Fire resistance test report

Issuing laboratory:	Warringtonfire Testing and Certification Limited
Test standard:	BS EN 1364-1:2015
Test sponsor:	Lancaster Insulation 34 Port Royal Lune Industrial Estate Lancaster LA1 5QP
Product:	Asymmetrical, Non-Loadbearing, Partition Wall Assembly
Report number:	553053/R
Test date:	14 July 2025
Issue:	1

Registered Laboratory:
Warringtonfire
Holmesfield Road
Warrington
Cheshire
WA1 2DS
United Kingdom

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

0249

Approved Body Number 0833

Summary of Tested Specimen

The fire barrier curtain assembly had overall nominal dimensions of 3000mm in width and 3035mm in height fixed to the concrete lining on the top, bottom, and left (from unexposed face) of the test frame using galvanised angle and strap while leaving one vertical edge unstrained. The 0.3 mm thick fire barrier curtain referenced as “Flame shield 60-super light” comprised of Glass cloth with a special finish. The curtain assembly incorporated two joints at 1000mm centres. The curtain sheets were folded and stapled together using 73 mm x 8 mm staples in two rows along the fold. The 1st row at 500 mm centres and the 2nd row as 100 mm centres.

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.

Test Results

Integrity

It is required that the specimen retains its separating function, without:

- causing ignition of a cotton pad when applied
- permitting the penetration of a gap gauge as specified in BS EN 1363-1: 2020
- sustained flaming on the unexposed surface

These requirements were satisfied for the periods shown below:

Sustained flaming	83 minutes	Failure
Gap gauge	83 minutes	Visual 6mm & 25mm
Cotton pad	28 minutes	Ignited

Insulation

The specimen was of an uninsulated assembly; therefore it was not assessed for insulation criteria at the request of the test sponsor.

Radiation

BS EN 1363-2: 1999 requires that the time for the measured radiation to exceed 5, 10, 15, 20 and 25 kW/m^2 is reported.

5 kW/m^2	10 kW/m^2	15 kW/m^2	20 kW/m^2	25 kW/m^2
0 minutes	10 minutes	22 minutes	36 minutes	45 minutes

*Test was discontinued after a period of 85 minutes.

Date of Test

14 July 2025

Location of Test

Element Materials Technology, 722 Birchwood Park, Warrington WA3 6FW, United Kingdom

Quality Management

Issue No: 1		Issue Date: 08 August 2025	
Responsible Officer:	**Lewis Doyle*** Technical Officer	Approved By:	**Kane Brennan*** Report Co-ordinator
			

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

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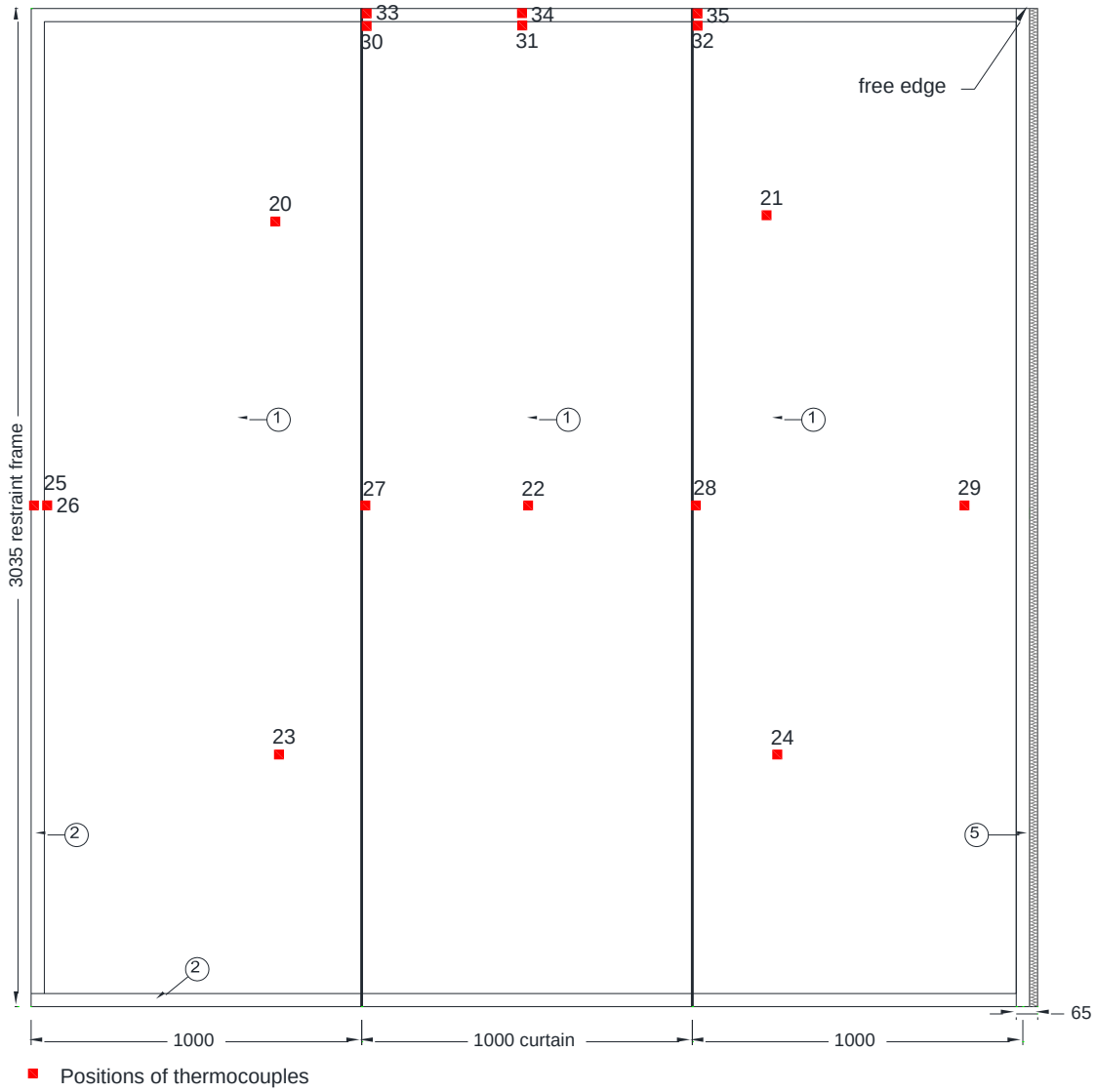
Test Conditions

Standard	In accordance with BS EN 1364-1:2015 Fire resistance tests for non-loadbearing elements - Part 1: Walls.
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 specimen was received on the 10 July 2025 and installed into a refractory concrete lined steel restraint frame, with one vertical edge unrestrained, by representative of the **Test Sponsor** between 10 July 2025 and 11 July 2025.
Specimen Direction	Tested specimen was **asymmetrical**. The **Test Sponsor** defined the direction in which the specimen was tested, and it is shown in the test specimen drawings section of this report.
Conditioning	The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of 5 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 25.6^{o}C to 25.8^{o}C and 33.5% to 56.0% respectively.
Instruction to Test	The test was conducted on the 14 July 2025 at the request of Lancaster Insulation, the **Test Sponsor**. Mr. B. Whitaker, a representative of the **Test Sponsor**, witnessed the test.
Ambient Temperature	The ambient air temperature in the vicinity of the test construction was 28ºC at the start of the test with a maximum variation of +6ºC during the test.
Furnace	The furnace was controlled so that its mean temperature complied with the requirements of BS EN 1363-1: 2020 Clause 5.1 using nine plate thermometers, distributed over a plane 100 mm from the surface of the 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 Figure 1.
Radiation	A water-cooled foil heat-flux meter was used to record the heat radiation from the specimen. The heat flux meter was positioned at a distance of 1 metre from the centre of the specimen.
Furnace Pressure	After the first five minutes of testing and for the remainder of the test, the furnace atmospheric pressure was controlled so that it complied with the requirements of BS EN 1363-1: 2020, clause 5.2.1 The calculated pressure differential relative to the laboratory atmosphere at the top of the specimen was 20 (± 5) Pa between 5 and 10 minutes and 20 (± 3) Pa thereafter.

Test Specimen Drawings



GENERAL ELEVATION OF UNEXPOSED FACE
SHOWING THERMOCOUPLE POSITIONS

Figure 1. General Elevation of unexposed face showing thermocouple positions

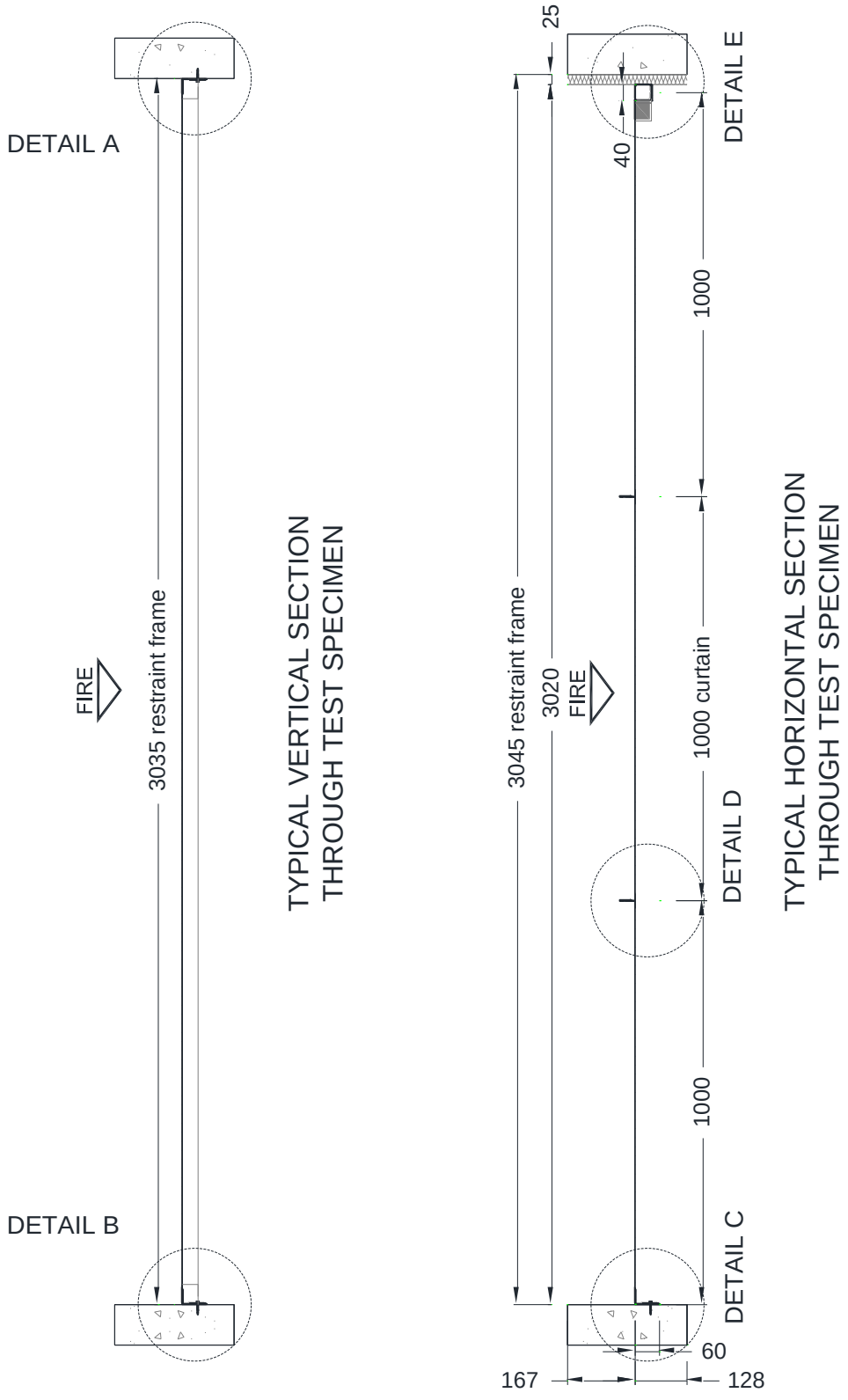


Figure 2. Typical vertical and horizonal section through test specimen

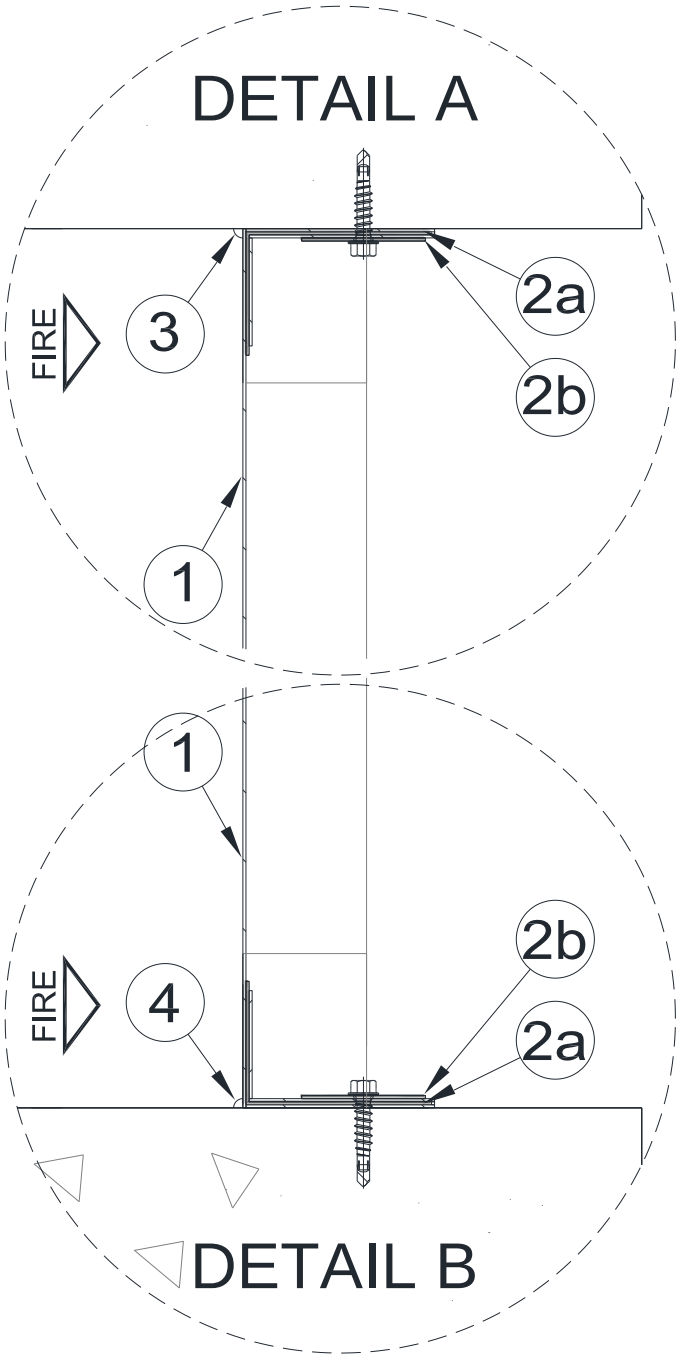


Figure 3. Detailed vertical section through test specimen (Details A & B)

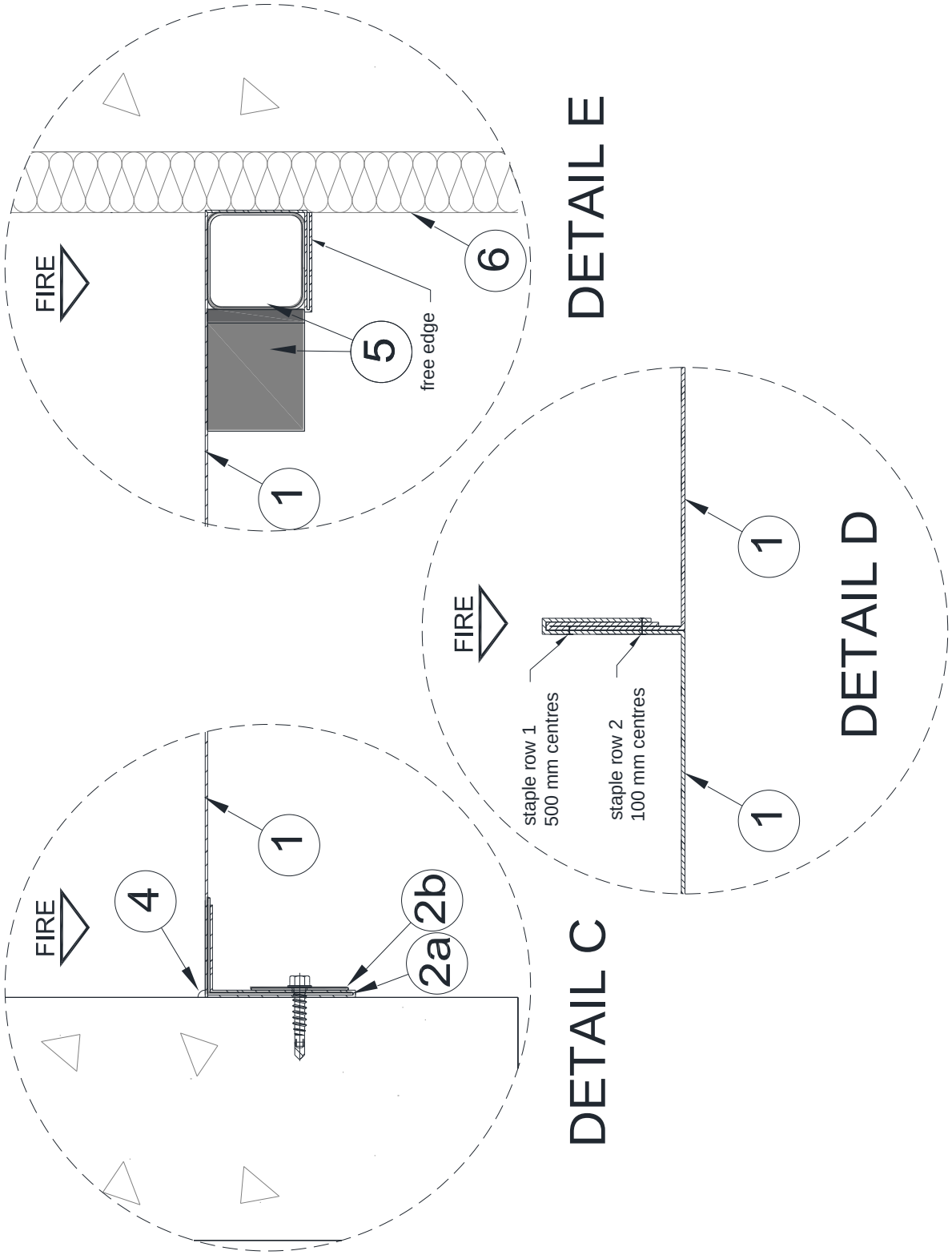


Figure 4. Detailed horizontal section through test specimen (Details C, D & E)

Schedule of Components

Table 1. details the schedule of components which describes the test specimen and lists the components used in the construction of the test specimen. These were provided by the test sponsor and surveyed by Warringtonfire.

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

Table 1. Schedule of components

1. Fire Barrier

1. Curtain	
Manufacturer	ARC Lancaster ltd.
Reference	Flame shield 60-super light
Material	Glass cloth with a special finish
Sample No.	
Thickness	0.3 mm
Overall size	3345 mm long x 1300 mm wide sections Cover: 3035 mm long x 1000 mm wide
Fixing Method	Held in position by screw fixed to the frame see fig 2,3,4
	Sheets are folded and stapled together as shown in fig 5 2 rows, 30 mm apart off 8 mm staples row 1 at 500 mm centres and row 2 at 100 mm centres.
Fixings	
i. type	Staples
ii. size	73 mm long x 8 mm leg length
iii. centres	Row 1: 500 mm Row 2: 100 mm Staple rows: 30 mm apart

2. Steel Profiles

2. Galvanised angle	
Manufacturer	Anglo metal forming ltd
Reference	Galv angle and strap
Material	Galvanised steel
Thickness	0.8 mm
Overall sizes	

a. Steel Angle	1400/1500/550 mm long (nominal) x 40 mm wide x 60 mm deep
b. Strap	1400/1500/550 mm long (nominal) x 40 mm wide
Fixing Method	Curtains fixed to restraint frame (on top, bottom, and left (from unexposed face) with galvanised angle and strap. Curtains pinned to restraint frame with the steel angle, perimeter fabric folded over on itself and pinned using the strap. M6 bolts secure and through fix all to the fame at 300 mm centres. Perimeter and galvanised angle lengths are nominal, overlapping (nominal 300 mm) this is for due to the logistical difficulty of pinning the curtain - can only be pinned to frame in sections. The right side (from unexposed view) the curtain is folded over the free edge Unistrut bar and folded over twice, it is 'pinned down, but friction of the ceramic mineral wool, creating the free edge.
Fixings (to frame)	
i. type	M6 Anchor Bolt Hex Flange Head BZP
ii. size	M6 x 75 mm long
iii. centres	300 mm

3. Fire Stopping

3. Sealant	
Manufacturer	OB1
Reference	HeatProtect Instant Fire Cement
Material	Solvent-free instant fire cement
Application method	Cartridge gunned to any imperfections on the top perimeter of frame and fixings on the heat exposed face
4. Sealant	
Manufacturer	Supplier N & M Fibreglass Ltd
Reference	Fireproof sealant adhesive
Material	Adhesive sealant
Application method	Cartridge gunned to any imperfections on the fixed vertical perimeter of the frame and fixings on the heat exposed face and over the staples

4. Free edge bar and cleat

5. Slotted Channel Pre-Galv Edge Bar	
Manufacturer	Strut FIX
Reference	Strut FIX Slotted Channel Pre-Galv BS 69461988
Material	Galvanised steel

Thickness	2 mm
Overall sizes	2995 mm long x 40 mm wide x 40 mm deep
Fixing Method	Through fixed to furnace frame with 2 cleats at top and bottom.
Details of Cleat	
Material	Mild Steel
Thickness	5.5 mm
Overall sizes	50 mm long x 50 mm wide x 40 mm deep
Fixings (to frame)	
i. type	M6 Anchor Bolt Hex Flange Head BZP
ii. size	M6 x 75 mm long
iii. centres	3 per cleat mm

5. Supporting Construction – (Supplied by Warringtonfire)

6. Alkaline Earth Silicate Fibre Based Insulation	
Manufacturer	Morgan Advanced Materials
Reference	Superwool Plus
Material	High temperature insulation wool
Thickness	50 mm, uncompressed
Density	96 kg/m^3 (stated)
Fixing Method	Compressed within the gap between the specimen frame

Test Observations

Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	
00	00	**The test commences.**
00	20	Curtain discoloured to a brown colour. Steam/smoke release from the face of the unexposed surface.
01	20	Thermocouples detaching (numerous).
02	50	Thermocouples continuing to detach.
03	40	Curtain now fully discoloured to brown colour.
09	30	Cotton pad applied to top right quadrant next thermocouple 21, no failure.
16	00	Cotton pad applied to previous positions, no failure.
22	00	Cotton pad applied above thermocouple 20 positions, no failure.
28	50	**Cotton pad applied above thermocouple 20 position. Cotton pad ignited therefore Cotton pad integrity failed is deemed to have occurred.**
40	00	Gap developed between Unistrut and free-edge.
47	00	Rad removed due to 25kW exceeded.
52	00	Gap continuing to open on free-edge. Gap with 150mm therefore failure has not occurred as per standard.
55	50	Flicker of flame at the head of specimen between flashing and curtain.
57	50	Gap between Unistrut and free-edge still within 150mm.
59	10	Deflections discontinued due to health and safety concerns.
66	30	Gap between Unistrut and free-edge within 150mm.
68	00	Curtain has now ripped on free edge.
80	00	Glowing severe at the head and flashing visibly deflecting.
83	00	**6mm and 25mm visual gap gauge failure at the head in the area of glowing and sustained flaming is visible. 6mm and 25mm gap gauge and sustained flaming integrity failures are deemed to have occurred.**
85	00	**Curtain collapsed and test stopped due to integrity failure.**

Test Photographs

The exposed face of the wall assembly prior to testing

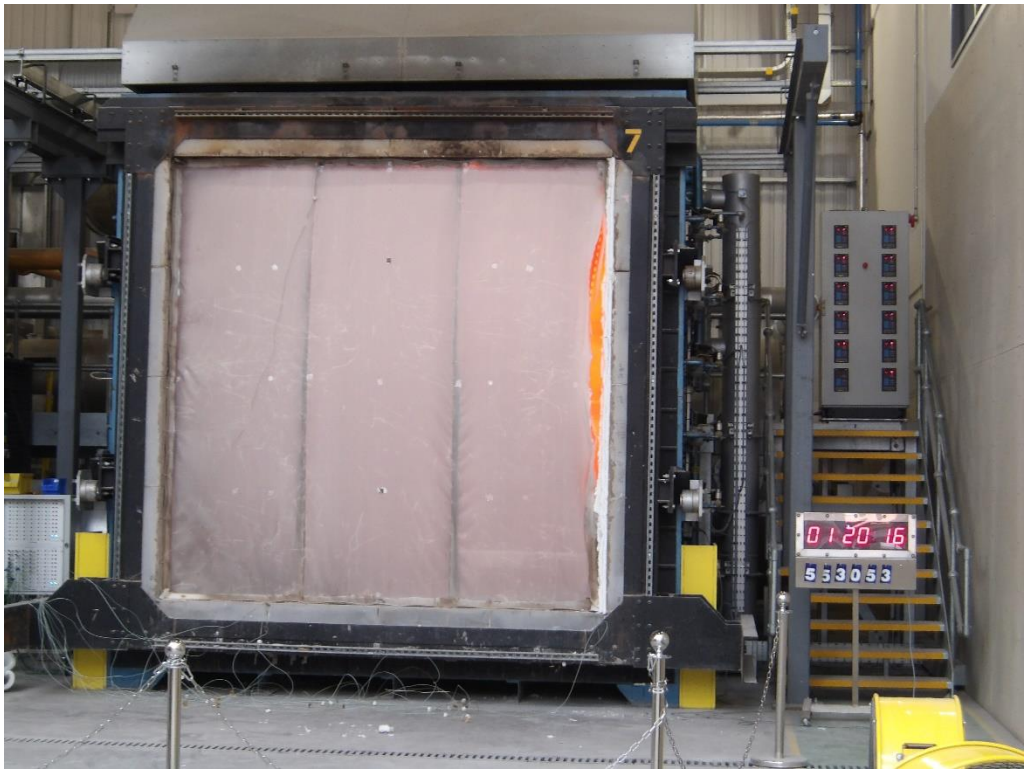
The unexposed face of the wall assembly prior to the start of the test

The unexposed face of the wall assembly after a test duration of 15 minutes

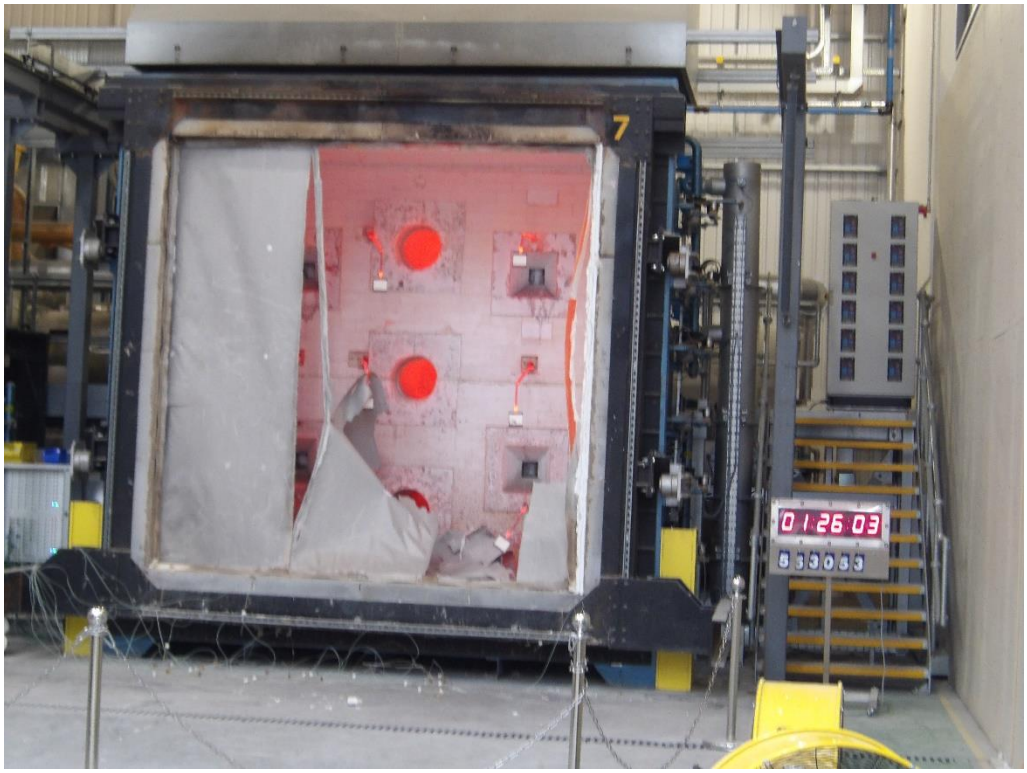
The unexposed face of the wall assembly after a test duration of 30 minutes

The unexposed face of the wall assembly after a test duration of 63 minutes

The unexposed face of the wall assembly after a test duration of 80 minutes



The unexposed face of the wall assembly at the test was discontinued



Test Data

Mean furnace temperature, together with the temperature/time relationship specified in BS EN 1363-1: 2020

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	20
3	502	544
6	603	588
9	663	648
12	705	697
15	739	735
18	766	756
21	789	785
24	809	807
27	826	825
30	842	835
33	856	855
36	869	865
39	881	874
42	892	891
45	902	901
48	912	908
51	921	916
54	930	928
57	938	936
60	945	940
63	953	946
66	960	954
69	966	963
72	973	967
75	979	970
78	985	982
81	990	987
84	996	989
85	997	990

Individual and mean temperatures recorded on the unexposed surface of the specimen

Time Mins	T/C Number 20 Deg. C	T/C Number 21 Deg. C	T/C Number 22 Deg. C	T/C Number 23 Deg. C	T/C Number 24 Deg. C	Mean Temp Deg. C
0	26	26	26	26	26	26
1	259	254	279	235	238	253
3	*	*	*	*	*	*
6	*	*	*	*	*	*
9	*	*	*	*	*	*
12	*	*	*	*	*	*
15	*	*	*	*	*	*
18	*	*	*	*	*	*
21	*	*	*	*	*	*
24	*	*	*	*	*	*
27	*	*	*	*	*	*
30	*	*	*	*	*	*
33	*	*	*	*	*	*
36	*	*	*	*	*	*
39	*	*	*	*	*	*
42	*	*	*	*	*	*
45	*	*	*	*	*	*
48	*	*	*	*	*	*
51	*	*	*	*	*	*
54	*	*	*	*	*	*
57	*	*	*	*	*	*
60	*	*	*	*	*	*
63	*	*	*	*	*	*
66	*	*	*	*	*	*
69	*	*	*	*	*	*
72	*	*	*	*	*	*
75	*	*	*	*	*	*
78	*	*	*	*	*	*
81	*	*	*	*	*	*
84	*	*	*	*	*	*
85	*	*	*	*	*	*

* Indicates Thermocouple Malfunction/Detached

Individual temperatures recorded on the unexposed surface of the specimen

Time Mins	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	26	26	26	26	26	26
3	68	170	162	180	191	261
6	105	*	*	*	*	*
9	132	*	*	*	*	*
12	156	*	*	*	*	*
15	179	*	*	*	*	*
18	204	*	*	*	*	*
21	225	*	*	*	*	*
24	241	*	*	*	*	*
27	261	*	*	*	*	*
30	276	*	*	*	*	*
33	*	*	*	*	*	*
36	*	*	*	*	*	*
39	*	*	*	*	*	*
42	*	*	*	*	*	*
45	*	*	*	*	*	*
48	*	*	*	*	*	*
51	*	*	*	*	*	*
54	*	*	*	*	*	*
57	*	*	*	*	*	*
60	*	*	*	*	*	*
63	*	*	*	*	*	*
66	*	*	*	*	*	*
69	*	*	*	*	*	*
72	*	*	*	*	*	*
75	*	*	*	*	*	*
78	*	*	*	*	*	*
81	*	*	*	*	*	*
84	*	*	*	*	*	*
85	*	*	*	*	*	*

* Indicates Thermocouple Malfunction/Detached

Individual temperatures recorded on the unexposed surface of the specimen

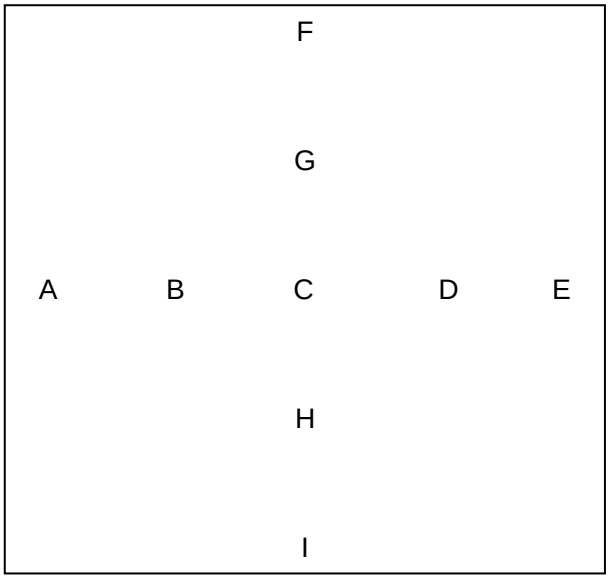
Time Mins	T/C Number 31 Deg. C	T/C Number 32 Deg. C	T/C Number 33 Deg. C	T/C Number 34 Deg. C	T/C Number 35 Deg. C
0	26	26	26	26	26
3	257	267	145	135	138
6	*	157	206	190	184
9	*	170	249	225	222
12	*	197	292	260	260
15	*	219	328	296	290
18	*	235	365	272	317
21	*	255	397	*	346
24	*	269	413	*	377
27	*	285	434	*	414
30	*	293	450	*	438
33	*	305	454	*	470
36	*	315	459	*	472
39	*	324	466	*	470
42	*	336	483	*	488
45	*	352	494	*	510
48	*	353	502	*	526
51	*	351	511	*	536
54	*	357	520	*	558
57	*	360	526	*	577
60	*	350	531	*	589
63	*	350	537	*	602
66	*	351	543	*	604
69	*	355	551	*	599
72	*	358	555	*	606
75	*	360	558	*	614
78	*	367	564	*	662
81	*	*	570	*	*
84	*	*	583	*	*
85	*	*	590	*	*

* Indicates Thermocouple Malfunction/Detached

Recorded heat radiation intensity from the specimen

Time Mins	Radiation Intensity kW/m^2
0	0.000
1	6.015
3	5.733
6	7.013
9	8.732
10	9.397
11	10.096
12	10.030
15	12.103
18	12.695
21	14.462
22	14.290
23	15.176
24	16.056
27	17.243
30	17.996
33	19.647
36	19.868
37	20.419
39	20.863
42	22.71
45	24.451
46	25.768

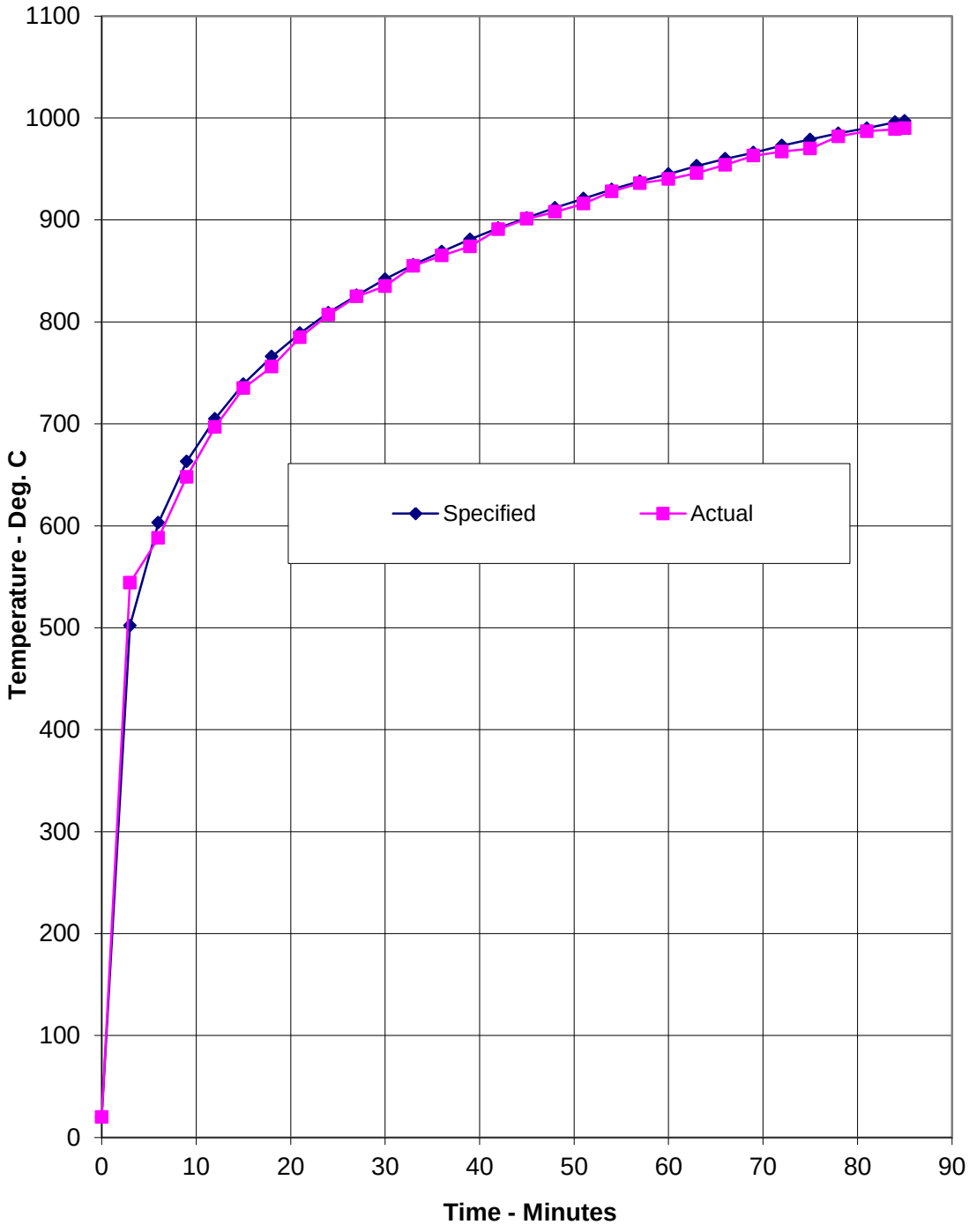
Deflection of the specimen during the test



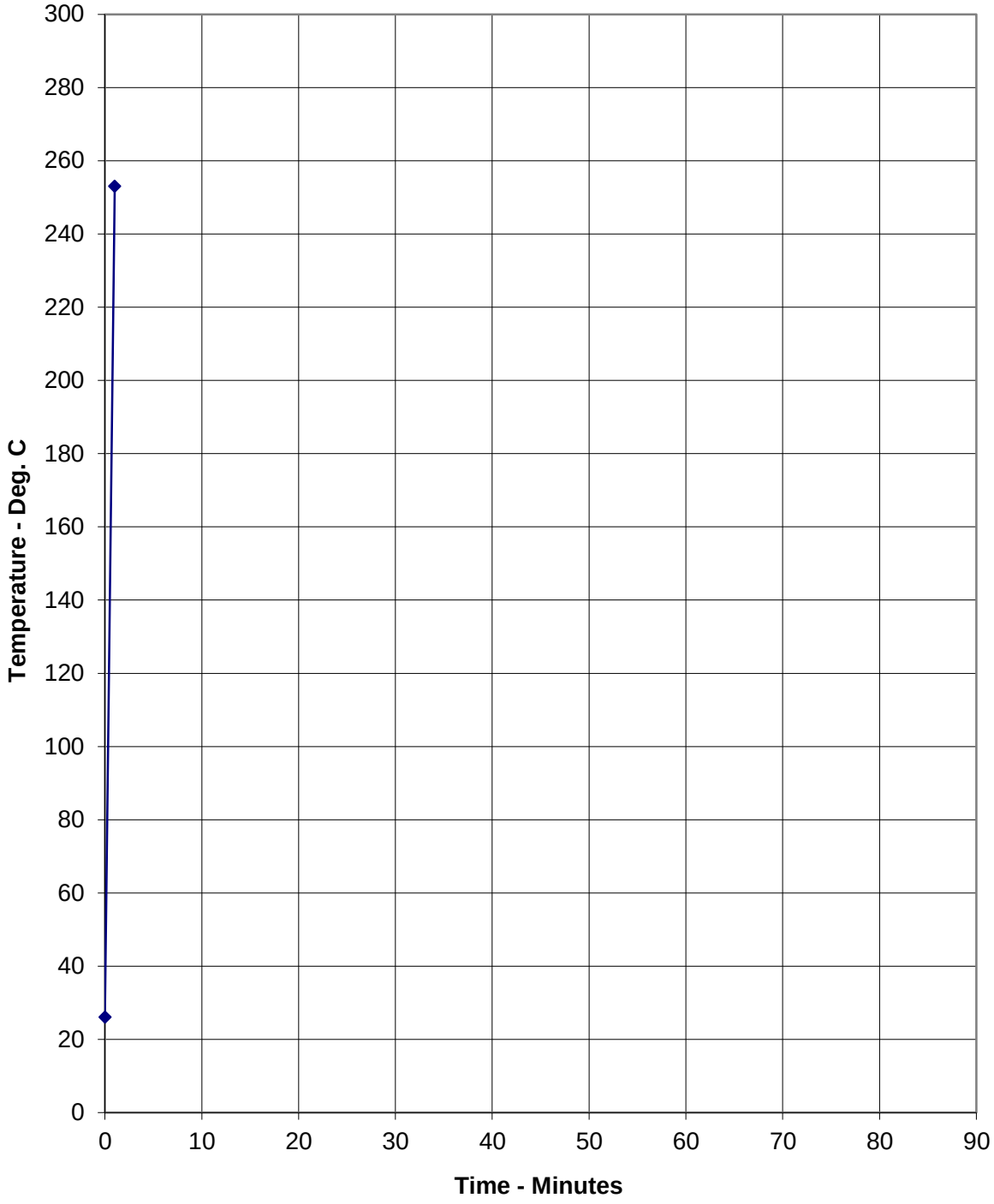
TIME mins	A	B	C	D	E	F	G	H	I
0	0	0	0	0	0	0	0	0	0
1	-3	-28	-37	-13	-11	-16	-48	32	7
10	-22	-58	-54	-49	-15	-12	-27	-17	8
20	-22	-40	-31	-36	-11	-17	35	-17	12
30	-26	-21	-29	-36	-9	-8	-7	-3	4
40	-2	-26	-25	-33	58	-4	-29	-13	17
50	-17	-40	-68	-64	-44	-16	-55	-17	3

Positive deflections indicate movement towards the furnace chamber

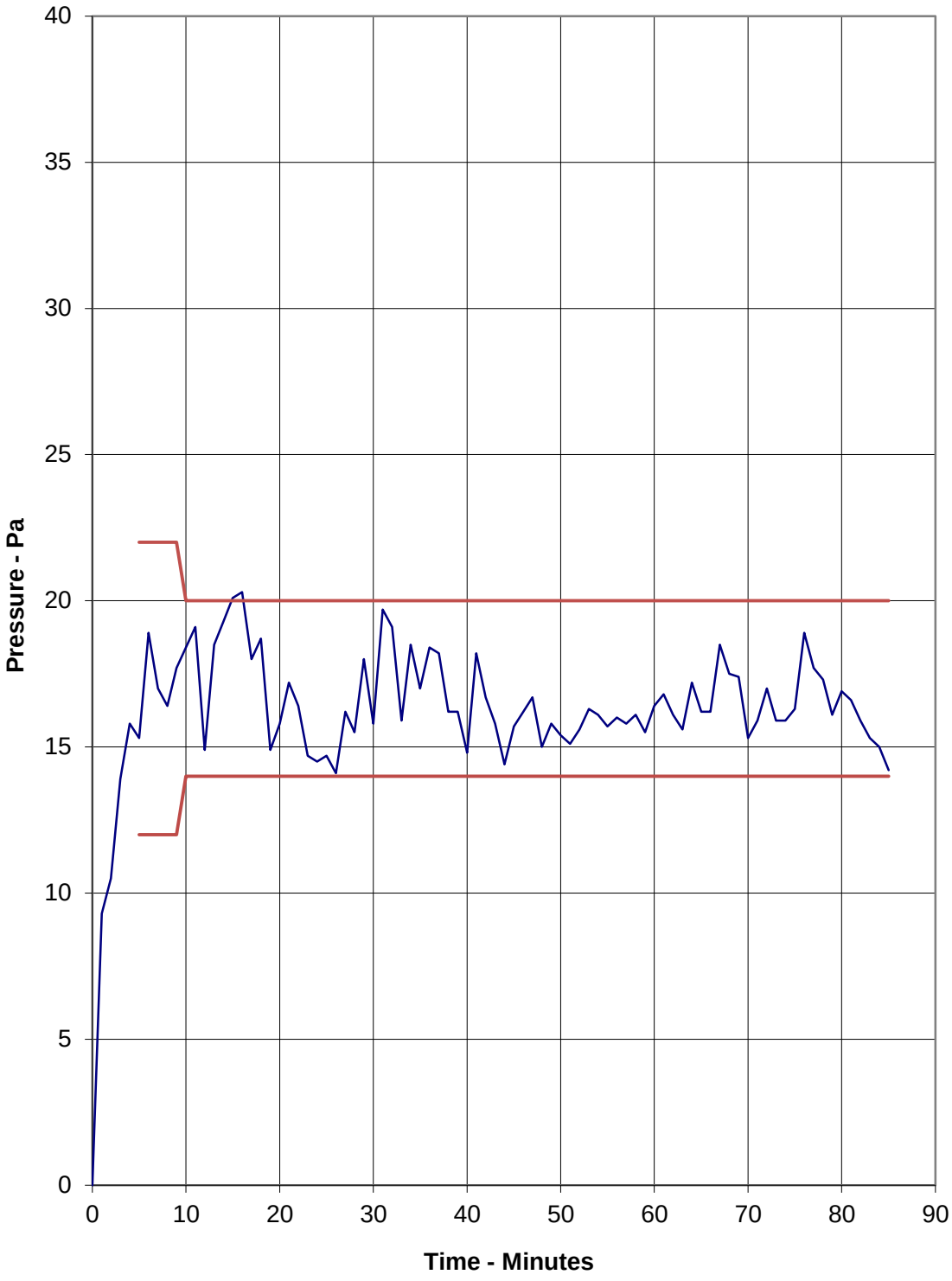
Graph showing mean furnace temperature, together with the temperature/time relationship specified in BS EN 1363-1: 2020



Graph showing mean temperature recorded on the unexposed surface of the specimen



Graph showing recorded furnace pressure 300 mm below the head of the wall assembly



On-going Implications

Validity

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

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

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

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

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 1364-1:2015, BS EN 1363-1:2020, 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.

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

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

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

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

The report is issued for the benefit of Warringtonfire's direct customer only and may not be relied upon by any third parties without Warringtonfire's express written consent.

Uncertainty of measurements

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.

EGOLF

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

020-2018 - Average temperature thermocouples moved away from stiffeners, joints, through components, features and hotspots
022-2018 - Discrete areas statement of insulation criteria
025-2018 - Procedures for temperature measurement in fire resistance tests
028-2018 - Disregarding unexposed thermocouples
031-2018 - Insulation test on glazing that break
050-2018 - Deduction of the insulation performance criteria
057rev1-2020 – Steel profiles on unexposed side & location of thermocouples
061-2021 - Harmonization of pressure measurement, processing and reporting
062-2022 V2 - Reporting test results

Revision history N/A

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.

Sample Report

Not applicable

warringtonfire
Proud to be part of element

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