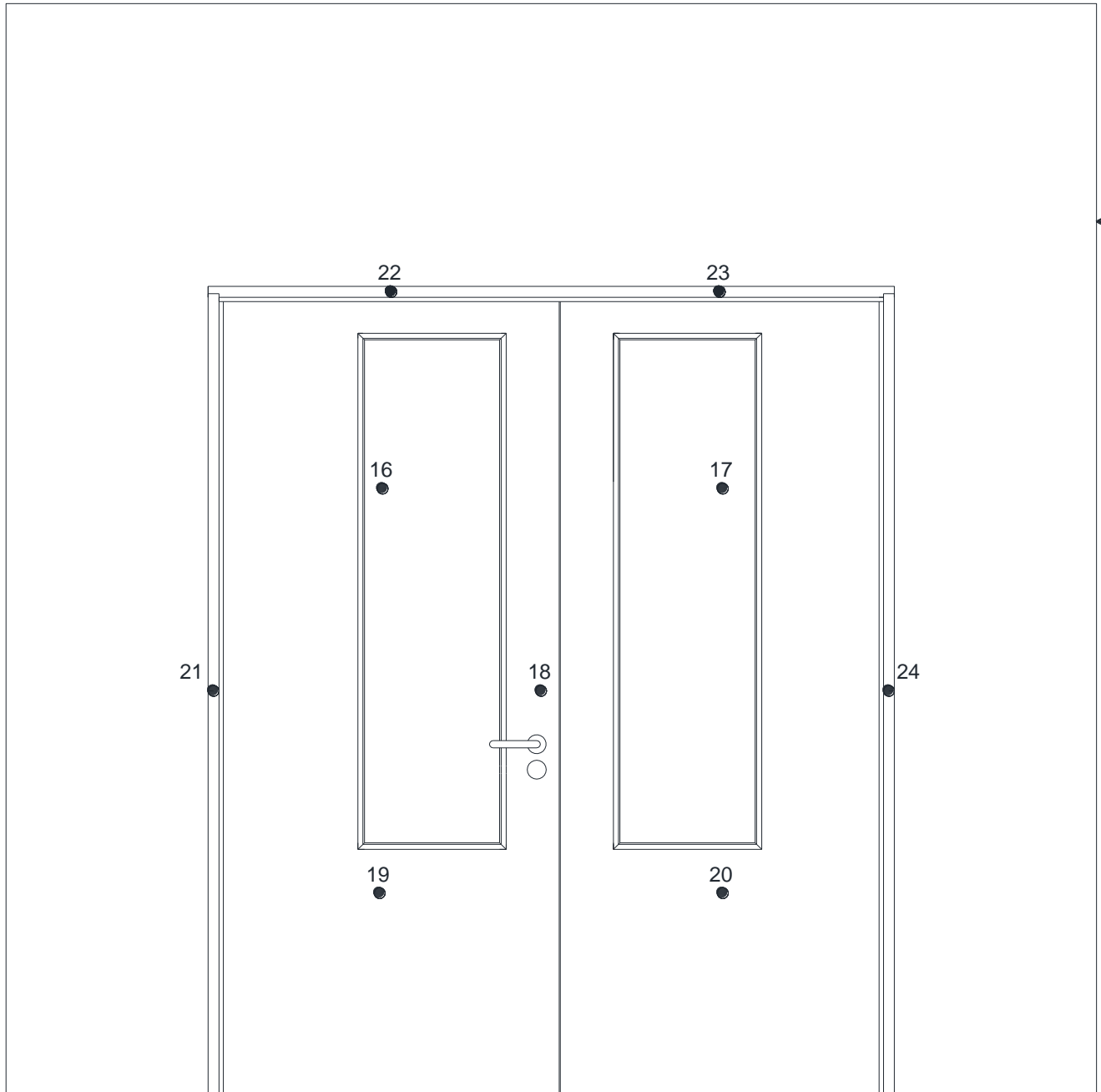
Appendix 2.3 Post-test photos

Photo 2.3.1

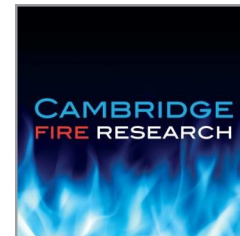




APPENDIX 3 POSITIONING OF INSTRUMENTATION



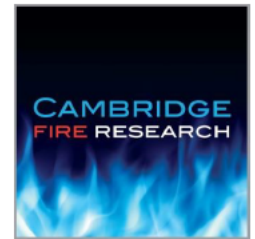
- Unexposed face specimen thermocouple
- ◀ Furnace pressure measurement position



APPENDIX 4 RECORDED THERMOCOUPLE DATA

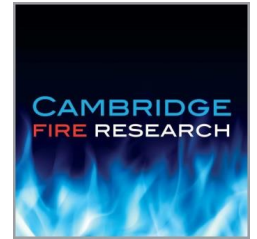
Time	T/C 16	T/C 17	T/C 18	T/C 19	T/C 20	T/C 21	T/C 22	T/C 23	T/C 24
min	°C	°C	°C	°C	°C	°C	°C	°C	°C
0	14	14	13	12	12	12	14	14	13
1	32	42	13	12	12	13	15	14	14
2	84	89	13	12	13	13	16	18	15
3	107	95	13	12	13	12	17	19	15
4	114	101	13	12	13	12	17	19	15
5	119	109	13	12	12	12	18	20	15
6	122	120	13	12	12	13	20	22	15
7	124	131	14	12	13	13	22	24	15
8	126	143	15	13	13	13	22	25	15
9	129	155	16	13	14	13	23	26	15
10	131	167	19	15	16	13	24	28	17
11	134	180	24	18	19	14	25	29	20
12	139	194	29	22	22	15	25	31	23
13	145	208	34	26	26	17	27	32	27
14	151	222	39	30	30	19	29	34	30
15	156	238	43	34	34	21	31	35	32
16	162	252	46	36	36	22	33	36	34
17	170	264	49	39	39	24	35	38	36
18	180	276	52	42	41	26	37	40	37
19	192	286	55	43	44	28	39	42	38
20	204	296	57	45	45	29	40	43	39
21	215	304	58	46	46	30	41	45	40
22	226	313	59	47	48	30	42	46	41
23	239	321	61	49	49	30	44	49	42
24	251	328	63	51	51	31	46	52	43
25	262	334	63	50	52	30	46	52	43
26	272	341	64	51	53	30	48	54	44
27	283	348	64	53	53	31	50	57	45
28	293	354	65	54	54	31	52	59	45
29	301	361	66	55	55	32	54	61	46
30	309	366	66	56	56	32	55	63	46
31	317	372	65	56	57	33	57	64	47
32	325	377	66	56	58	33	59	65	48
33	332	381	66	57	59	33	60	67	48

x Thermocouple malfunction



APPENDIX 5 INDEPENDENT REPORT

<p>Proud to be part of </p>		SAMPLING VISIT REPORT		Company Name	Wood International Agency Ltd
				Establishment No.	047/21200. CO
				BM TRADA Notified 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
[Redacted]				France.	27/10/2023
					Michael Chorton
Requirement		Evidence / Comments			
Opening Meeting (names of those present)		Neil Harrison (WIAL, Partial) [Redacted]			
Contract Reference		SC23282B			
Technical Specification document / FoA reference Photographs to be taken of all critical areas highlighted in the Technical Specification		Basic system recipe & DoP available. WIAL technical datasheet (Draft version) WIAD-MMN44-SPA-002-A1-P1 Rev B. A specification has also been drafted in BM TRADA "Scope" format which must be read in conjunction with this report.			
Description of product(s) sampled		44mm Particleboard door blanks [Redacted]			
Product identification / reference numbers / codes		[Redacted] Wood International product will be referenced as MARKSMAN 44			
Batch number(s)		927170 main batch translated to works order 927258.			
Date of manufacture		Boards run 27 October 2023. Cut 07 November 2023			
Quantity of stock and size of sample(s) taken		24No. [Redacted] at 1220mm wide x 2440mm high x 44mm thick			
Traceability of material records ie Purchase Orders and delivery notes		Works order detail: 927170 (Line 16) of current press plan & Works order 927258. Recipe confirmed and added to Specification for use under Q-Mark, Inspection / Laboratory report: 08/11/23 23.267 for 927258 on file.			
Example of sampler's markings applied to the product(s) (contract reference, signature of client, date of manufacture)		Initial traceability (Mother boards to Daughter boards) [Redacted] batch number due to length of run and time between stages. Paint marking added to daughter boards prior to cutting to final size. Contract reference and sequence no. added to edge of each board. 			
Confirmation of minimum mandatory video/live checks undertaken		<input type="checkbox"/> Glazing assembly (where applicable)		<input type="checkbox"/> Finished doorset with markings	
		<input type="checkbox"/> Hardware prep and fitting (where applicable)		<input type="checkbox"/> Sampling pack discussion	
Details of any further FPC processes witnessed during the visit.		In-Process controls verified on control room monitors. Laboratory tests to EN312.			
Determine the essential characteristics of the product and confirm the details of in-process checks conducted on the sample to ensure conformity.		Manufacturing recipe (held on file), FPC manual, in process inspection and final laboratory testing to demonstrate compliance with requirements. Key points: Density nominally 535kg/m ³ with reported value 532. Moisture content 7 – 10% with reported value 8.5% plus Swelling, Internal bond strength, bending strength & modulus of elasticity and surface soundness.			
State any items from the Technical Specification / FoA that were not witnessed and require further lab sampling		<input type="checkbox"/> Side screen / overpanel		<input type="checkbox"/> Handles	
		<input type="checkbox"/> Door closer		<input type="checkbox"/> Frame re-assembly	
Confirm any clauses within the Technical Specification that were found to be different on the sampled product/s. <i>Non-conformances may be raised for pre-cert and audit test sampling</i>		None			
Closing Meeting (names of those present)		No formalised closing meeting possible. 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		
Sent to [Redacted] MIAL for approval. 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.					

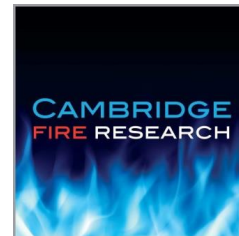


<p>Proud to be part of </p>		SAMPLING VISIT REPORT		Company Name	Wood International Agency Ltd
				Establishment No.	E003760
BM TRADA Approved Body ID: 1224					
Company Head Office Address	Wood International Agency Ltd Woods House 16 King Edward Road Brentwood Essex CM5 0RQ		Contact Name	Neil Harrison	
			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 Dezign Carpentry, Unit 11B ERW Las, Colomendy Ind Est, Denbigh LL16 5TA				08/03/2024	Michael Chorlton
Requirement			Evidence / Comments		
Opening Meeting (names of those present)			Mr Neil Harrison / Mr Shaun Harrison		
Contract Reference			SC23362T		
Technical Specification document / FoA reference Photographs to be taken of all critical areas highlighted in the Technical Specification			Technical Drawing: WIAD-MMN44-ITT-644-Z25-P1 Technical Specification: WIAD-MMN44-ITT-644-Z25 Marked up technical specification made by the sampler and must be read in conjunction with this sampling report.		
Description of product(s) sampled			Double leaf glazed doorset incorporating WIAL Marksman 44 core. Lipped on 4 edges and hung in an timber frame on 3No. Butt hinges. Operated by surface mounted overhead closer and secured with DIN latch operated by handle and Eurocylinder and concealed flushbolt to secondary leaf.		
Product identification / reference numbers / codes			N/A		
Batch number(s)			N/A		
Date of manufacture			In stages between 05/12/2023 and 12/12/2023 with final review 08/03/2024		
Quantity of stock and size of sample(s) taken			1No. Doorset		
Traceability of material records ie Purchase Orders and delivery notes			Items with traceability: Door cores under BM TRADA Sampling SC23282B. Hinges. DIN Latch and Keep. Eurocylinder. Lipping adhesives. Glazing. Leaf intumescent strips. Glazing intumescent gaskets. Handleset. Hardware intumescent protection. Frame intumescent strips. Drop seal. Frame construction and jointing. Lipping. Bead and frame species, density and dimension check. Please send Sampling Pack to High Wycombe Laboratory FOA Connor Payne. Items with limited or no traceability: Fire stopping and sealing details and materials. Frame smoke seal type. Door closer type.		
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"/> Finished doorset with markings	
			<input checked="" type="checkbox"/> Hardware prep and fitting (where applicable)	<input checked="" type="checkbox"/> Sampling pack discussion	
Details of any further FPC processes witnessed during the visit.			By Dezign 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 core selection, trimming and lipping application. Hardware selection, preparation, intumescent protection and fixings. Glazing selection, preparation, intumescent protection and bead fixings.		
State any items from the Technical Specification / FoA that were not witnessed and require further lab sampling			<input type="checkbox"/> Side screen / overpanel	<input type="checkbox"/> Handles	<input checked="" type="checkbox"/> Other (see tech spec marked with 'not seen')
			<input type="checkbox"/> Door closer	<input type="checkbox"/> Frame re-assembly	
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 = Areas without verification or additional evidence may be required. 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.					




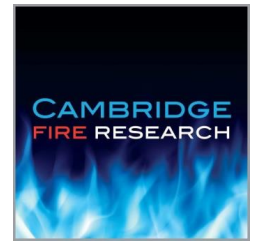
This report provides a record of the information relating to samples taken by Warringtonfire Testing and Certification Limited trading, or its agent, for certification of the products detailed below.

Job No.	FM528727
Manufacturer	Mann McGowan Ltd
Manufacturing site	Intumescent House, 4 Brook Trading Estate, Aldershot, GU12 4XB
Place of sampling	Selected at Warehouse Section
Traceability information	Date/time of production: Various Production unit/line: Various Batch number: Various – See below. Shift: Day
Product number/ description	100 x Pyrostrip 15 x 4 500PSA – Batch 500F2308 25 x Pyrostrip 20 x 4 500PSA – Batch 500F2305 25 x 10 x 4 500PSA – Batch 500F2306 25 x Pyroglaze 60 – Batch 500F602010 25 x Pyroglaze 30 – Batch 500F2307 2 x Pyrotape CF at 15mm x 3mm, 4mm, 5mm & 6mm 2 x Pyrotape CF at 20mm x 3mm, 4mm, 5mm & 6mm 2 x sheets of Palusol 100 – Batch A8360 1 x sheets of Interdens (Palusol & Graphite – Batch 16-2001986999 2 x sheets 1 mm Interdens – Batch 06-1000894064 2 x sheets 2 mm Interdens – Batch 07-1000908038 2 x sheets 1mm 400CG – Batch RM640012202 2 x sheets 2mm 400 CG – Batch RM640022202 2 x sheets 1mm Heatseal – Batch 15-1000532296 2 x sheets 2 mm Heatseal – Batch 18-1000909073 100 x Pyromas A – Batch 04102 25 x ACS-1 – DOM 20/4/22. 10 x 1703 ACU at 1130mm 10 x 1703 ACU at 1030 10 x 1703 ACU at 930 10 x 420-S at 1130 10 x 420-S at 930
Marking of the product by the manufacturer e.g. label, batch number and date of manufacture	FM528727 / 1121 / Gavin Gunn / 25-10-23
Marking of the samples by Warringtonfire Testing and Certification Limited	Job No: FM528727 Date: 25 th October 2023 Signature or initials: Gavin Gunn
Stock/batch quantity from which samples selected and sample quantity	Selected from produced stock
Results of tests and/or inspections during manufacture	Expansion testing / In process QC checks / Final QC checks - Pass
Essential characteristics to be tested i.e. Test Reference	To be consumed within various tests – Tests to be determined.



Sample Report

Samples to be dispatched by manufacturer to *** within *** weeks/month(s)	Tests to be Determined. None planned to date.
Date of sampling	25 TH OCTOBER 2023
Warringtonfire Testing and Certification Limited UK Approved Body Number	1121
Signed:  (for and on behalf of Manufacturer)	Signed:  (for and on behalf of Warringtonfire Testing and Certification Limited)
Print: RUSSELL SMITH	Print: GAVIN GUNN
Date: 25 TH OCTOBER 2023	Date: 25 TH OCTOBER 2023



APPENDIX 6 REVISION HISTORY

Revision	Identification of changed information and reasons	Prepared by	Checked by
0	Original issue	M Wadeson	Tom Smith
1	Sampling report amended with updated version at the request of the sponsor.	Tom Smith	S Plummer