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Title:

The Fire Resistance Performance Of 3 Specimens of Wall Mounted and 1 Specimen of Floor Mounted Cavity Barrier Systems, When Tested In Accordance With EN 1366-4:2021

Date Of Test:

19 July 2024

Issue 3

08 October 2025

WF Report No:

545647/R

Prepared for:

Timloc Building Products

Timloc House
Ozone Park
Howden
East Riding of Yorkshire
DN14 7SD

0249

This report supersedes report referenced 545647 Issue 2 Issued on the 11 of December 2024.

Test Specimen

Summary of Tested Specimen

For the purpose of the test the floor specimens were referenced A to C and the wall specimen was referenced D. Specimens E and F are not subject of this test report at the request of the test sponsor.

The section of floor had overall nominal dimensions of 2250 mm long by 1750 mm wide by 600 mm thick and was made up of autoclaved aerated concrete lintels arranged to provide three cavities of varying widths and depths which were all 1200 mm in length.

The section of wall had overall dimensions of 1800 mm high by 1800 mm wide by 600 mm thick and was made up of autoclaved aerated concrete lintels arranged to provide three cavities of varying widths and depths which were all 1200 mm in length.

Specific details of each of the seals are given in the tables below:

Specimens

Specimen	Substrate	Seal Details
A	Autoclaved aerated concrete to 15mm Orientated Strand board	Sealed with a cavity barrier referenced 'PWTIMFRSTOP 50', stone mineral wool barrier of dimensions 1200mm x 65mm x 250mm, friction fitted into the aperture 250mm from the exposed face with 15mm compression across the width.
B		Sealed with a cavity barrier referenced 'PWTIMFRSTOP 100,' stone mineral wool barrier of dimensions 1200mm x 115mm x 250mm friction fitted into the aperture 250mm from the exposed face with 15mm compression across the width.
C		Sealed with a cavity barrier referenced 'PWTIMFRSTOP 150', stone mineral wool barrier of dimensions 1200mm x 165mm x 250mm, friction fitted into the aperture 250mm from the exposed face with 15mm compression across the width.
D		Sealed with a cavity barrier referenced 'PWTIMFRSTOP 50', stone mineral wool barrier of dimensions 1200mm x 65mm x 250mm, friction fitted into the aperture 250mm from the exposed face with 15mm compression across the width.

Detailed drawings of the test specimen(s) and a comprehensive description of the test construction based on a detailed survey of the specimen(s) and information supplied by the sponsor of the test are included in the Test Specimen and Schedule of Components sections of this report.

Performance Criteria and Test Results

Integrity

It is required that the specimen retains its separating function, without either causing ignition of a cotton pad when applied as specified in BS EN 1366-4: 2021 or resulting in sustained flaming on the unexposed surface.

Insulation

The requirements of the standard are that the maximum temperature rise shall not be greater than 180°C. Insulation failure also occurs simultaneously with integrity failure as specified in BS EN 1366-4: 2021.

Test Results

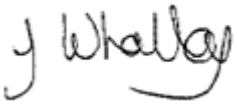
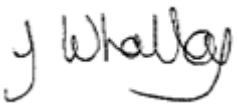
Specimen	Integrity (minutes)		Insulation (minutes)
	Cotton Pad	Sustained flaming	
A	66*	66*	66*
B	66*	66*	66*
C	66*	66*	66*
D	66*	66*	66*

* Test was discontinued after a period of 66 minutes.

Date of Test 19 July 2024

Quality Management

Issue No: 1	Issue Date: 19 November 2024
Responsible Officer: **Muhammad Ali***	Approved By: **Graham Edmonds***
Job Title: Technical Officer	Job Title: Senior Technical Officer
	

Issue No: 2	Re-issue Date: 11 December 2024
Responsible Officer: **Muhammad Ali Rana***	Approved By: **Jennifer Walley***
Job Title: Technical Officer	Job Title: Lead Technical Officer
	
Reason for Revision: Initial copy of report issued to client was a previous draft. Specimens E & F removed, and they are not the subject of this test report. Signatures and revision history sections removed, and quality management section added.	
Issue No: 3	Re-issue Date: 08 October 2025
Responsible Officer: **Nathan Bradley***	Approved By: **Jennifer Walley***
Job Title: Lead Technical Officer	Job Title: Testing Manager Firestopping
	
Reason for Revision: At the request of the Test Sponsor the following corrections have been verified and made to incorrect details input by Warringtonfire. The Technical Officer responsible was updated from M. Rana to N. Bradley, as M. Rana was undergoing training under the supervision of N. Bradley, who was the Technical Officer responsible for this test.	

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

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Test Conditions

Standard

BS EN 1366-4: 2021 Fire resistance tests for service installations – Part 4: Linear joint seals.

Clause 6.2 of BS EN 1366-4: 2021 specifies a typical length to width for a linear joint seal is 10:1. The length to width may be < 10:1 in case the heated length of the linear joint is ≥2600 mm. This requirement was not satisfied for Specimen C due to the reduced length; therefore, the test was conducted generally in accordance with the standard. Test results obtained are only valid to the Specimens as tested.

The test was not conducted under the requirements of Warringtonfire's UKAS scope of accreditation.

Sampling

Warringtonfire was not involved in the sampling or selection of the tested specimen or any of the components.

The results obtained during the test only apply to the test samples as received and tested by **Warringtonfire.**

Installation

The aerated concrete floor and wall were constructed by representative of **Warringtonfire** between the 08 and 12 July 2024. The gap sealing systems were provided and installed by a representative of Timloc Building Products, on the 18 of July 2024.

Conditioning

The specimen's storage, construction and test preparation took place in the test laboratory over a total combined time of 12 days. Throughout this period both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 17^{o}C to 33^{o}C and 39% to 81% respectively.

Instruction to Test

The test was conducted on the 19 July 2024 at the request of Timloc Building Products, the test sponsor.

No representative of the client witnessed the test.

Ambient Temperature

The ambient air temperature in the vicinity of the test construction was 25ºC at the start of the test with a maximum variation of +7ºC during the test.

Furnace

The furnace was controlled so that its mean temperature complied with the requirements of BS EN 1366-4: 2021 Clause 5.1 using four plate thermometers, distributed over a plane 100 mm from the surface of the vertical test construction and four plate thermometers, distributed over a plane 100 mm from the surface of the horizontal test construction.

Thermocouples

Thermocouples were provided to monitor the unexposed surface of the specimens. The output of all instrumentation was recorded at no less than one-minute intervals. The locations and reference numbers of the various unexposed surface thermocouples are shown in Figures 1 and 4.

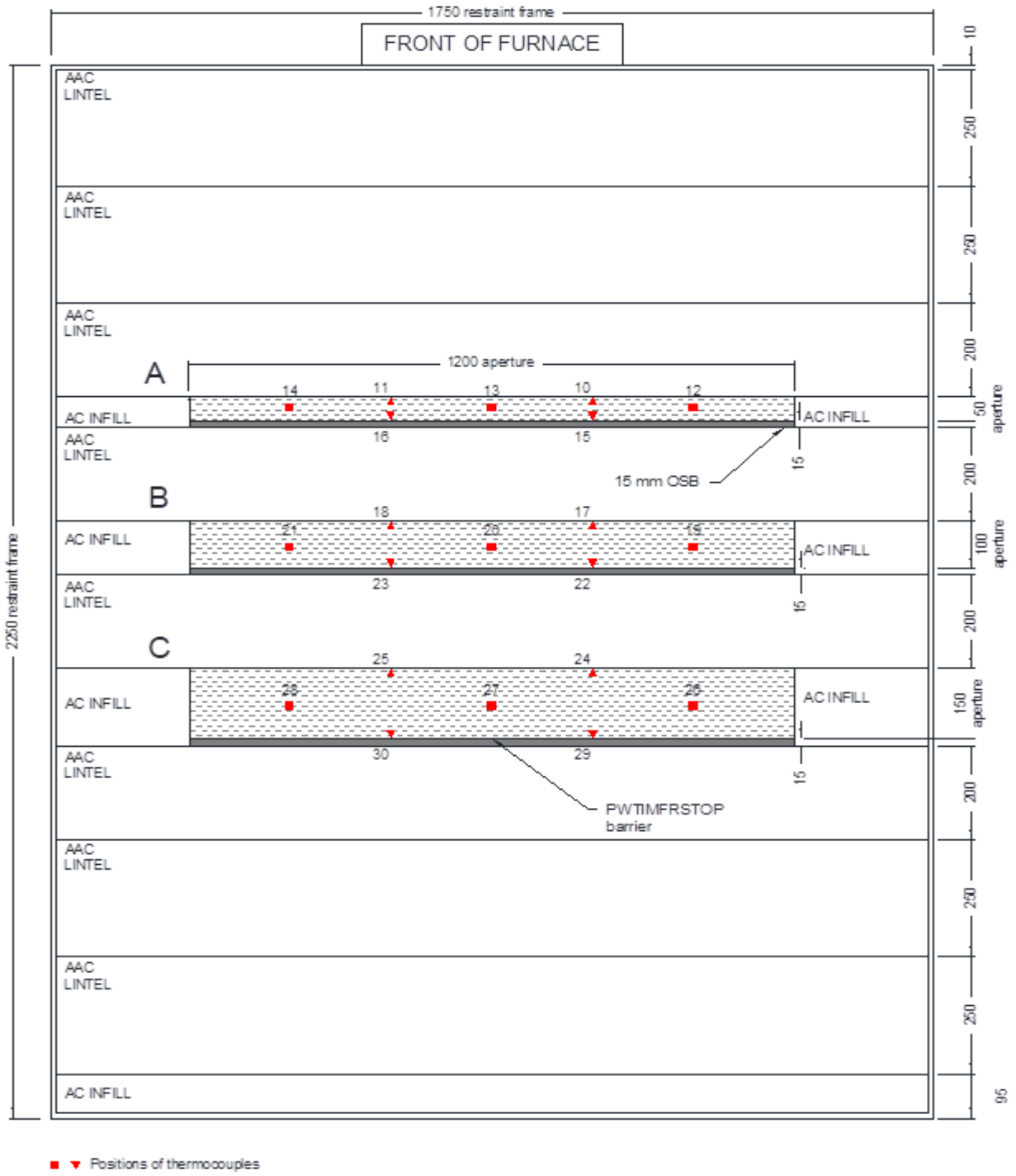
Furnace Pressure

The requirements of BS EN 1363-1: 2020, clause 5.2 could not be satisfied due to simultaneous testing of wall and floor specimens. The floor specimens were tested under more onerous conditions, at position 100 mm below the underside of the floor assembly the differential pressure was calculated to be 25 (± 5) Pa between 5 and 10 minutes and 25 (± 3) Pa respectively thereafter. The wall specimens satisfied the requirements of BS EN 1363-1: 2020, clause 5.2. The calculated pressure differential relative to the laboratory atmosphere at mid height of the lowest mounted wall specimens was 15 (± 5) Pa between 5 and 10 minutes and 15 (± 3) Pa respectively thereafter.

Should the conditions of furnace temperature, furnace pressure or ambient temperature which are achieved during the test represent a more severe exposure to the test specimen, the test is still to be considered valid.

Test Construction

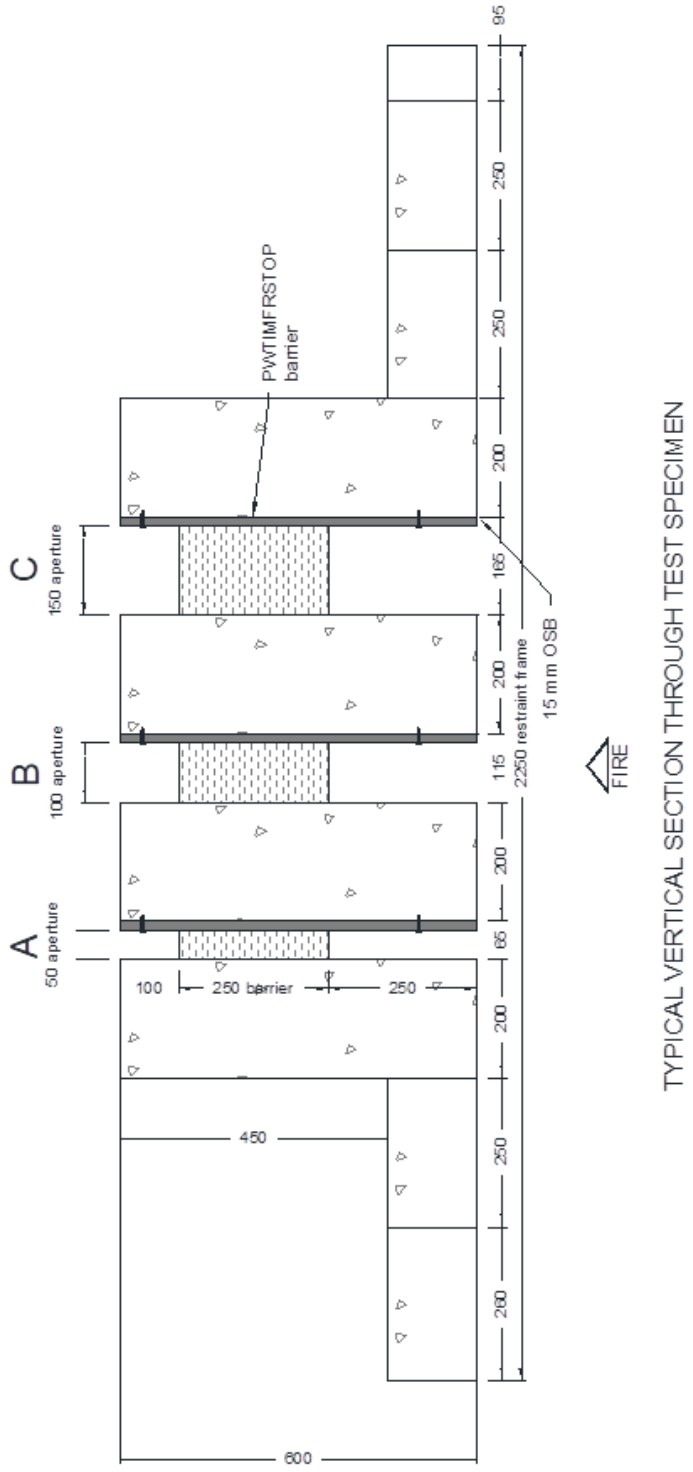
Figure 1: General Plan of the floor unexposed face showing thermocouple positions



GENERAL PLAN OF UNEXPOSED FACE SHOWING THERMOCOUPLE POSITIONS

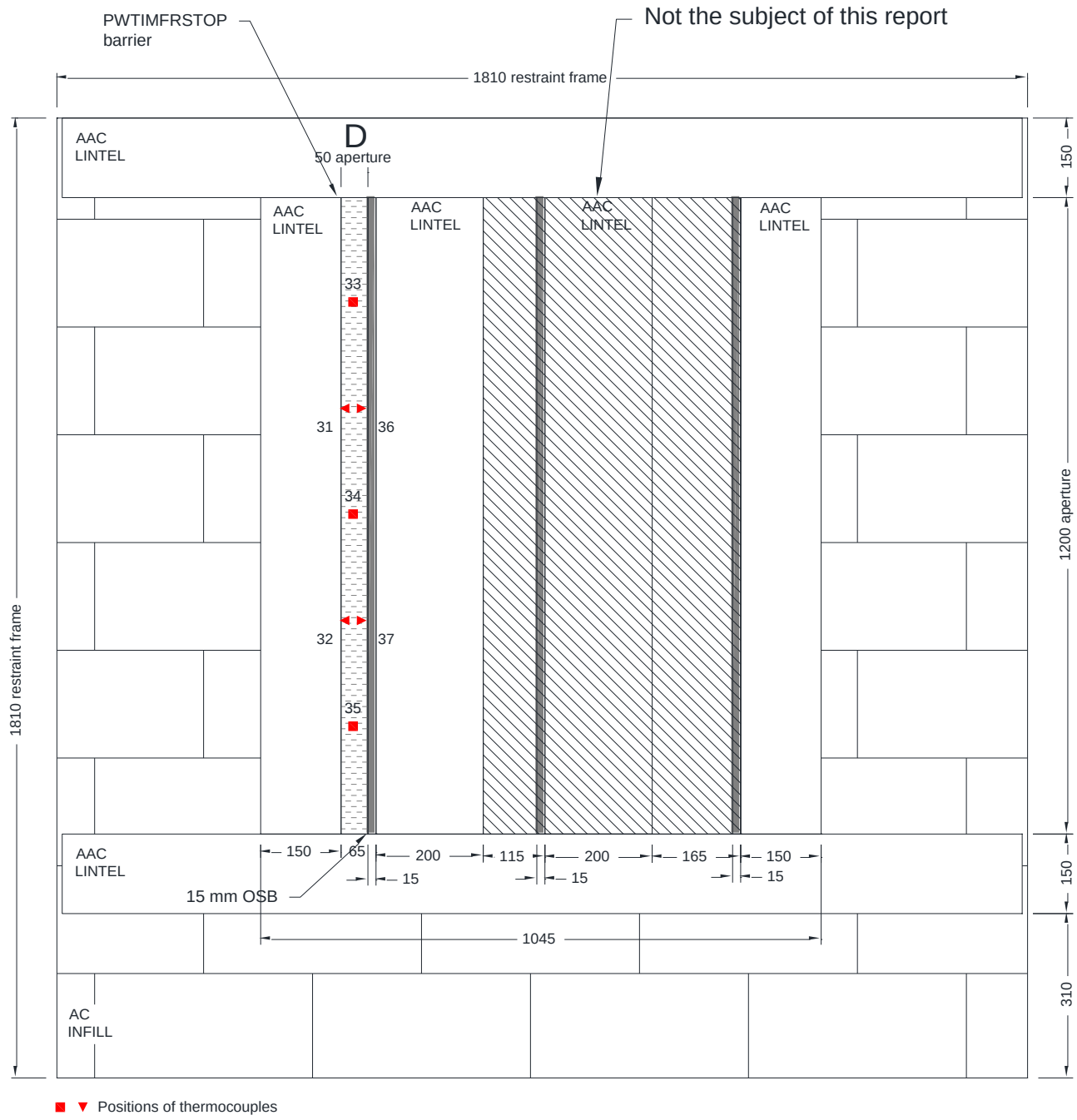
Do not scale. All dimensions are in mm

Figure 2: Typical vertical section through the floor test specimen



Do not scale. All dimensions are in mm

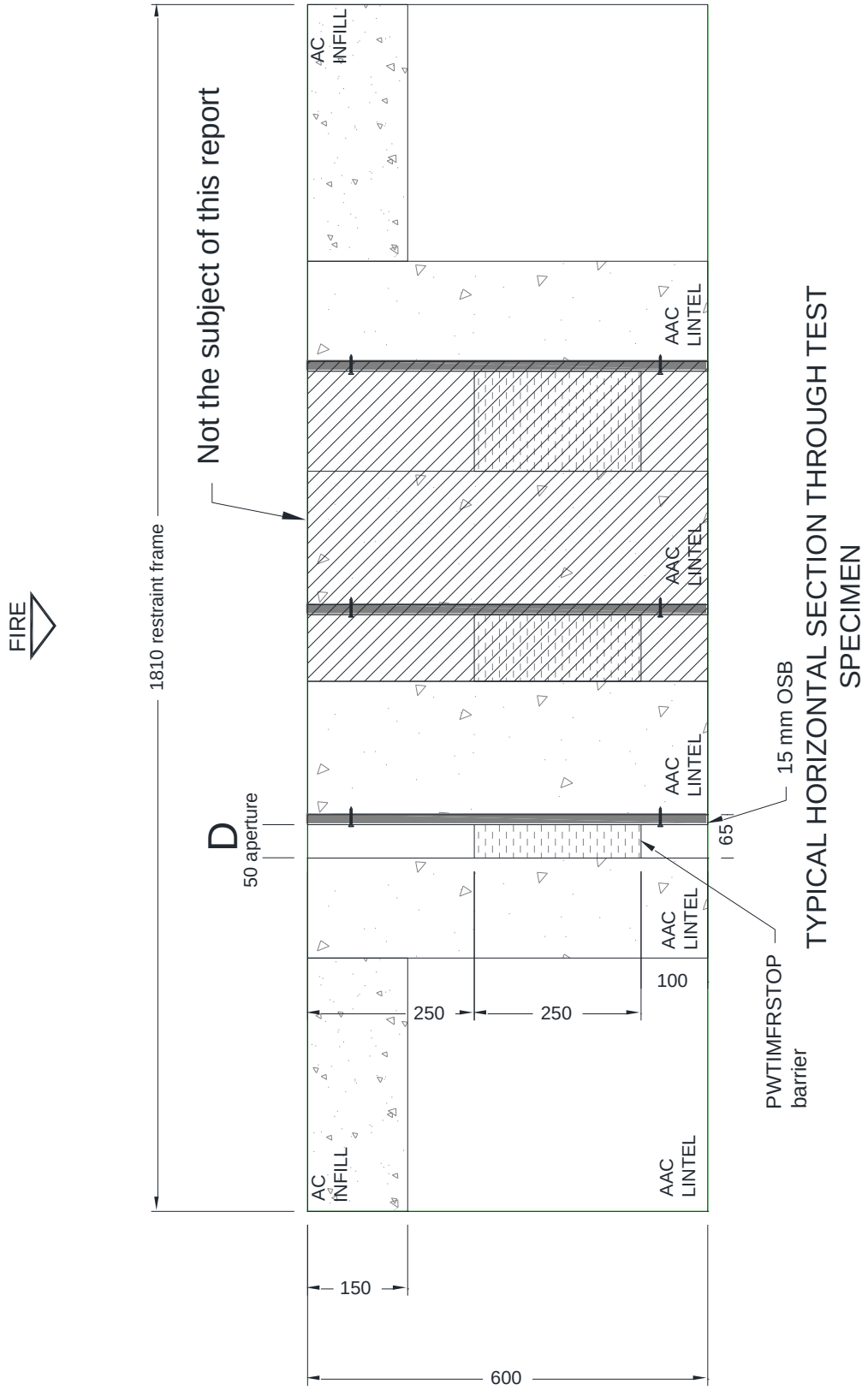
Figure3: General elevation of the wall unexposed face showing thermocouple positions



GENERAL ELEVATION OF UNEXPOSED FACE SHOWING THERMOCOUPLE POSITIONS

Do not scale. All dimensions are in mm

Figure 4: Typical horizontal section through the wall test specimen



Do not scale. All dimensions are in mm

Schedule of Components

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

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

Item		Description
Floor test		
1. Specimen A		
Details of aperture	:	1200 mm long x 50 mm wide x 600 mm deep
Details of barrier		
Manufacturer	:	Timloc
Reference	:	PWTIMFRSTOP 50
Material	:	Stone mineral wool enclosed within a red polyethylene bag.
Overall size	:	1200 mm long x 65 mm wide x 250 mm deep
Density	:	40 kg/m^3 (stated)
Fixing method	:	Compression fitted within the aperture with a 15 mm compression across the width. The barrier was pushed into the aperture 250 mm from the exposed face.
2. Specimen B		
Details of aperture	:	1200 mm long x 100 mm wide x 600 mm deep
Details of barrier		
Manufacturer	:	Timloc
Reference	:	PWTIMFRSTOP 100
Material	:	Stone mineral wool enclosed within a red polyethylene bag.
Overall size	:	1200 mm long x 115 mm wide x 250 mm deep
Density	:	40 kg/m^3 (stated)
Fixing method	:	Compression fitted within the aperture with a 15 mm compression across the width. The barrier was pushed into the aperture 250 mm from the exposed face.
3. Specimen C		
Details of aperture	:	1200 mm long x 150 mm wide x 600 mm deep
Details of barrier		
Manufacturer	:	Timloc
Reference	:	PWTIMFRSTOP 150
Material	:	Stone mineral wool enclosed within a red polyethylene bag.
Overall size	:	1200 mm long x 165 mm wide x 250 mm deep
Density	:	40 kg/m^3 (stated)
Fixing method	:	Compression fitted within the aperture with a 15 mm compression across the width. The barrier was pushed into the aperture 250 mm from the exposed face.
Wall test		
4. Specimen D		
Details of aperture	:	1200 mm long x 50 mm wide x 600 mm deep
Details of barrier		
Manufacturer	:	Timloc

Item		Description
4. Specimen D (continued)		
Material	:	Stone mineral wool enclosed within a red polyethylene bag.
Overall size	:	1200 mm long x 65 mm wide x 250 mm deep
Density	:	40 kg/m^3 (stated)
Fixing method	:	Compression fitted within the aperture with a 15 mm compression across the width. The barrier was pushed into the aperture 250 mm from the exposed face.
Supporting construction (comprising items 7-10)		
7. OSB		
Manufacturer	:	Kingfisher
Material	:	Oriented Strand Board comprised of compressed wood strands.
Overall size	:	1200 mm long x 600 mm wide
Thickness	:	15 mm
Fixing method	:	Through fixed to the concrete lintels with screws.
Fixings (screws)		
I. type	:	Zinc plated screws
ii. size	:	50 mm long x 3.0 mm diameter
iii. centres	:	500 mm
8.Concrete wall lintels (supplied by Warringtonfire)		
Material	:	Autoclaved aerated concrete lintels
Density	:	670 kg/m^3
Overall size	:	1800/1200 mm long x 600 mm deep x 150/200 mm wide
9.Concrete floor lintels (supplied by Warringtonfire)		
Material	:	Autoclaved aerated concrete lintels
Density	:	670 kg/m^3
Overall size	:	1680 mm long x 150/600 mm deep x 200/250 mm wide
10.Masonry infill (supplied by WarringtonFire)		
Material	:	Aerated concrete blockwork
Density	:	760 kg/m^3

Test Observations

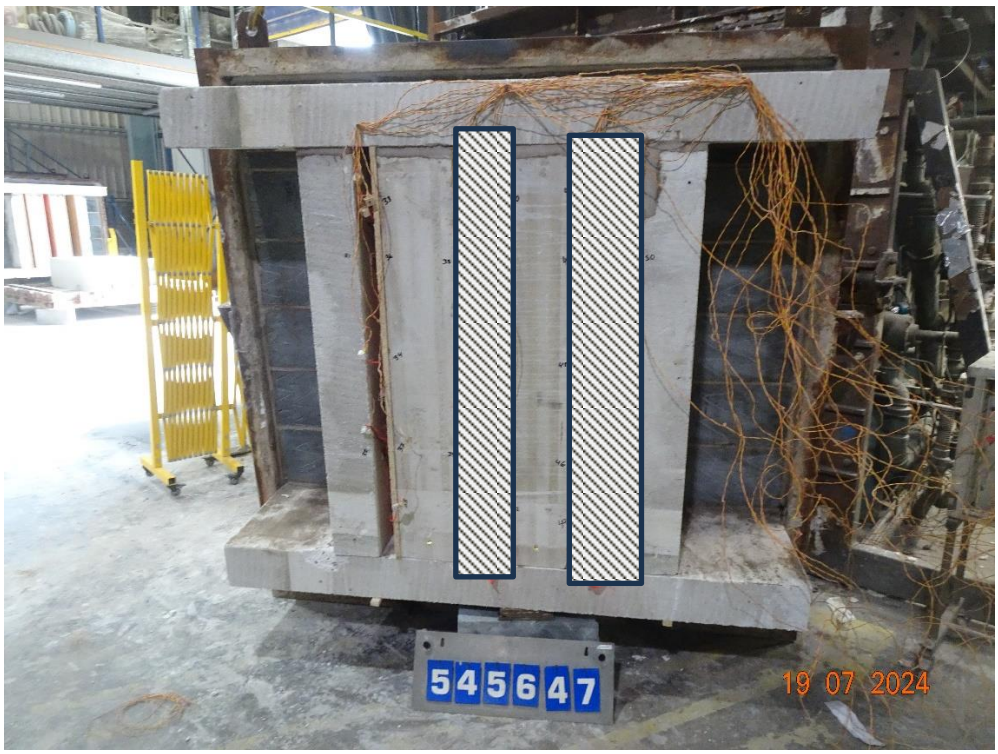
Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	
00	00	**The Test Commences.**
03	20	Smoke release from all 4 Specimens; at the head of Specimen D and on the floor along the length of the barrier adjacent to the OSB.
17	40	RTC reads TC 12 = 29^{o}C.
22	10	RTC reads TC 12 = 29.1^{o}C.
23	00	TC 27 has separated from the barrier and attempts to reattach it are unsuccessful. RTC reads TC 27 = 31.1^{o}C.
24	40	Consistent smoke release along the full length of the OSB and AAC interface for the Specimen D.
42	00	RTC reads TC 12 = 29.4^{o}C.
43	10	RTC reads TC 27 = 38.4^{o}C.
44	10	Moisture build up is visible between the polyethylene bag and the mineral wool barrier on the wall Specimen D.
62	50	**Embers are visible coming from the head of Specimen D.**
66	00	**The test is discontinued at the sponsor's request.**

Test Photographs

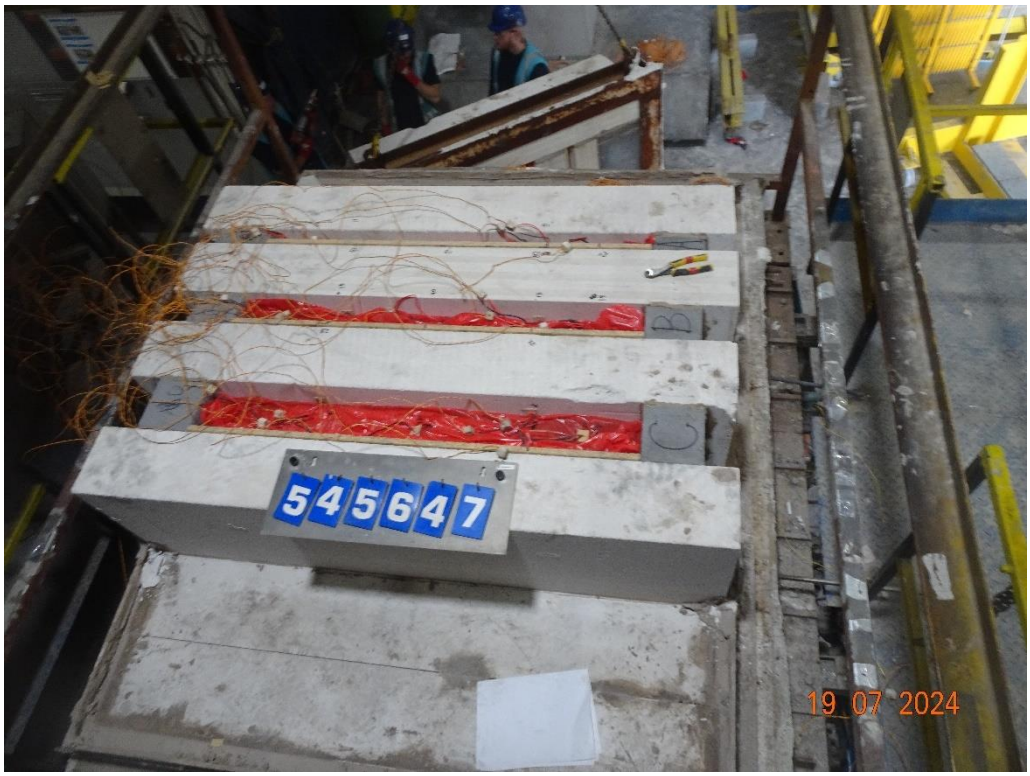
The exposed face of the wall assembly prior to testing

The exposed face of the floor assembly prior to testing

The unexposed face of the wall assembly prior to the start of the test



The unexposed face of the floor assembly prior to the start of the test



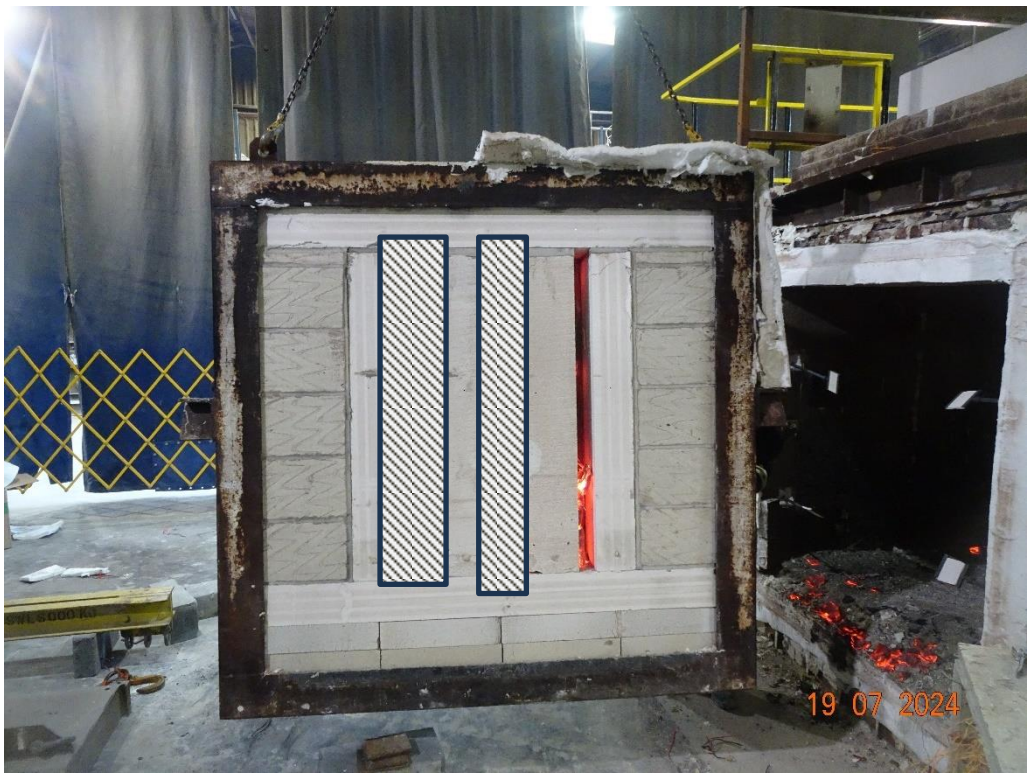
The unexposed face of the wall assembly after a test duration of 30 minutes

The unexposed face of the floor assembly after a test duration of 30 minutes

The unexposed face of the wall assembly after a test duration of 60 minutes

The unexposed face of the floor assembly after a test duration of 60 minutes

The exposed face of the wall assembly immediately after the test



Temperature and Pressure Data

Mean furnace temperature, together with the temperature/time relationship specified in BS EN 1366-4: 2021

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	20
2	445	392
4	544	595
6	603	621
8	645	645
10	678	680
12	705	710
14	728	728
16	748	747
18	766	768
20	781	781
22	796	792
24	809	801
26	820	819
28	831	828
30	842	835
32	851	846
34	860	860
36	869	875
38	877	882
40	885	886
42	892	892
44	899	900
46	906	907
48	912	913
50	918	918
52	924	925
54	930	932
56	935	939
58	940	944
60	945	949
62	950	955
64	955	960
66	960	965

Individual temperatures recorded on the unexposed surface of Specimen A and adjacent to Specimen A

Time Minutes	T/C Number 10 Deg. C	T/C Number 11 Deg. C	T/C Number 12 Deg. C	T/C Number 13 Deg. C	T/C Number 14 Deg. C	T/C Number 15 Deg. C	T/C Number 16 Deg. C
0	25	26	37	28	24	26	24
2	25	26	31	28	24	26	24
4	25	26	31	28	24	27	24
6	26	26	*	29	23	27	24
8	26	26	*	29	23	28	24
10	27	26	*	29	24	28	24
12	27	26	*	30	24	28	25
14	27	26	*	30	24	29	25
16	27	26	*	30	24	29	25
18	28	26	*	30	24	29	25
20	28	26	*	30	24	29	26
22	28	26	*	30	24	30	27
24	28	27	*	30	24	30	29
26	28	27	*	30	25	30	31
28	28	26	*	30	24	30	33
30	29	27	*	30	25	31	36
32	29	27	*	30	25	30	38
34	28	27	*	30	25	30	39
36	28	27	*	30	25	30	41
38	28	27	*	30	25	30	42
40	29	28	*	31	26	31	43
42	29	27	*	31	26	31	44
44	29	27	*	31	26	31	45
46	29	28	*	31	27	31	45
48	29	28	*	31	28	31	46
50	29	28	*	31	29	32	46
52	30	28	*	31	30	32	47
54	30	28	*	31	31	32	48
56	30	28	*	31	33	32	49
58	31	29	*	31	34	32	50
60	31	29	*	31	36	32	53
62	31	29	*	31	38	33	55
64	32	30	*	31	39	33	58
66	32	29	*	31	40	33	60

*Thermocouple malfunction

Individual temperatures recorded on the unexposed surface of Specimen B and adjacent to Specimen B

Time Minutes	T/C Number 17 Deg. C	T/C Number 18 Deg. C	T/C Number 19 Deg. C	T/C Number 20 Deg. C	T/C Number 21 Deg. C	T/C Number 22 Deg. C	T/C Number 23 Deg. C
0	25	24	25	25	26	24	25
2	25	24	25	26	26	24	25
4	25	24	25	25	26	24	25
6	25	24	25	25	26	24	24
8	24	24	25	25	27	24	25
10	23	24	26	26	27	24	25
12	24	24	26	26	28	25	25
14	25	24	26	26	29	25	25
16	25	24	26	26	30	25	25
18	25	25	28	30	32	25	26
20	26	25	31	35	36	26	27
22	27	26	33	39	40	27	28
24	27	26	37	45	42	29	29
26	29	28	42	51	46	31	31
28	30	29	45	54	46	33	33
30	31	30	48	56	45	36	36
32	32	31	50	58	46	38	38
34	33	32	54	59	47	39	40
36	34	33	55	61	48	41	42
38	35	34	59	62	50	42	43
40	36	35	60	64	51	43	44
42	37	35	61	65	52	44	46
44	38	36	63	67	53	45	47
46	39	36	64	68	54	45	48
48	40	37	65	69	55	46	49
50	41	37	66	70	56	47	50
52	41	38	67	71	57	47	50
54	42	38	68	72	58	48	51
56	42	39	69	73	59	49	52
58	43	39	70	74	61	50	54
60	44	40	70	75	62	53	57
62	45	41	70	76	63	55	60
64	46	41	71	77	63	58	63
66	46	41	71	77	64	60	66

Individual temperatures recorded on the unexposed surface of Specimen C and adjacent to Specimen C

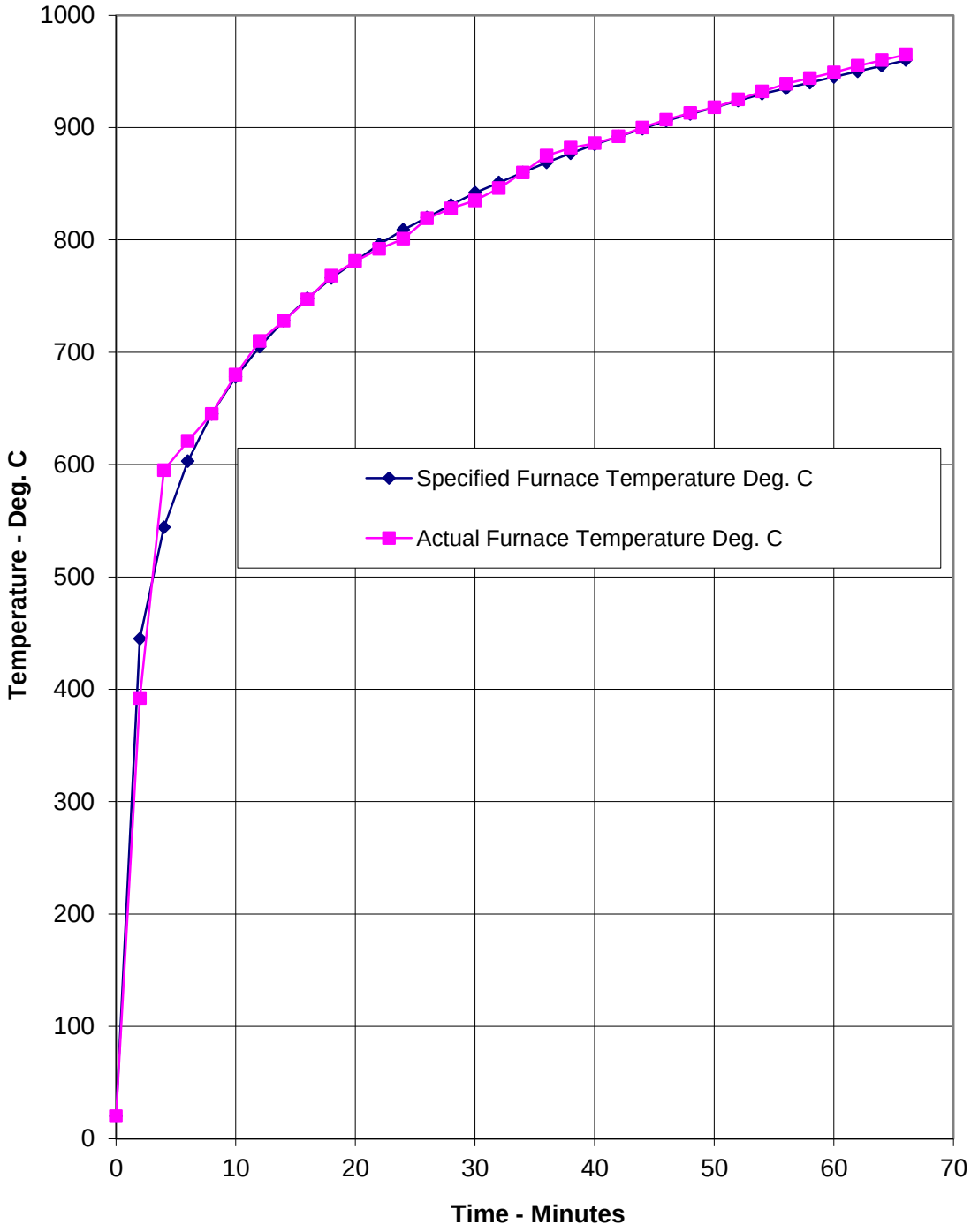
Time Minutes	T/C Number 24 Deg. C	T/C Number 25 Deg. C	T/C Number 26 Deg. C	T/C Number 27 Deg. C	T/C Number 28 Deg. C	T/C Number 29 Deg. C	T/C Number 30 Deg. C
0	25	25	31	26	31	33	25
2	25	25	*	26	31	33	25
4	25	25	*	26	30	33	25
6	25	25	*	26	31	33	25
8	26	26	*	27	30	33	25
10	26	26	*	27	30	33	25
12	26	26	*	27	30	33	25
14	26	26	*	27	30	32	26
16	26	26	*	28	29	32	26
18	26	26	*	28	29	32	26
20	26	26	*	28	29	32	26
22	26	27	*	28	29	31	26
24	26	27	*	28	*	31	26
26	27	27	*	28	*	21	26
28	27	28	*	28	*	30	27
30	27	29	*	29	*	30	27
32	27	32	*	29	*	29	27
34	27	36	*	30	*	28	28
36	28	39	*	31	*	28	28
38	28	43	*	31	*	*	28
40	28	46	*	32	*	*	29
42	28	48	*	32	*	*	29
44	29	51	*	34	*	*	30
46	30	53	*	35	*	*	30
48	30	55	*	36	*	*	31
50	31	57	*	37	*	*	31
52	31	59	*	38	*	*	32
54	32	60	*	39	*	*	32
56	32	61	*	39	*	*	33
58	33	62	*	39	*	*	33
60	33	63	*	40	*	*	34
62	34	64	*	41	*	*	34
64	35	66	*	41	*	*	35
66	35	66	*	41	*	*	35

*Thermocouple malfunction

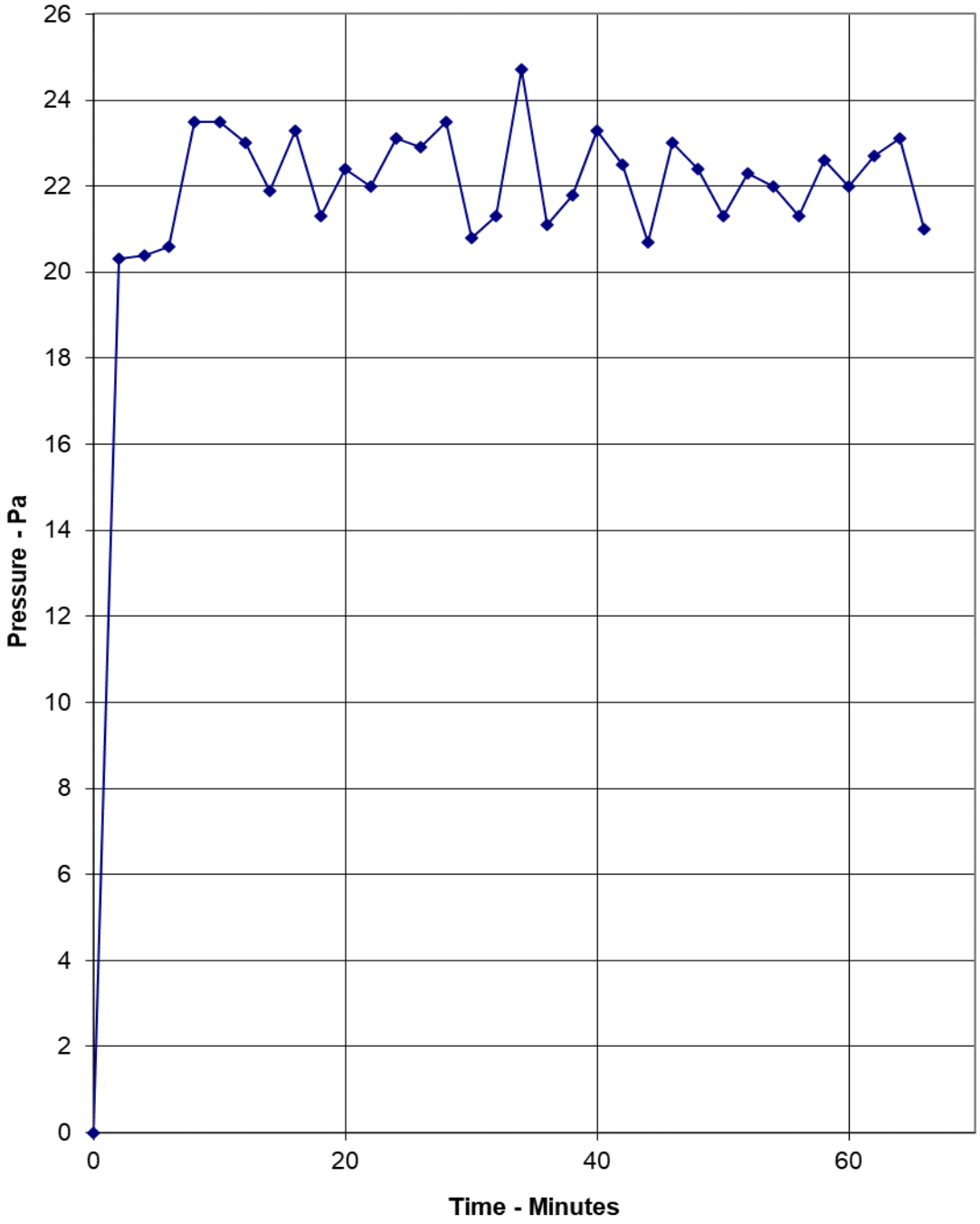
Individual temperatures recorded on the unexposed surface of Specimen D and adjacent to Specimen D

Time Minutes	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	T/C Number 36 Deg. C	T/C Number 37 Deg. C
0	23	23	24	24	23	24	24
2	24	23	24	24	23	24	24
4	24	24	24	24	23	24	24
6	24	23	25	24	23	24	24
8	24	24	25	24	23	25	24
10	24	24	25	24	24	25	24
12	24	24	25	25	24	25	24
14	24	24	26	25	24	25	25
16	24	24	26	24	24	25	24
18	24	24	26	24	24	25	25
20	24	24	26	24	24	25	25
22	24	24	26	25	24	25	25
24	24	24	26	25	24	25	25
26	24	24	26	25	24	25	25
28	24	24	25	25	24	25	25
30	24	24	25	25	24	25	25
32	24	24	25	25	24	25	25
34	24	24	25	25	25	25	25
36	24	24	26	25	25	25	25
38	24	24	26	25	25	25	25
40	24	24	26	25	25	25	25
42	24	24	26	26	25	25	25
44	25	24	26	26	26	25	26
46	25	25	26	26	26	26	26
48	25	25	27	27	27	26	26
50	25	26	27	27	27	26	27
52	25	25	27	27	27	26	26
54	25	25	28	27	27	26	26
56	25	25	28	28	27	27	27
58	25	26	28	28	27	27	27
60	25	26	29	28	27	27	27
62	26	26	29	28	28	27	27
64	26	26	30	29	28	27	27
66	26	26	31	29	28	27	27

Graph showing mean furnace temperature, together with the temperature/time relationship specified in BS EN 1366-4: 2021



Graph showing recorded furnace pressure 100mm above the head of the wall specimens



On-going Implications

Limitations

The results relate only to the behaviour of the specimens 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.

The results may not be applicable to situations where the joint widths, sealant depths, orientations, supporting construction and backing material vary from those tested.

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 report supersedes report referenced 545647 Issue 2 Issued on the 11 December 2024.

EGOLF

Certain aspects of some fire test specifications are open to different interpretations. EGOLF has 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

Note: The field of direct application may only be defined following the identification of classification(s). The field of direct and, where applicable, extended application will be included in the classification report.