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Testing. Advising. Assuring.

Title:

The Fire Resistance Performance Of Two Single-Acting, Single-Leaf Timber Doorsets Tested Generally In Accordance With BS EN 1634-1:2014

Report No:

394353/A



Prepared for:

Nullifire and Firethrem,
Divisions of,
Tremco illbruck UK Limited.
Torrington Avenue,
Coventry,
West Midlands,
CV4 9TJ.

Date: 2nd August 2018

This test report is additional to that issued as WF Test Report No. 394353 and dated 2nd August 2018. The original test report remains valid and is not replaced by this additional test report.

Summary

Objective To determine the fire resistance performance of two single-acting, single-leaf doorsets in accordance with BS EN 1634-1: 2014 .

Test Sponsor **Nullifire and Firetherm, Divisions of Tremco illbruck UK Limited.**
Torrington Avenue, Coventry, West Midlands, CV4 9TJ.

Summary of Tested Specimens For the purpose of the test the doorsets and frame sections were referenced **Doorset A, Doorset B, Linear Joint A and Linear Joint B.**

Details of Doorset B, Linear Joint A and Linear Joint B were tested for research purposes only and the subject of a separate report.

Briefly Doorset A was of a 60 minute fire rated construction incorporating a 54 mm thick door leaf of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and were hung within a hardwood frame on three stainless steel hinges. The doorset was orientated such that it opened away from the heating conditions of the test and held shut by means of a surface mounted closer to the unexposed face.

The Doorset were fixed into a 100 mm thick standard flexible wall supporting construction, with a 35 mm void between the frame and the unlined stud along the leading edge and head of the doorset referenced A1 and a 10 mm void along the hanging edge referenced A2. The voids was maintained by plastic packers and filled with Nullifire FF197 expanding fire foam.

Further details of the test specimen and supporting construction can be found within the schedule of components section of this report.

Test Results:		Doorset A
Integrity performance	Sustained flaming	68 minutes*
	Gap gauge	68 minutes*
	Cotton Pad	68 minutes*
Insulation performance		68 minutes*

*The test was discontinued after 68 minutes.

Date of Test 9th February 2018

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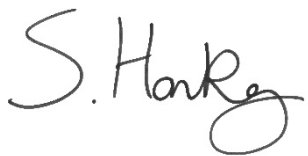
Signatories



Responsible Officer
D. Fitzsimmons*
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Business Unit Manager

* For and on behalf of **Exova Warringtonfire**.

Report Issued

Date: 2nd August 2018

Report Issue 2 Issued

Date: 9th August 2018

Report Issue 2 due to a change in the wording on page 5.

Responsible Officer: D. Fitzsimmons

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Test Procedure

Introduction

The doorsets are required to provide a fire separating function and were therefore tested generally in accordance with BS EN 1634-1: 2014 'Fire resistance tests for doors and shutter assemblies - Part 1: Fire doors and shutters'. This test report should be read in conjunction with that Standard and with BS EN 1363-1: 2012 'Fire resistance tests - Part 1: General requirements' and BS EN 1363-2: 1999, 'Fire resistance tests - Part 2: Alternative and additional procedures'.

The test has been classed as generally in accordance due to there only being a 185mm separation between each doorset.

The specimens were judged on their ability to comply with the performance criteria for integrity and insulation, as required by BS EN 1634-1: 2014.

Prior to testing, the doorsets were subjected to 25 manually operated opening and closing cycles as specified in EN 14600: 2005.

Additional thermocouples were placed over the foam filled perimeter doorsets voids as per the thermocouple positioning rules given in BS EN 1366-4: 2006.

Fire Test Study Group/EGOLF

Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group and EGOLF have identified a number of such areas and have agreed Resolutions which define common agreement of interpretations between fire test laboratories which are members of the Groups. Where such Resolutions are applicable to this test they have been followed.

Instruction To test

The test was conducted on the 9th February 2018 on behalf of **Nullifire and Firethem, Division of Tremco illbruck UK Limited**, the sponsor of the test.

Test Specimen Construction

A comprehensive description of the test construction is given in the Schedule of Components. The description is based on a detailed survey of the specimens and information supplied by the sponsor of the test.

The doorsets' storage, installation, and test preparation took place in the test laboratory between the 4th January and the 9th February 2018.

Installation

The doorsets incorporating the hardware were mounted within apertures provided within a flexible supporting construction. The doorsets were mounted such that they opened towards the heating conditions of the test.

Representatives of **Tremco illbruck UK Limited and Exova Warringtonfire** conducted the installation on the 8th February 2018

Sampling

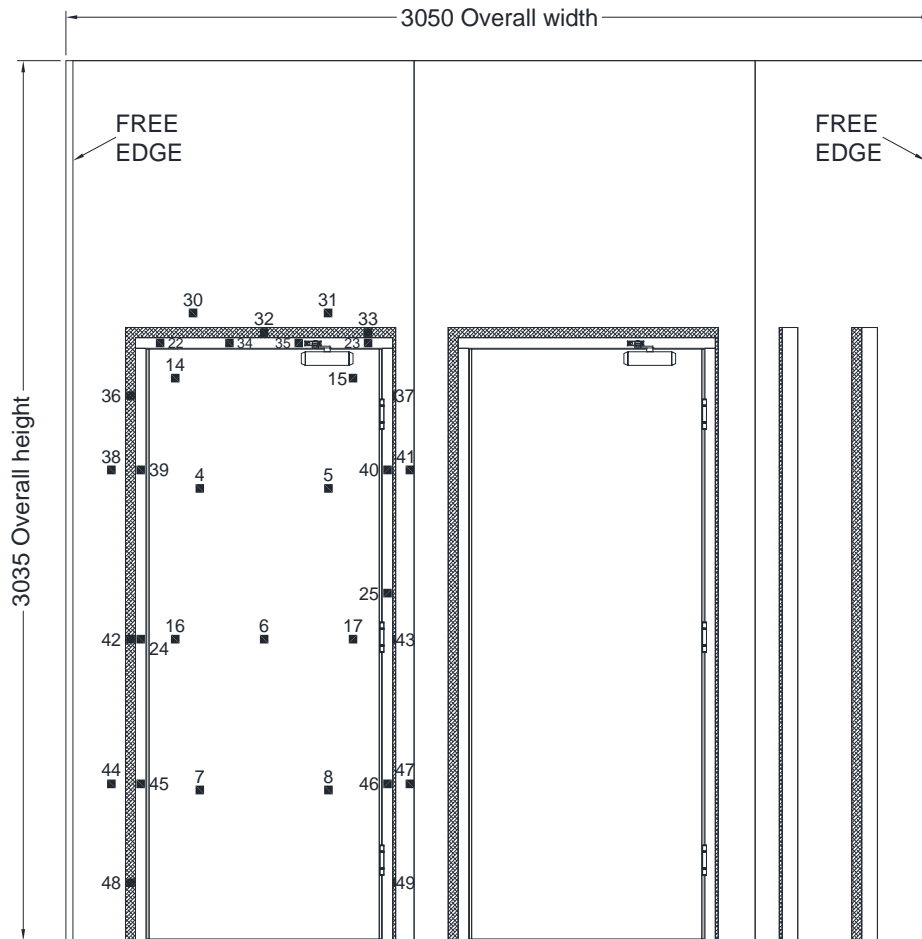
The Nullifire and Firethem products were sample selected by a representative of Warrington Certification on the 9th November 2017 (Job Ref: 391084)

Conditioning

The specimens' storage, construction, and test preparation took place in the test laboratory over a total, combined time of 37 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 11°C to 21.5°C and 30.5% to 61.5% respectively.

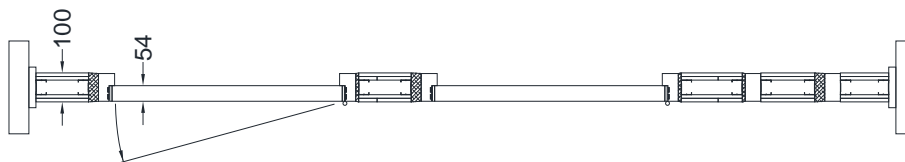
Test Construction

Figure 1- General Elevation of the Unexposed Face of Test Construction Showing Thermocouple Positions



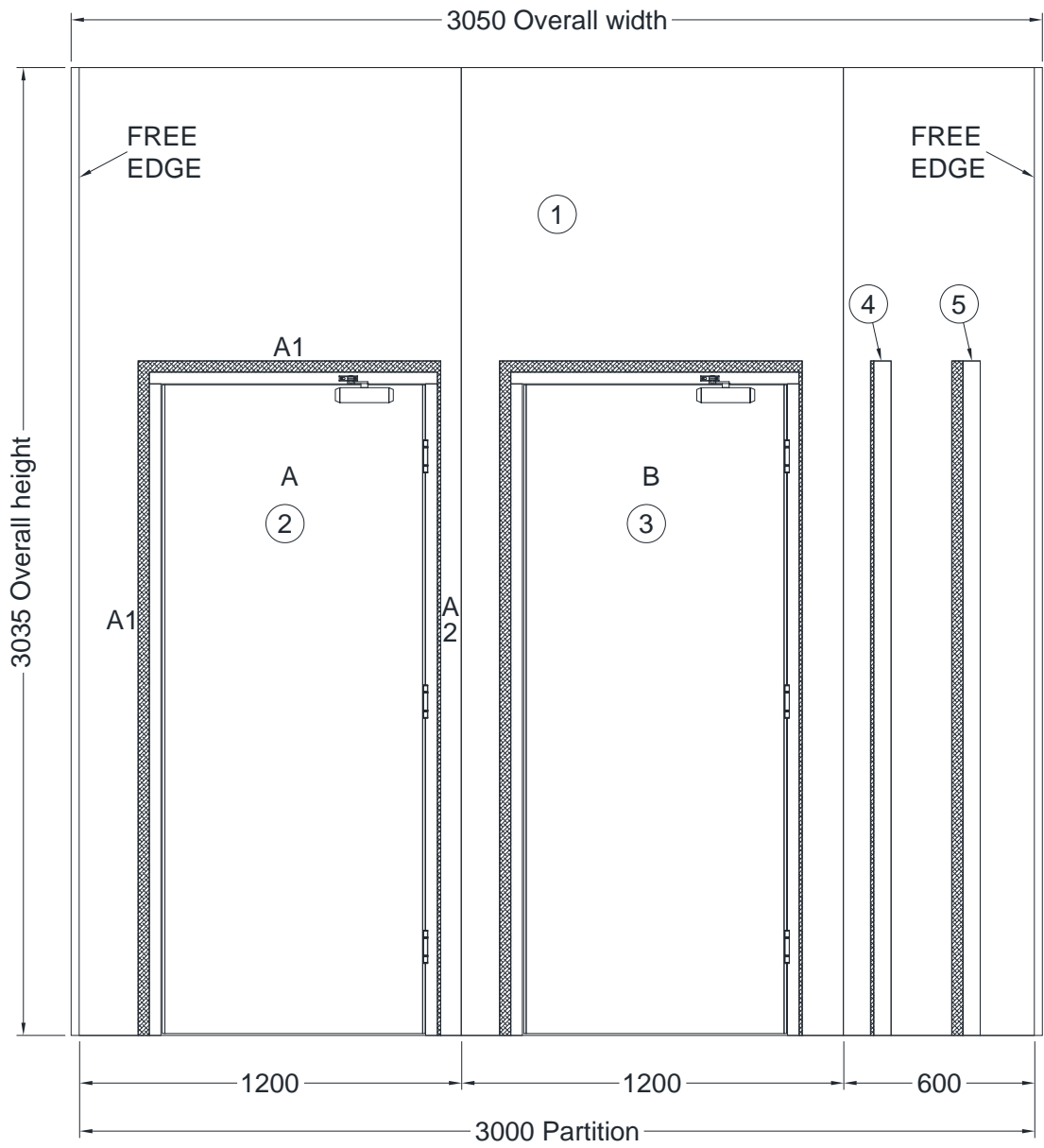
■ Positions of thermocouples

GENERAL ELEVATION
OF UNEXPOSED FACE



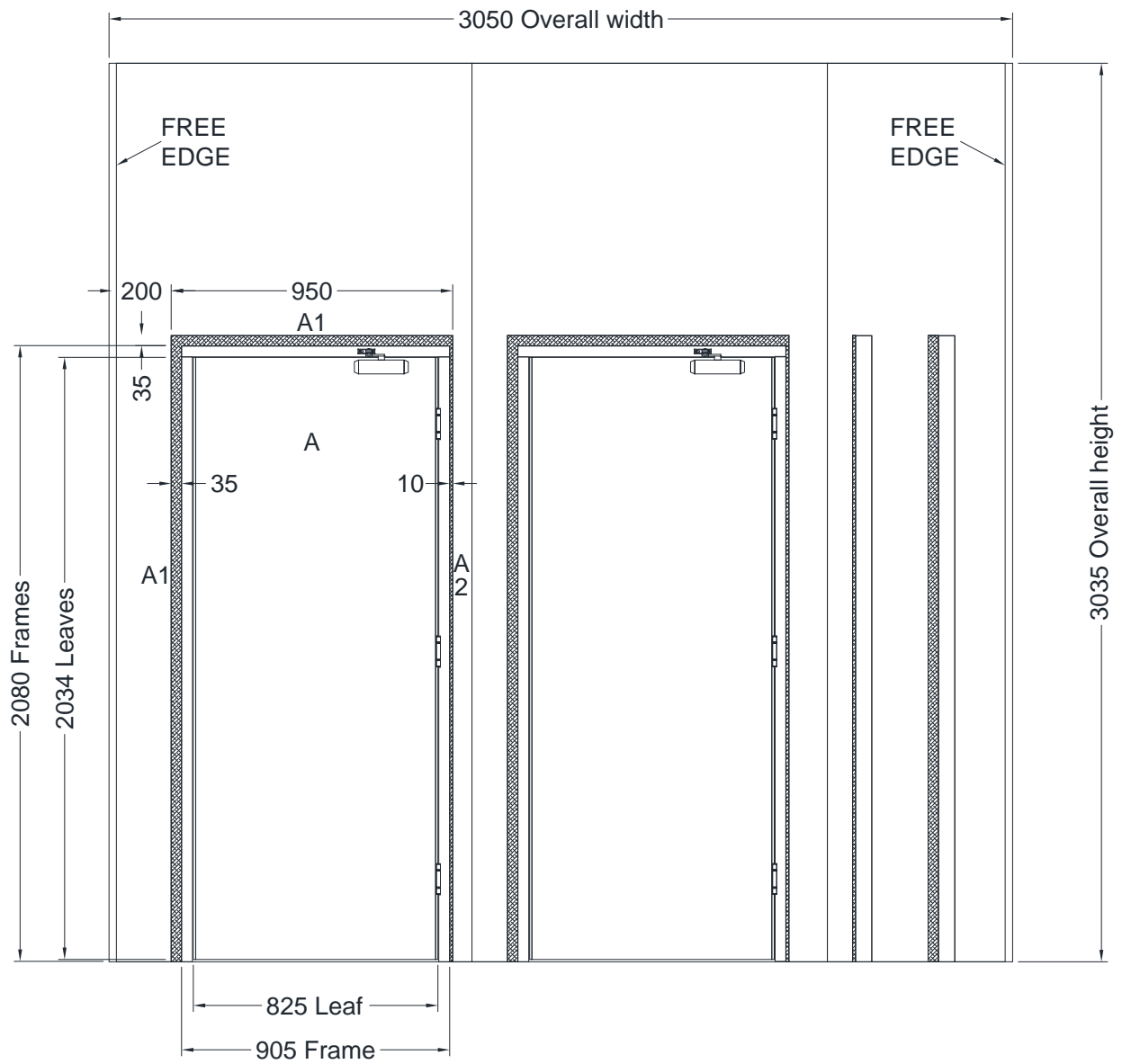
Do not scale. All dimensions are in mm

Figure 2 – General Elevation Showing Seal References



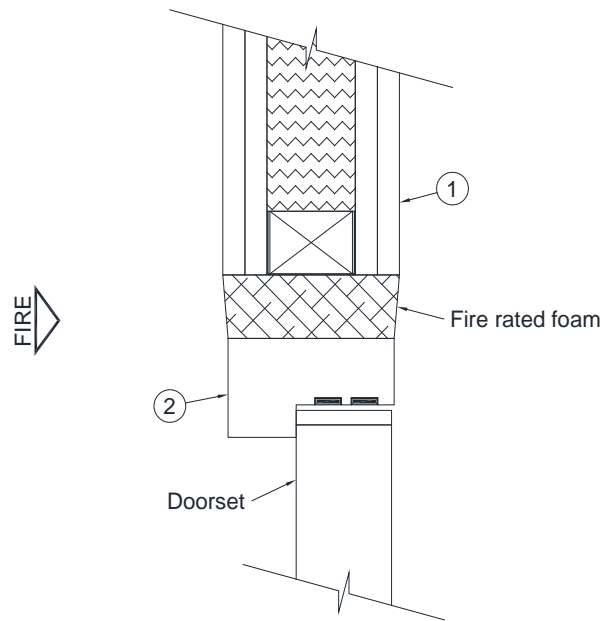
Do not scale. All dimensions are in mm

Figure 3 – General Elevation Showing Opening Positions and Sizes

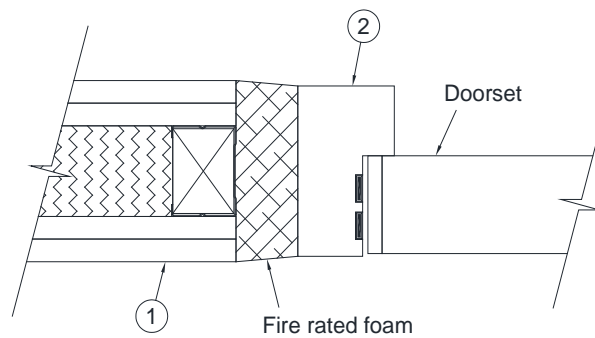


Do not scale. All dimensions are in mm

Figure 4 – Details of Seals



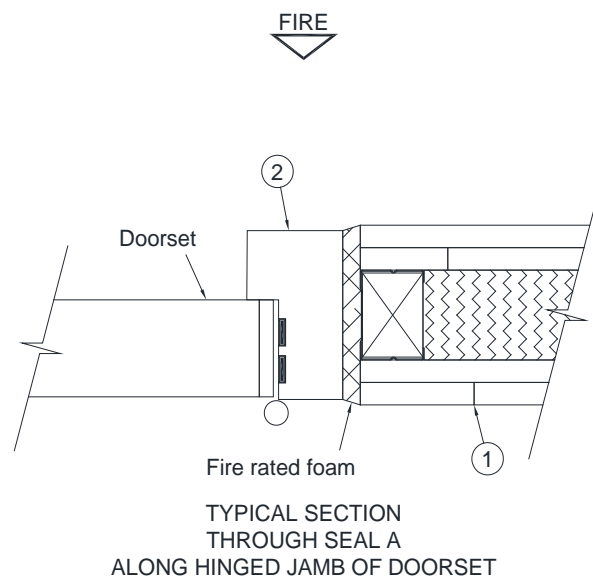
TYPICAL SECTION
THROUGH SEAL A
ACROSS THE HEAD OF DOORSET



TYPICAL SECTION
THROUGH SEAL A
ALONG LATCHED JAMB OF DOORSET

Do not scale. All dimensions are in mm

Figure 5 – Details of Seals



Do not scale. All dimensions are in mm

Schedule of Components

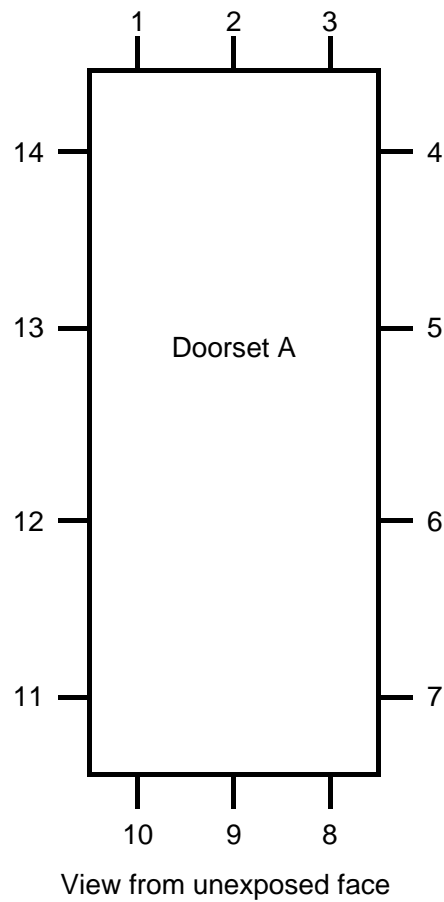
(Refer to Figures 1 to 5)
(All values are nominal unless stated otherwise)
(All other details are as stated by the sponsor)

<u>Item</u>	<u>Description</u>
1. Partition	
Top & Bottom Track	
i. manufacturer	: Details held confidentially by the test laboratory
ii. reference	: Details held confidentially by the test laboratory
iii. material	: Hot dipped galvanised mild steel
iv. thickness	: 0.5 mm
v. overall size	: 52 mm wide x 30 mm deep
vi. fixing method	: Bedded on sealant and fixed with 65 mm long x 6 mm diameter Nail In Anchors at 400 mm centres to the concrete lining of restraint frame
Bedding Material	
i. manufacturer	: Details held confidentially by the test laboratory
ii. material	: Acoustic & Intumescent Sealant
iii. application method	: Cartridge gunned in two beads to the back face of the top and bottom track sections
Studs	
i. manufacturer	: Details held confidentially by the test laboratory
ii. reference	: Details held confidentially by the test laboratory
iii. material	: Hot dipped galvanised mild steel
iv. thickness	: 0.5 mm
v. overall size	: 50 mm wide x 32 mm with 6 mm returned edges
vi. fixing method	: Friction fitted between top & bottom track sections allowing 20 mm at the head for expansion during the test
Insulation	
i. manufacturer	: Details held confidentially by the test laboratory
ii. reference	: Details held confidentially by the test laboratory
iii. material	: Flexible stone wool based insulation
iv. density	: 45kg/m ³
v. thickness	: 50 mm
vii. fixing method	: Fitted vertically between studs and retained by plasterboard facings
Plasterboards	
i. manufacturer	: Details held confidentially by the test laboratory
ii. reference	: Details held confidentially by the test laboratory
iii. material	: Type D & F EN520 gypsum with paper facings
iv. density	: 850 kg/m ³ , stated
v. thickness	: 12.5 mm
vii. fixing method	: Fitted in two layers on each face and fixed with 32 mm and 42 mm long x 3.5 mm diameter drywall screws at 300 mm centres and 150 mm centres around the perimeter edge

<u>Item</u>	<u>Description</u>
2. Doorset A	
Doorset	
Door Frame	
i. material	: Sapele, hardwood
ii. density	: 620 ~ 660 kg/m ³ , nominal
iii. overall section size	: 94 mm x 54.5 mm, with 55.5 mm wide x 18 mm deep rebate
iv. jambs to head jointing method	: Stub mortice & screwed, using 75 mm long x 4.6 mm diameter countersunk head wood screws
v. fixing method	: Through screwed to softwood timber inserts within studs of partition
Door Frame Fixings	
i. type	: Countersunk head wood screws
ii. material	: Steel
iii. overall size	: 100 mm long by 5 mm diameter
iv. centres	: 3 off equally spaced along the latched jamb and nominally 100 mm above or below each hinge position. Standard plastic packers at required thickness for void at fixing points
Intumescent Seal	
i. manufacturer	: Details held confidentially by the test laboratory
ii. reference	: Details held confidentially by the test laboratory
iii. material	: High volume, high pressure graphite intumescent within a polyvinyl chloride, PVC, carrier
iv. overall size	: 15 mm x 4 mm
v. fixing method	: 2 off self adhered into grooves located within the rebate of the frame section
Door Leaf	
i. manufacturer	: Details held confidentially by the test laboratory
ii. reference	: Details held confidentially by the test laboratory
iii. overall thickness	: 54 mm
iv. construction	: Chipboard core complete with hardwood 8 mm thick, to vertical edges only
Hinges	
i. manufacturer	: Details held confidentially by the test laboratory
ii. reference	: Details held confidentially by the test laboratory
iii. primary material	: Zinc plated steel
iv. overall size	: 104 mm long by 13.8 mm diameter knuckle with 100 mm long by 35 mm wide by 3 mm thick blades
Hinge Fixings	
i. type	: Countersunk head wood screws
ii. material	: Steel
iii. sizes	: 29 mm long by 5.1 mm diameter
iv. number off per blade	: 5 off
v. maximum distance of fixing screws from face of door leaf	: 26 mm
Hinge bedding material	: Interdens sheet 100 mm long by 35 mm wide by 2 mm thick
Door Closer	
i. manufacturer	: Details held confidentially by the test laboratory
ii. reference	: Details held confidentially by the test laboratory
iii. material	: Die cast alloy body complete with steel arm
iv. overall size	: 182 mm long x 47 mm high x 63 mm deep
v. fixing method	: Unexposed face

<u>Item</u>	<u>Description</u>
2. Doorset A (Continued)	
Fire Rated Foam	
i. manufacturer	: Nullifire, Tremco Illbrook
ii. reference	: FF197
iii. material	: Fire Rated PU foam – Gun Grade
iv. overall sizes	: 35 mm wide x 94 mm thick A1 10 mm wide x 94 mm thick A2 Please see Figures 4 & 5
v. application method	: Squirted into gaps between doorframe and framework of partition and trimmed back flush with door frame when cured
3. Doorset B	Details of Doorset B and the surrounding seal were for research purposes only and are held confidentially by the test laboratory
4. Linear Joint A	Details of Linear Joint A and the surrounding seal were for research purposes only and are held confidentially by the test laboratory
5. Linear Joint B	Details of Linear Joint B and the surrounding seal were for research purposes only and are held confidentially by the test laboratory

Doorset Clearance Gaps



Door Ref	Gap Dimension in mm at Positions													
	1	2	3	4	5	6	7	8*	9*	10*	11	12	13	14
A	3.6	3.9	3.0	3.6	3.6	3.1	1.8	7.1	6.9	6.7	3.5	3.6	3.4	3.2
A	Mean		3.3		Maximum			3.9		Minimum			1.8	

Door Ref	Gap Between Face of Leaf and Doorstop in mm at Position													
	1	2	3	4	5	6	7	8*	9*	10*	11	12	13	14
A	1.7	1.6	1.2	1.5	1.5	1.2	1.2	#	#	#	2.3	2.2	1.2	1.5

* Dimension not included in calculations

Dimension not measured

ALL DIMENSIONS ARE IN mm

Instrumentation

General	The instrumentation was provided in accordance with the requirements of the Standard.
Furnace	The furnace was controlled so that its mean temperature complied with the requirements of BS EN 1363-1: 2012 Clause 5.1 using six plate thermometers, distributed over a plane 100 mm from the surface of the test construction.
General	<p>Thermocouples were provided to monitor the unexposed surface of the specimens and the output of all instrumentation was recorded at no less than one minute intervals as follows.</p> <p>The locations and reference numbers of the various unexposed surface thermocouples are shown in Figure 1.</p>
Roving Thermocouple	A roving thermocouple was available to measure temperatures on the unexposed surface of the specimens at any position which might appear to be hotter than the temperatures indicated by the fixed thermocouples.
Integrity Criteria	Cotton pads and gap gauges were available to evaluate the integrity of the specimens.
Furnace Pressure	The furnace atmospheric pressure was controlled so that it complied with the requirements of BS EN 1363-1: 2012. Clause 5.2. The calculated pressure differential relative to the laboratory atmosphere at the top the doorset was 13.4 (± 3) Pa.

Test Observations

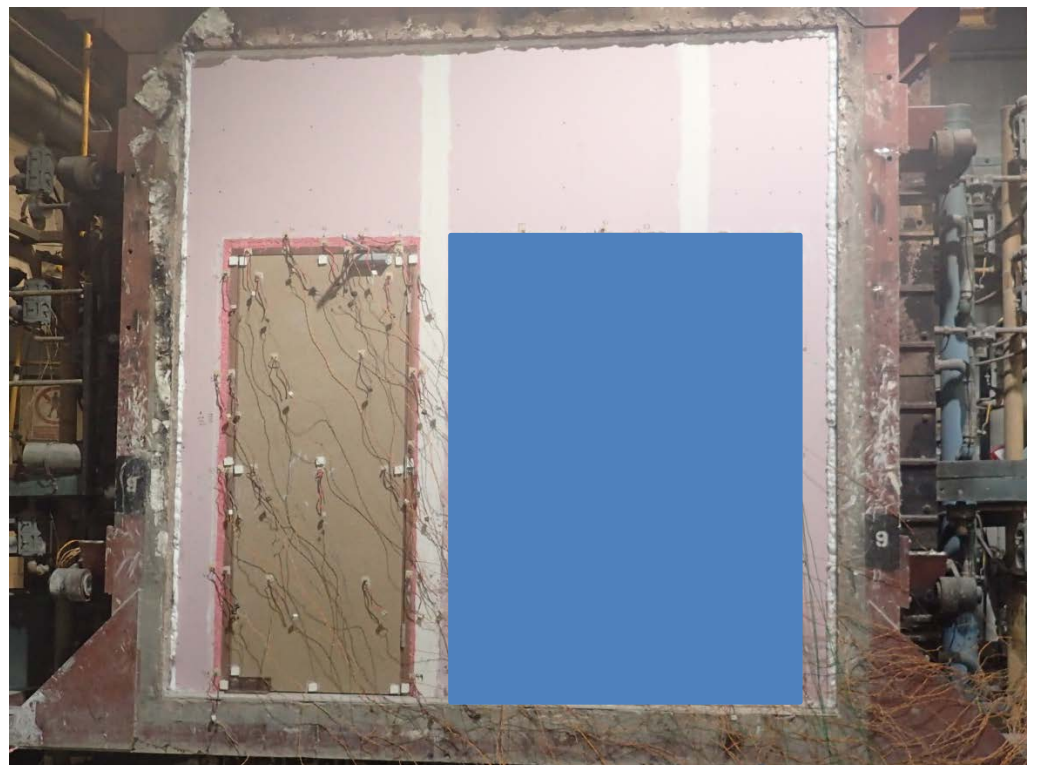
Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	
00	00	The test commences.
00	54	Steam/smoke release from the head and the top of the vertical edges of Doorset A.
02	18	Steam/smoke release observed from the head and the top of the vertical edges of Doorset A increases.
05	00	The doorset was unrestrained.
06	00	Steam/smoke release continues from the top half edges of Doorset A.
58	00	The top corners of the premature fire foam around Doorset A are observed discolouring black in colour.
63	00	Steam/smoke release increases from the pink foam in the corners of Doorset A.
68	00	The test is discontinued at the client's request.

Test Photographs

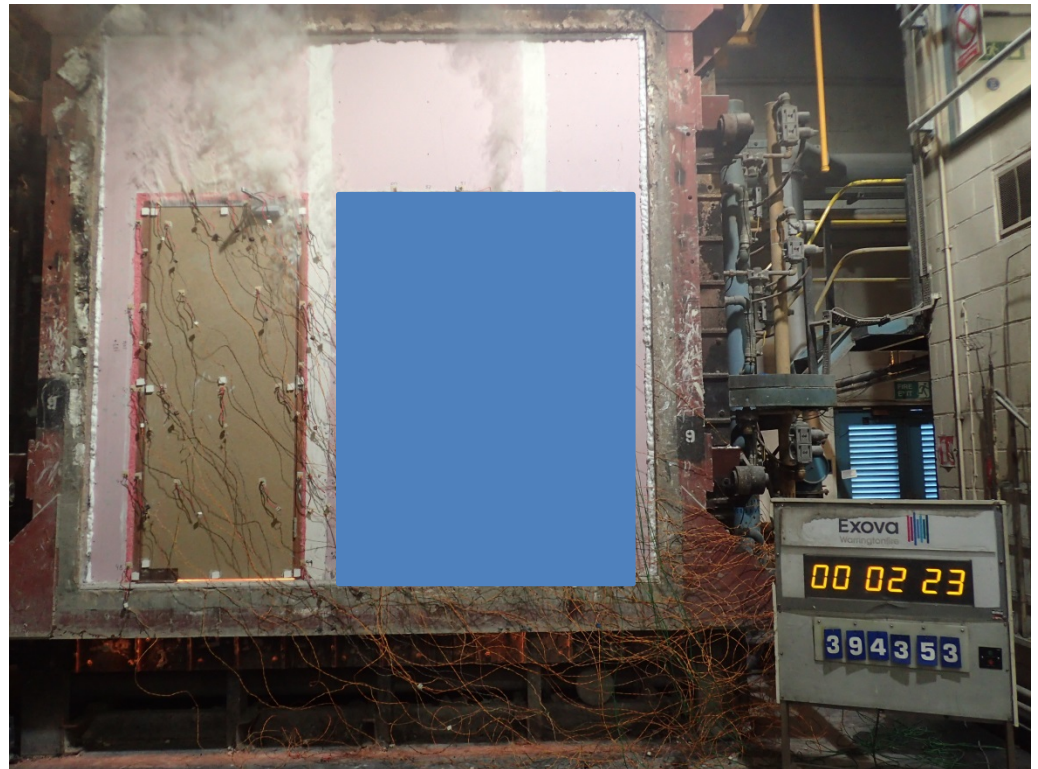
The exposed face of the doorset prior to the start of the test



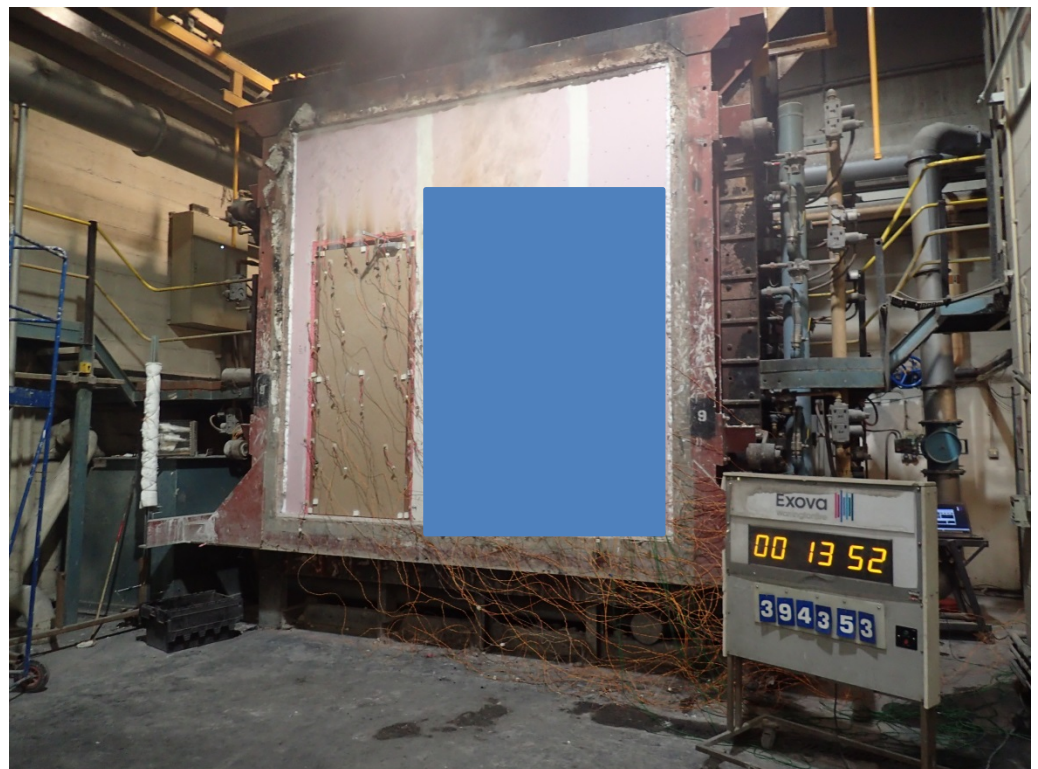
The unexposed face of the doorset prior to the start of the test



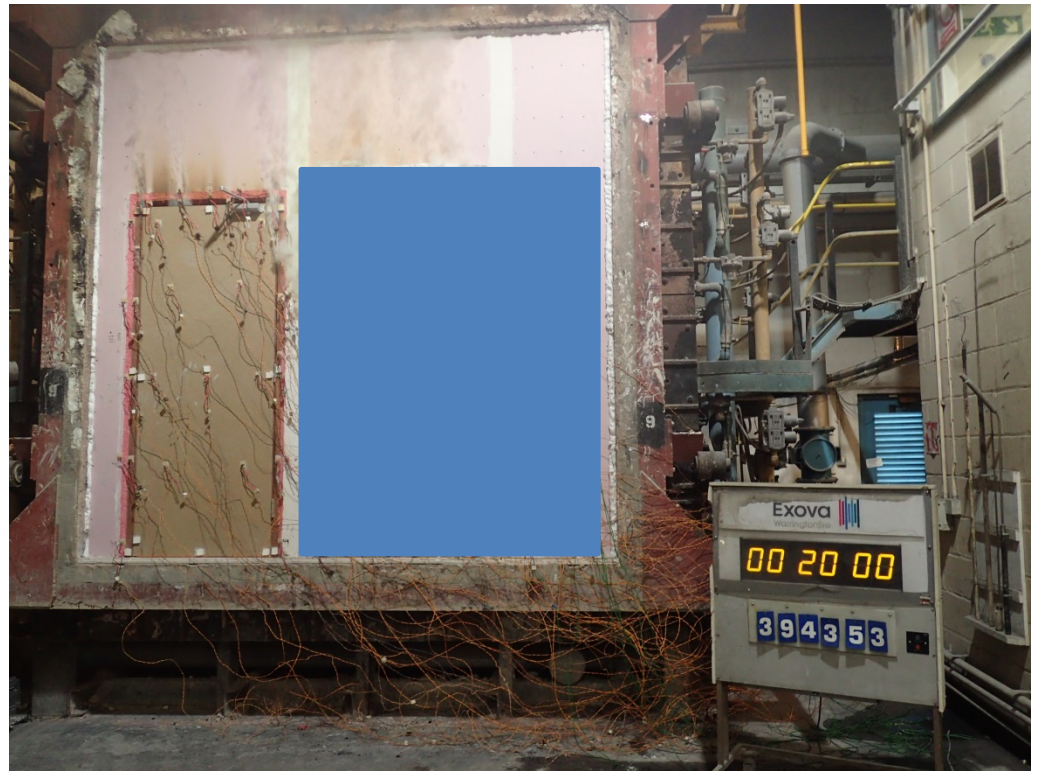
The unexposed face of the Doorset after a test duration of 2 minutes



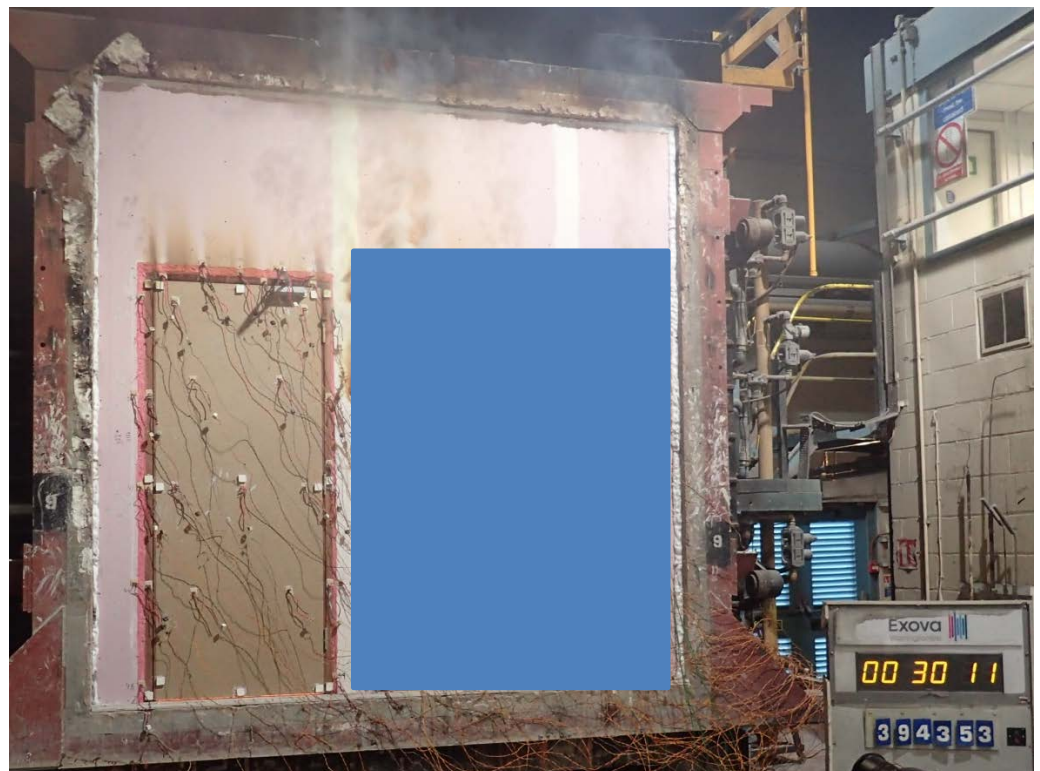
The unexposed face of the Doorsets after a test duration of 13 minutes



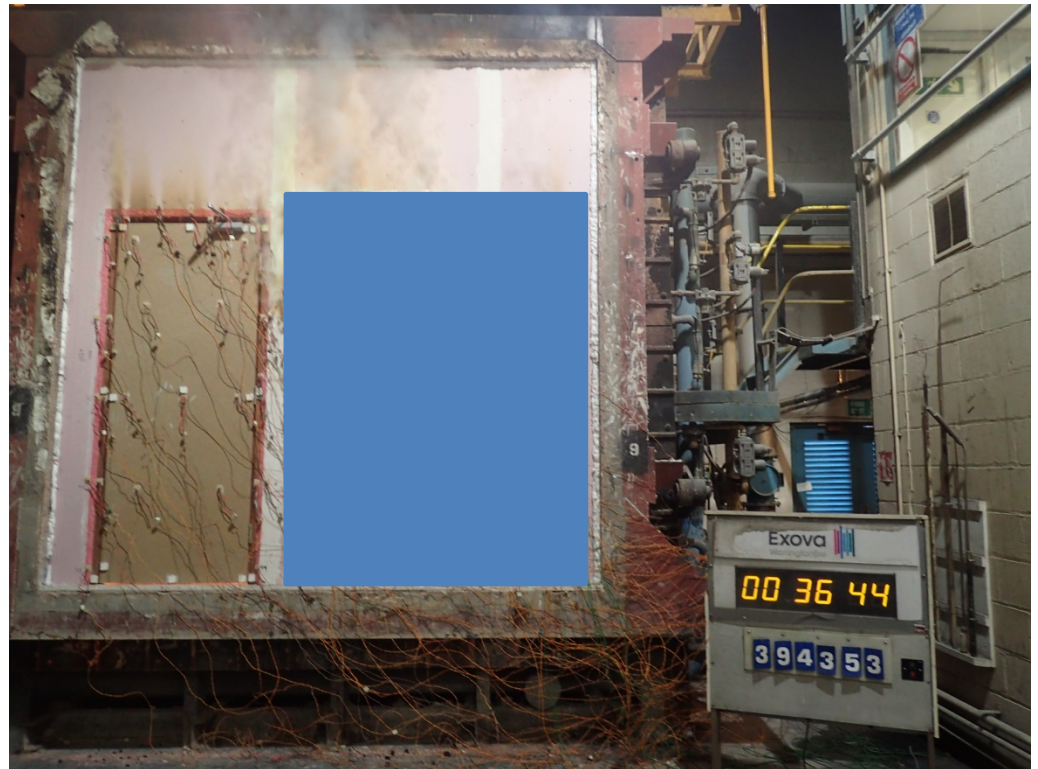
The unexposed face of the Doorsets after a test duration of 20 minutes



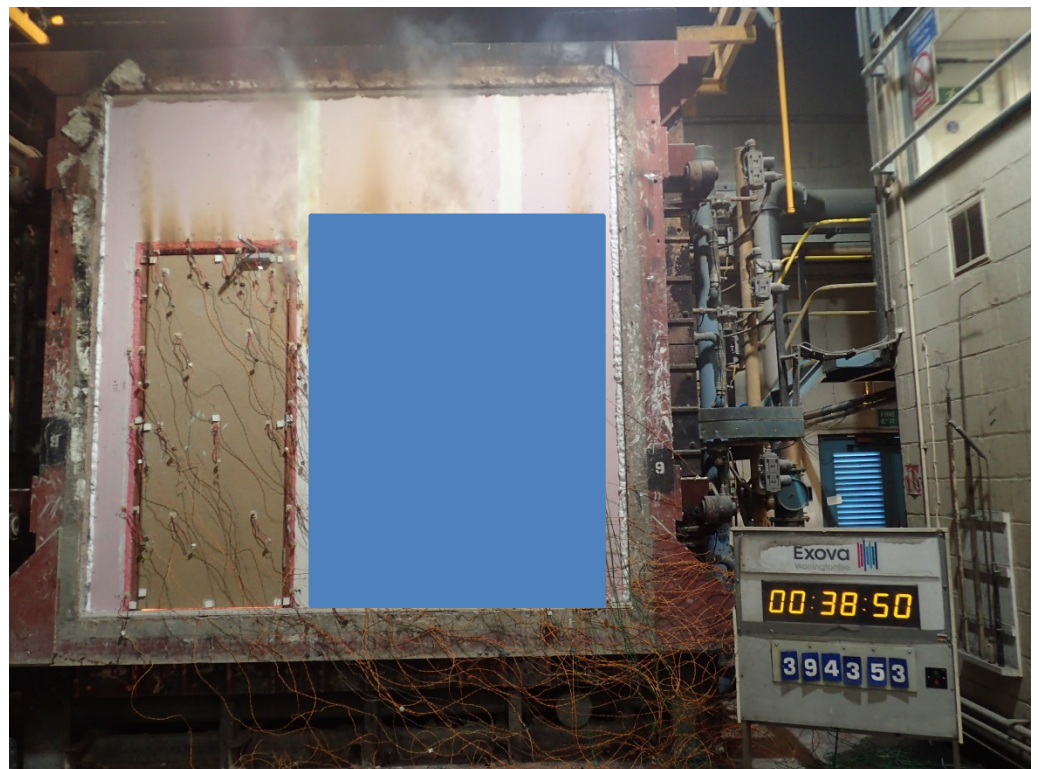
The unexposed face of the Doorsets after a test duration of 30 minutes



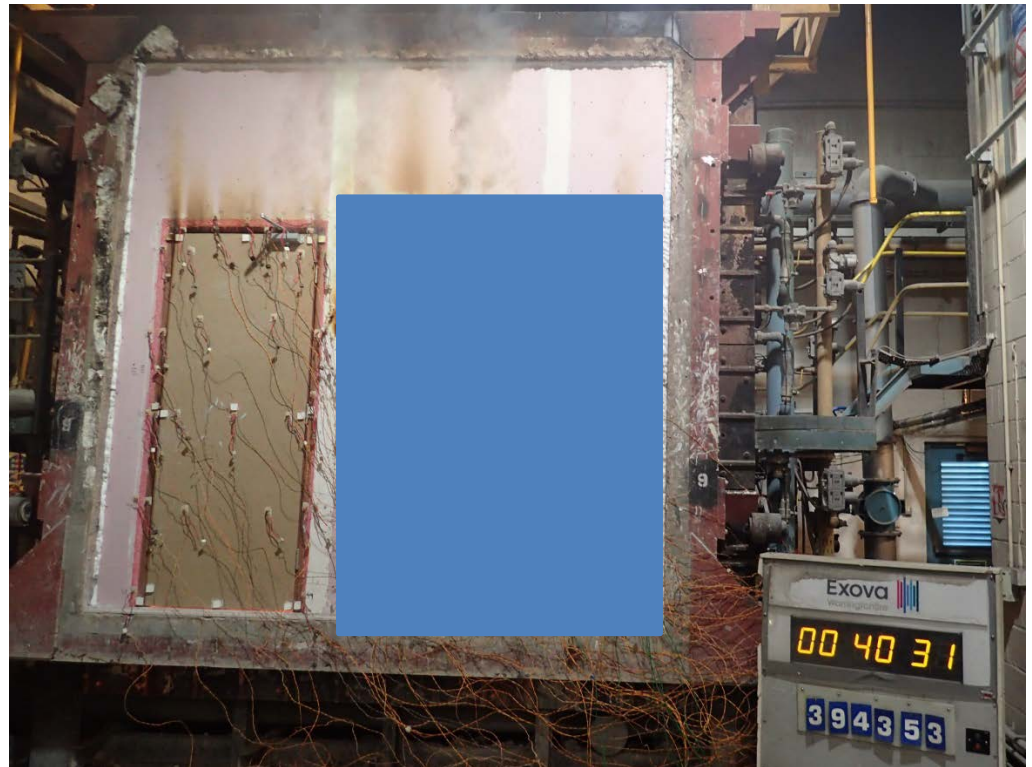
The unexposed face of the Doorsets after a test duration of 36 minutes



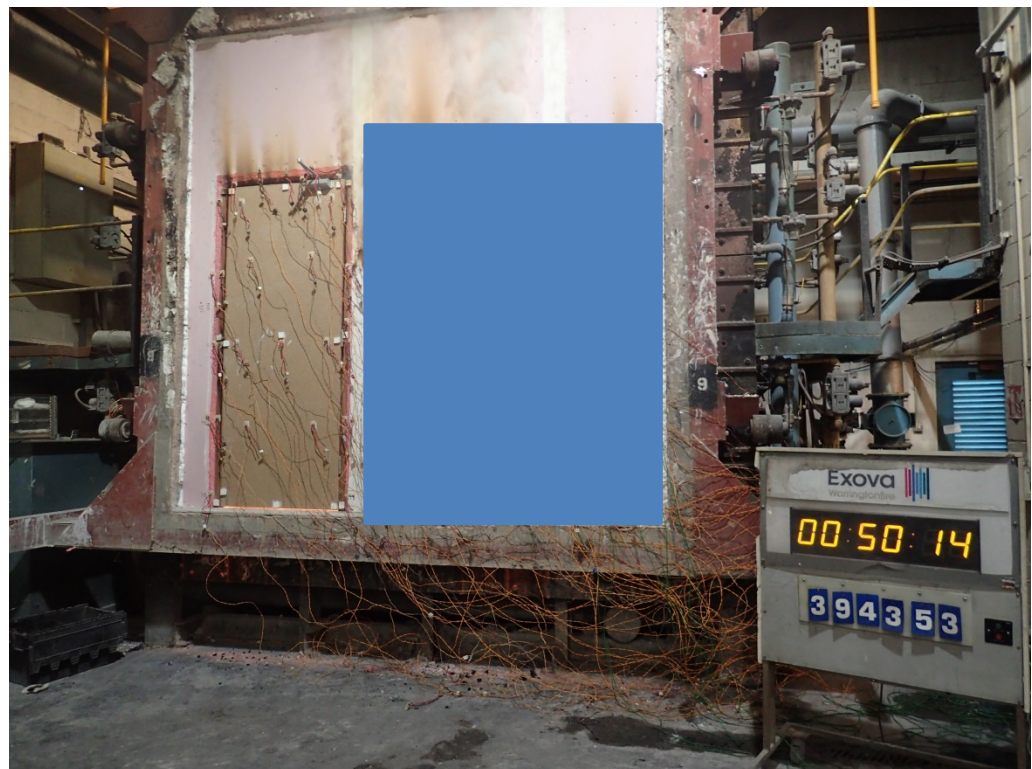
The unexposed face of the Doorsets after a test duration of 38 minutes



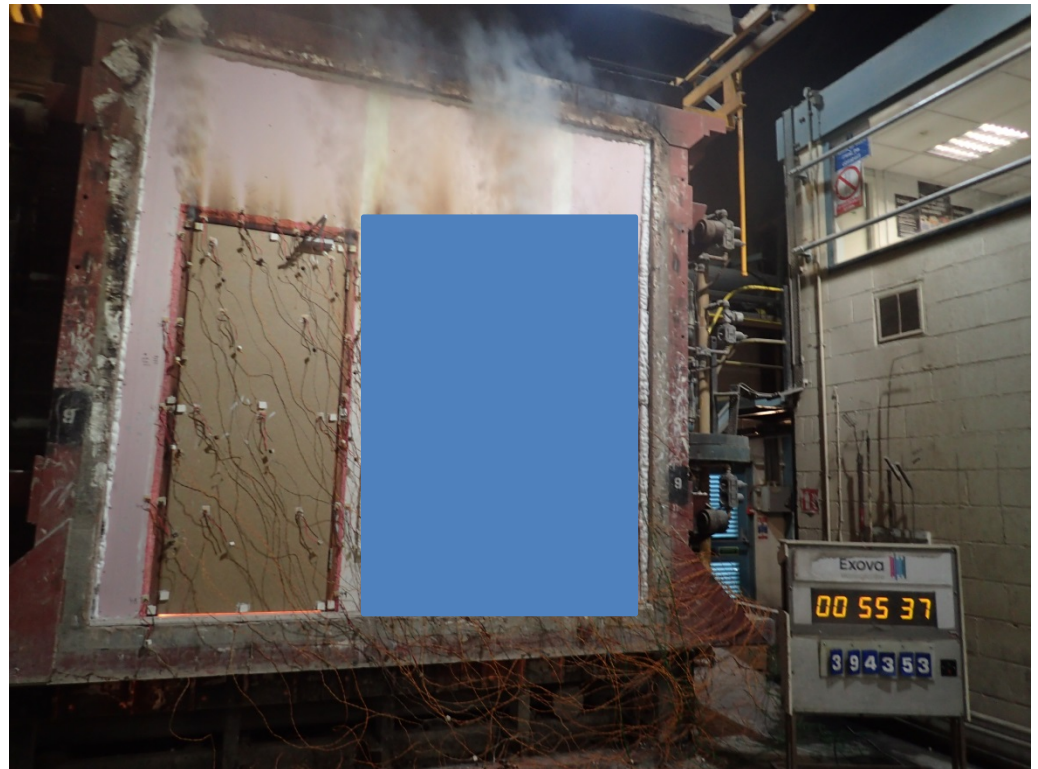
The unexposed face of the Doorsets after a test duration of 40 minutes



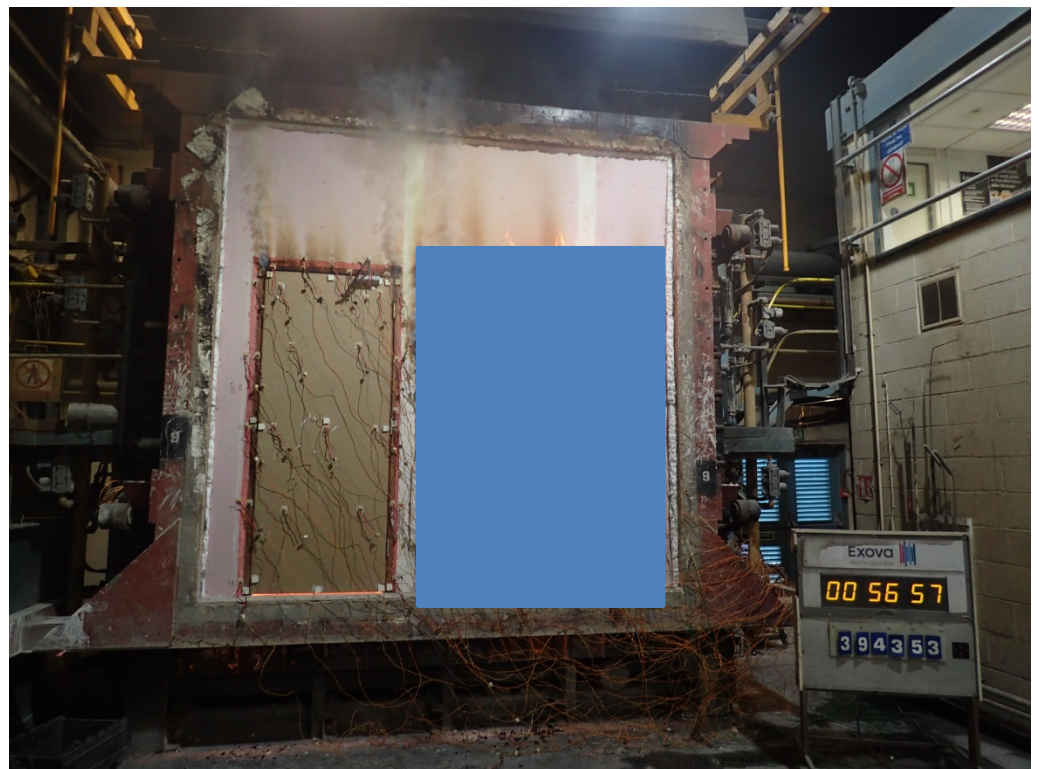
The unexposed face of the Doorsets after a test duration of 50 minutes



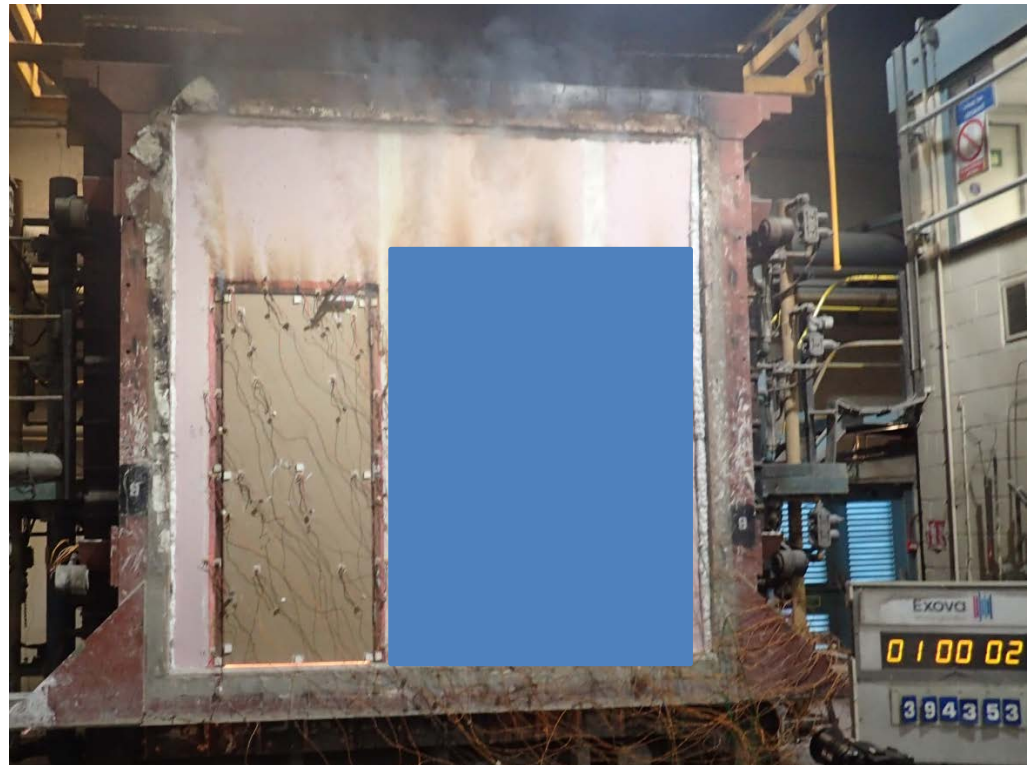
The unexposed face of the Doorsets after a test duration of 55 minutes



The unexposed face of the Doorsets after a test duration of 56 minutes



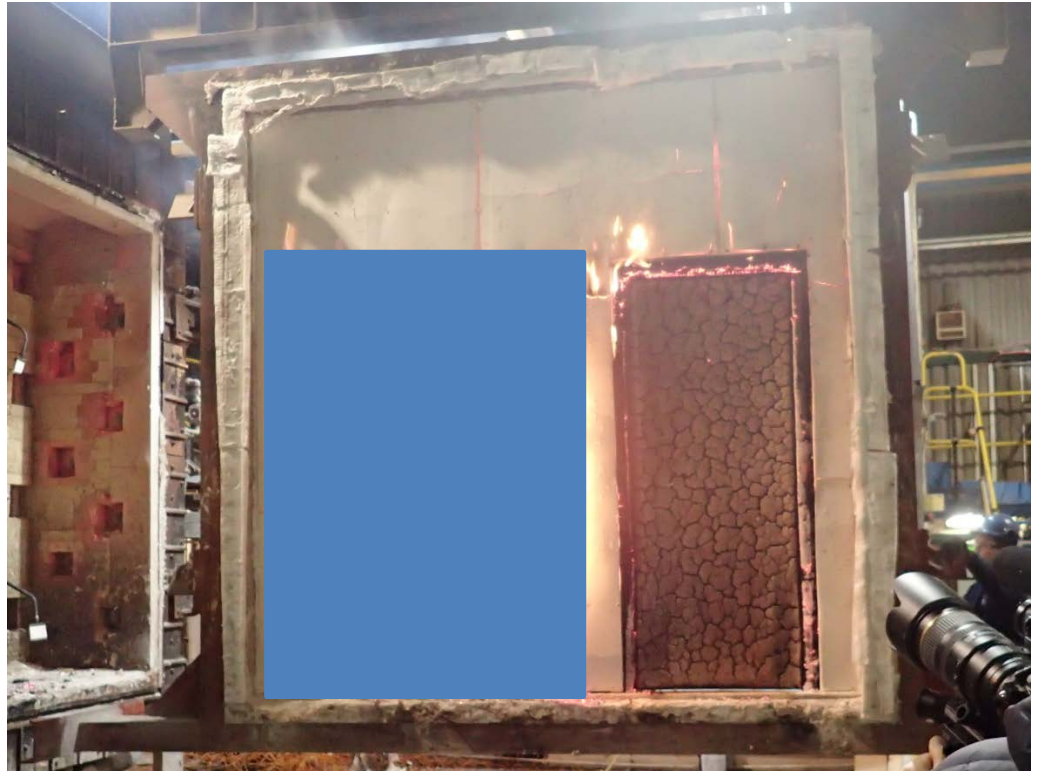
The unexposed face of the Doorsets after a test duration of 60 minutes



The unexposed face of the Doorsets after a test duration of 62 minutes



The exposed
face of the test
assembly
immediately
after the test



Temperature and Deflection Data

Mean furnace temperature, together with the temperature/time relationship specified in the Standard

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	30
2	445	514
4	544	523
6	603	605
8	646	620
10	678	648
12	706	757
14	728	718
16	748	732
18	766	753
20	781	773
22	796	795
24	809	813
26	820	817
28	832	826
30	842	844
32	852	852
34	860	861
36	869	869
38	877	878
40	885	886
42	892	891
44	899	893
46	906	910
48	912	908
50	918	920
52	924	926
54	930	933
56	935	937
58	940	942
60	945	946
62	950	949
64	955	954
66	960	959
68	964	961

Individual and mean temperatures recorded on the unexposed surface of Doorset A

Time Mins	T/C Number 4 Deg. C	T/C Number 5 Deg. C	T/C Number 6 Deg. C	T/C Number 7 Deg. C	T/C Number 8 Deg. C	Mean Temp Deg. C
0	19	19	19	19	18	19
2	19	19	19	19	18	19
4	19	19	19	19	18	19
6	19	19	19	19	18	19
8	19	19	19	19	18	19
10	19	19	19	19	18	19
12	19	19	19	19	18	19
14	20	20	20	20	19	20
16	22	22	20	21	20	21
18	24	24	22	22	22	23
20	26	26	23	24	24	25
22	28	28	25	26	26	27
24	30	30	27	28	28	29
26	32	32	29	31	30	31
28	34	35	31	33	32	33
30	37	38	34	36	34	36
32	40	40	36	38	36	38
34	43	43	39	40	39	41
36	45	46	42	43	41	43
38	49	49	45	45	44	46
40	51	52	48	48	46	49
42	55	55	50	50	49	52
44	57	58	54	53	51	55
46	60	61	57	55	54	57
48	64	64	60	57	57	60
50	67	66	63	60	60	63
52	70	69	66	62	62	66
54	73	72	69	64	64	68
56	76	74	72	66	67	71
58	78	77	74	68	69	73
60	81	79	77	70	71	76
62	83	81	79	73	73	78
64	86	83	82	75	75	80
66	89	85	84	77	77	82
68	92	87	86	78	79	84

**Individual temperatures recorded on the unexposed surface of Doorset A
 100 mm in from door leaf edge**

Time Mins	T/C Number 14 Deg. C	T/C Number 15 Deg. C	T/C Number 16 Deg. C	T/C Number 17 Deg. C
0	20	19	19	19
2	20	20	19	19
4	20	21	19	19
6	20	21	19	19
8	20	20	19	19
10	20	20	19	19
12	21	22	19	20
14	24	24	20	20
16	27	27	21	21
18	30	30	22	23
20	33	34	24	25
22	37	37	26	27
24	40	40	28	29
26	43	43	30	31
28	46	46	32	34
30	48	49	35	36
32	51	51	37	39
34	53	53	40	42
36	55	56	42	44
38	57	58	45	47
40	59	60	48	50
42	61	62	51	53
44	64	64	54	55
46	66	66	57	58
48	67	68	60	61
50	69	70	63	64
52	71	72	66	67
54	73	74	69	70
56	75	76	71	72
58	77	78	74	75
60	78	80	76	77
62	80	82	79	80
64	82	84	81	82
66	83	86	83	85
68	85	87	85	87

Individual temperatures recorded on the unexposed surface of Door Frame A

Time Mins	T/C Number 22 Deg. C	T/C Number 23 Deg. C	T/C Number 24 Deg. C	T/C Number 25 Deg. C
0	18	18	17	18
2	23	25	17	18
4	27	29	18	19
6	33	33	18	20
8	40	37	18	20
10	44	41	18	20
12	47	46	25	21
14	49	46	22	21
16	50	46	22	21
18	51	47	21	22
20	51	49	22	22
22	50	51	22	23
24	51	52	23	23
26	51	52	24	24
28	51	53	25	25
30	50	54	27	25
32	50	54	29	26
34	50	55	31	27
36	50	55	34	28
38	50	57	39	29
40	51	58	43	31
42	52	59	48	33
44	51	60	49	34
46	51	61	52	36
48	51	62	53	37
50	52	62	56	39
52	53	63	59	41
54	54	63	62	44
56	56	65	66	47
58	58	67	71	50
60	61	70	75	53
62	64	73	80	56
64	69	77	85	59
66	76	81	90	63
68	82	87	93	67

Individual temperatures recorded on the unexposed surface around the foam at the head of Doorset A, referenced A1

Time Mins	T/C Number 30 Deg. C	T/C Number 31 Deg. C	T/C Number 32 Deg. C	T/C Number 33 Deg. C	T/C Number 34 Deg. C	T/C Number 35 Deg. C
0	20	20	19	19	19	18
2	24	27	48	24	37	32
4	24	30	48	25	38	35
6	26	31	62	31	46	42
8	25	29	57	30	41	47
10	25	28	54	33	38	50
12	26	29	52	37	41	52
14	27	28	49	37	42	51
16	29	28	45	36	44	49
18	33	29	41	39	51	49
20	37	30	40	44	57	49
22	40	33	39	45	56	49
24	41	35	39	45	49	49
26	43	37	39	45	45	49
28	45	40	39	46	44	49
30	47	43	41	46	43	49
32	50	45	42	46	43	48
34	52	47	45	46	43	48
36	54	50	46	46	43	48
38	56	52	48	49	44	49
40	57	54	48	51	44	50
42	58	56	47	53	45	51
44	59	58	46	54	46	54
46	60	59	46	55	48	56
48	61	60	46	54	49	58
50	62	60	47	56	51	60
52	64	60	49	59	52	61
54	65	61	51	63	54	62
56	66	63	55	69	56	64
58	68	64	59	90	58	66
60	70	65	63	109	61	68
62	71	66	70	129	64	70
64	74	67	76	146	70	72
66	77	70	86	174	78	75
68	80	73	95	202	88	80

Individual temperatures recorded on the unexposed surface around the foam along the leading edge of Doorset A, referenced A1

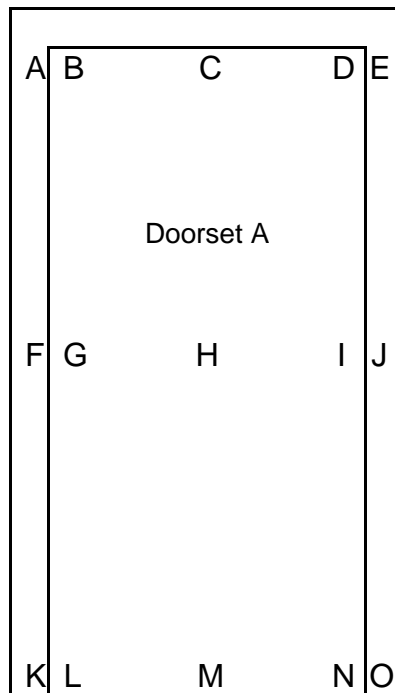
Time Mins	T/C Number 36 Deg. C	T/C Number 38 Deg. C	T/C Number 39 Deg. C	T/C Number 42 Deg. C	T/C Number 44 Deg. C	T/C Number 45 Deg. C	T/C Number 48 Deg. C
0	18	12	17	19	19	17	18
2	18	*	19	19	19	17	18
4	18	*	20	19	19	17	18
6	19	*	20	19	19	18	18
8	19	*	20	19	19	17	18
10	19	*	20	19	19	17	18
12	23	*	24	24	20	17	18
14	22	*	24	21	20	17	18
16	22	*	24	21	21	17	18
18	22	*	25	21	22	18	18
20	23	*	25	22	24	18	19
22	24	*	26	23	25	19	19
24	25	*	28	24	27	20	19
26	27	*	31	24	28	21	20
28	29	*	32	26	30	23	20
30	30	*	33	27	33	25	21
32	31	*	33	28	36	26	22
34	32	*	33	30	40	28	23
36	34	*	34	32	45	31	25
38	36	*	36	35	51	34	27
40	39	*	40	37	57	39	29
42	41	*	43	40	62	42	32
44	44	*	45	42	65	46	35
46	47	*	46	45	68	50	38
48	49	*	48	46	69	54	42
50	50	*	50	49	70	57	48
52	52	*	53	51	71	61	54
54	53	*	56	53	71	65	61
56	55	*	59	56	72	69	68
58	57	*	64	58	73	73	78
60	59	*	68	60	74	77	91
62	62	*	73	63	75	82	103
64	59	*	78	65	76	88	115
66	52	*	84	68	77	94	133
68	52	*	90	70	78	99	156

*thermocouple malfunction

Individual temperatures recorded on the unexposed surface around the foam along the hanging edge of Doorset A, referenced A2

Time Mins	T/C Number 37 Deg. C	T/C Number 40 Deg. C	T/C Number 41 Deg. C	T/C Number 43 Deg. C	T/C Number 46 Deg. C	T/C Number 47 Deg. C	T/C Number 49 Deg. C
0	19	18	20	18	19	20	18
2	19	20	20	18	19	20	18
4	19	21	20	18	19	20	18
6	19	23	20	18	19	20	18
8	19	25	20	18	19	20	18
10	20	25	20	18	19	20	18
12	24	26	22	19	19	21	18
14	27	26	25	19	19	22	18
16	28	27	29	20	20	24	18
18	30	27	34	22	20	27	19
20	34	28	38	23	20	30	19
22	36	28	41	24	21	34	20
24	38	30	44	25	21	38	21
26	38	32	47	27	22	41	22
28	39	33	49	28	22	44	24
30	40	33	51	28	23	47	25
32	40	33	52	29	23	49	27
34	42	34	54	30	24	51	28
36	43	34	55	30	25	53	30
38	45	36	56	32	25	54	31
40	46	37	57	33	26	56	32
42	48	38	59	33	27	57	34
44	50	41	60	33	27	58	35
46	53	43	61	35	28	59	36
48	55	45	62	36	29	60	37
50	56	47	65	37	30	62	38
52	58	49	67	38	31	63	39
54	60	51	70	40	33	65	40
56	63	54	72	41	34	66	41
58	67	58	73	43	35	67	43
60	70	62	74	46	37	68	44
62	74	67	75	53	38	69	46
64	60	74	75	57	40	70	48
66	56	80	76	60	42	70	49
68	51	88	77	62	45	71	50

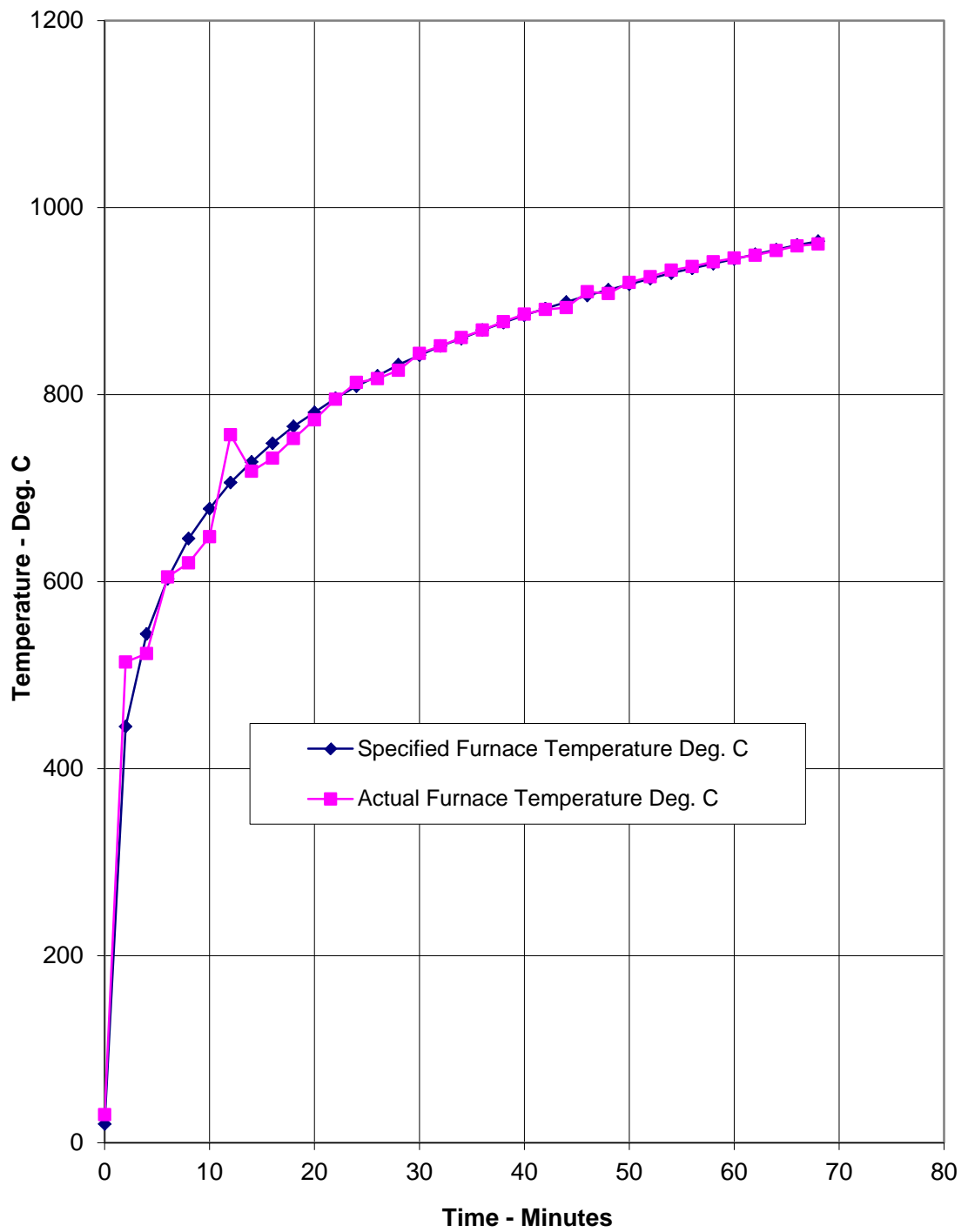
Horizontal deflections of the door leaves and door frames during the test



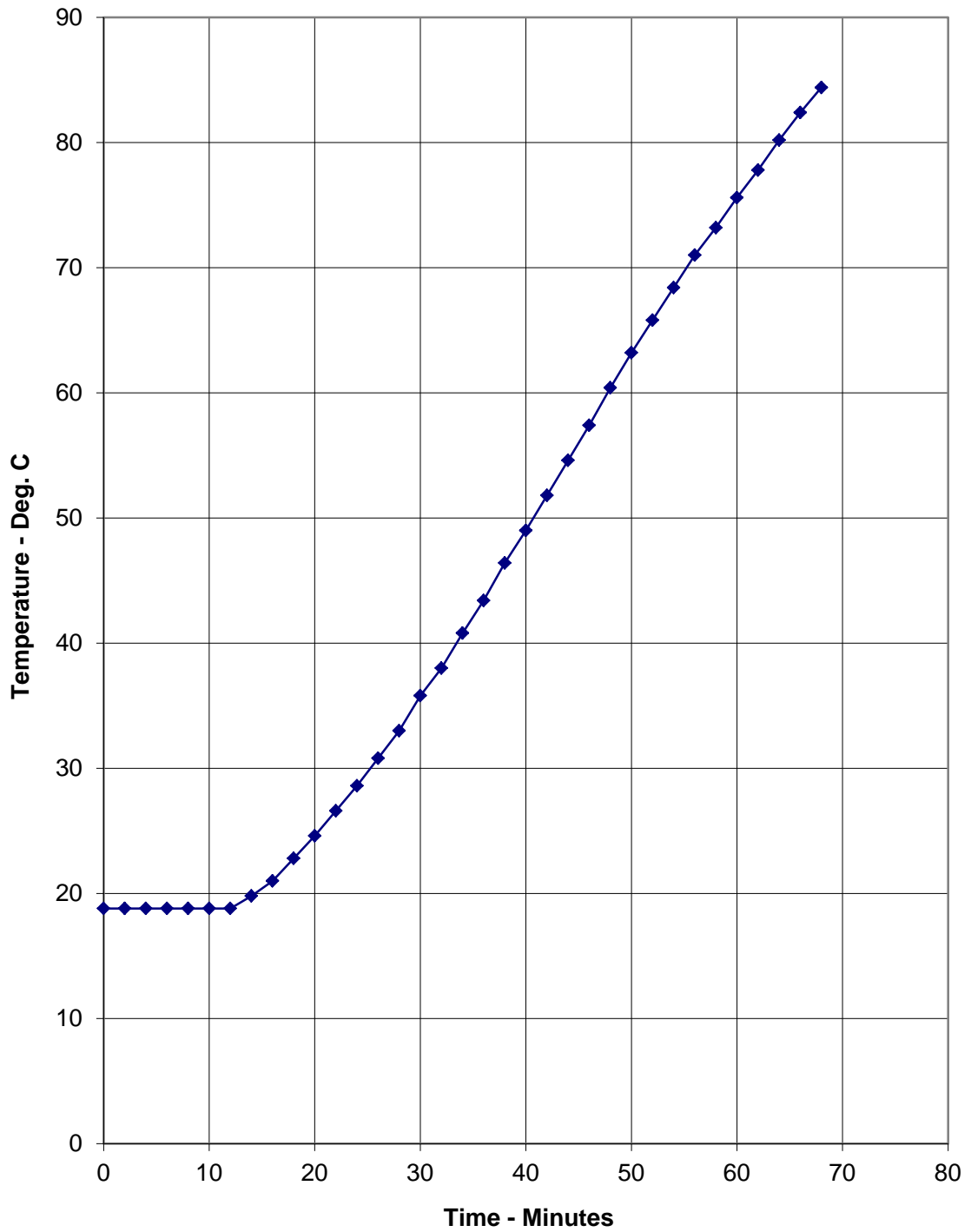
Doorset A															
Deflections – mm															
TIME mins	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1	1	4	5	6	0	-1	3	2	4	-3	-9	-1	-4	-5
20	2	3	4	5	7	1	0	4	3	2	-3	-7	-6	-5	-5
30	7	9	4	5	*	4	2	3	1	0	-2	-6	-6	-4	-4
40	*	*	*	*	*	8	7	3	6	5	0	-1	-5	-2	-4
50	*	*	*	*	*	8	6	1	11	5	4	2	-4	0	-2
60	*	*	*	*	*	2	-6	*	*	*	*	-3	*	-1	-2

A positive value indicate a deflection towards the heating conditions of the test
 *unable to take accurate readings due to heavy steam/smoke release

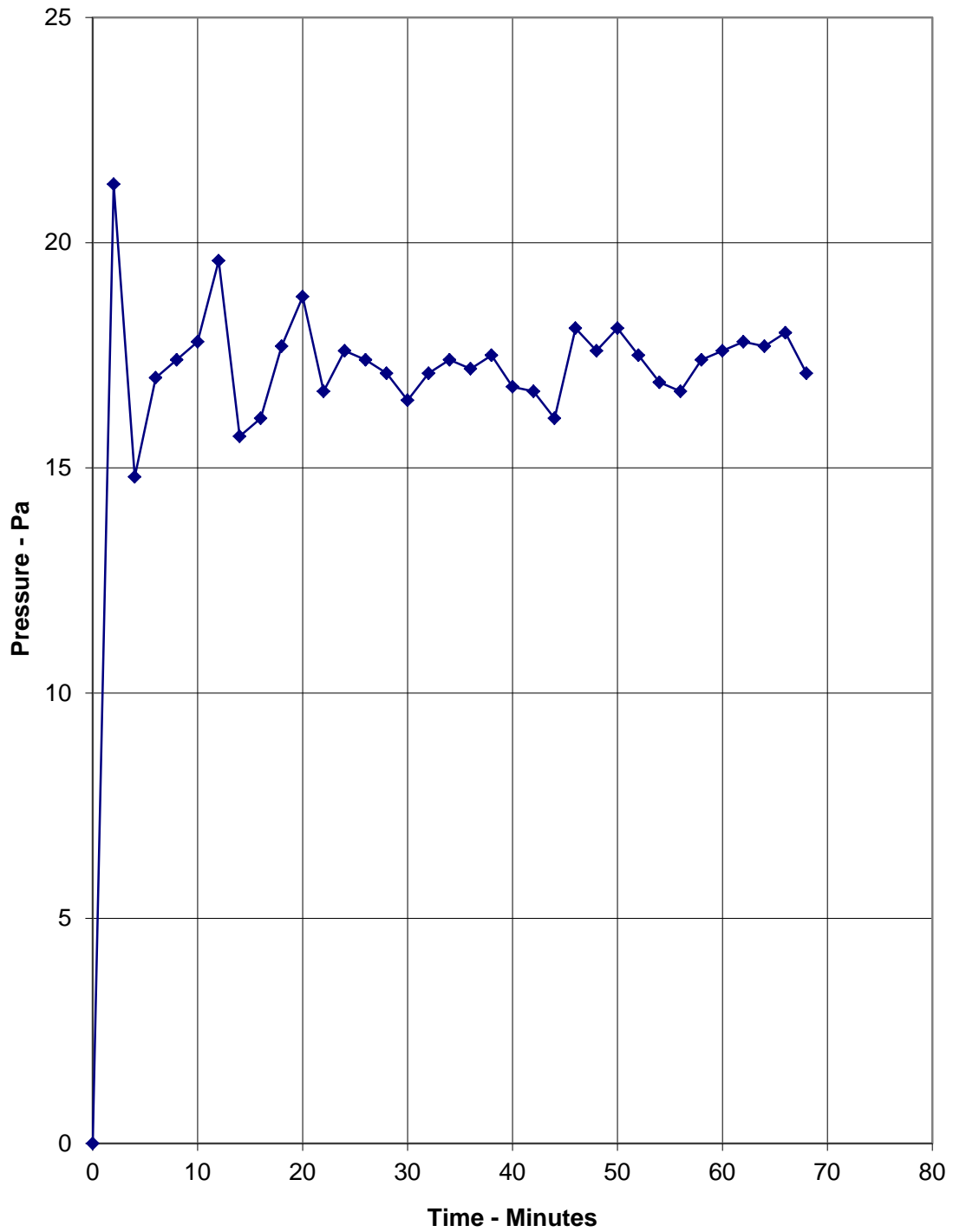
Graph showing mean furnace temperature, together with the temperature/time relationship specified in the Standard



Graph showing mean temperatures recorded on the unexposed surface of Doorset A



Graph showing recorded furnace pressure at 300 mm from the top of the partition



Performance Criteria and Test Results

Integrity

For doorsets it is required that the specimen retain its separating function, without either causing ignition of a cotton pad when applied, or permitting the penetration of a gap gauge as specified in BS EN 1634-1: 2014, or resulting in sustained flaming on the unexposed surface.

These requirements were satisfied for the periods shown below:

Doorset A

Sustained flaming

68 minutes*

Gap gauge

68 minutes*

Cotton pad

68 minutes*

Insulation

The mean temperature rise of the unexposed surface shall not be greater than 140°C and that the maximum temperature rise shall not be greater than 180°C (except on the door frame, where the maximum temperature rise shall not exceed 360°C). Insulation failure also occurs simultaneously with integrity failure as specified in BS EN 1634-1: 2014. **These requirements were satisfied for the periods shown below:**

68 minutes*

*The test was discontinued after 68 minutes.

Ongoing Implications

Limitations

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 EN 1363-1: 2012 and where appropriate BS EN 1363-2: 1999. 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. Annex A of BS EN 1363-1: 2012 provides guidance information on the application of fire resistance tests and the interpretation of test data.

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.

This test report is additional to that issued as WF Test Report No. 394353 and dated 9th August 2018. The original test report remains valid and is not replaced by this additional test report

Conclusions

Evaluation against objective

A single-acting, single-leaf doorset has been subjected to a fire resistance test generally in accordance with BS EN 1634-1: 2014, Fire resistance tests for door and shutter assemblies, BS EN 1363-1: 2012 General requirements and BS EN 1363-2: 1999, Alternative and additional procedures.

The evaluation of the doorsets against the requirements of BS EN 1634-1: 2014 showed that the doorset satisfied the requirements for the following periods.

Test Results:

Doorset A

Integrity performance	Sustained flaming	68 minutes*
	Gap gauge	68 minutes*
	Cotton Pad	68 minutes*

Insulation

68 minutes*

*The test was discontinued after 68 minutes.

#Gap gauge failure occurred due to an area being blanked off to allow the test to continue.

Sample Report



Sample Report

This report provides a record of the information relating to samples taken by Exova (UK) Limited trading as Warrington Certification, or its agent, for certification of the products detailed below.

Job No.	FM391084
Manufacturer	Tremco Illbruck (Netherland).
Manufacturing site	Tremco Illbruck in Netherland..
Place of sampling	Tremco Illbruck Limited Coupland Road, Hindley Green, Wigan, WN2 4HT
Traceability information	Date/time of production: see batch no. below. Production unit/line:N/A Batch number: 1062 Shift: N/A
Product Number/ Description	Nullfire FF197 PU foam- product code 342789 3 boxes each 12 pcs of 750ml. Manufactured by Tremco in Netherland.
Marking of the product by the manufacturer e.g. label, batch number and date of manufacture	Same above.
Marking of the samples by Exova (UK) Limited trading as Warrington Certification	Job No: WF Date: 09/11/2017 Signature or initials: Exova <i>[Signature]</i>
Stock/batch quantity from which samples selected and sample quantity	Same above.
Results of tests and/or inspections during manufacture	N/A
Essential Characteristics to be tested ie. Test reference	Fire test
Samples to be dispatched by manufacturer to *** within *** weeks/month(s)	TBC
Date of sampling	09/11/2017
Exova (UK) Limited trading as Warrington Certification notified body number	1121 <i>[Signature]</i>
Signed: (for and on behalf of Manufacturer) <i>[Signature]</i>	Signed: (for and on behalf of Exova (UK) Limited trading as Warrington Certification) <i>[Signature]</i>
Print:Hannah Eyres	Print: Luma Yasen
Date: 09/11/2017	Date: 09/11/2017