



Test Report

The fire resistance performance of an Asymmetric Loadbearing Wall Assembly when tested in accordance with BS EN 1365-1:2012.

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Change History

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31/10/2025	A	AB	RG	Initial Issue

Signatories

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

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1 Executive Summary

1.1 Specimen Summary

The specimen had overall nominal dimensions of 3000 mm wide by 3000 mm high by 170 mm thick, comprising C24 timber stud frame with studs at 600 mm centres. The exposed face was lined with 10 mm thick Cladco Fibre cement construction board, and the unexposed face was lined with 15 mm thick Gyproc Fireline 15 Plasterboard. The stud bays were filled with 140 mm thick Rockwool Flexislab insulation.

1.2 Specimen Verification

United Kingdom Testing and Certification carried out a comprehensive survey to verify the information provided by the Test Sponsor. This included verifying the materials, dimensions, and manufacturing methodologies of the test specimens wherever possible. Refer to page 11 for full details of this survey.

1.3 Specimen Installation and Fixity

The Specimen was installed into the test construction by United Kingdom Testing and Certification, with both vertical edges unrestrained and the horizontal edges restrained as described in 2 and 3.

1.4 Specimen Conditioning

The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of three days. Throughout this period, both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 12.4 °C to 13.1 °C and 71.0 % to 81.7% respectively.

1.5 Instruction to Test

The test was conducted on 15 October 2025 at the request of the Test Sponsor. The test was remotely witnessed by a representative from Cladco Profiles.

1.6 Sampling

United Kingdom Testing and Certification were not involved in the sampling or selection of the test specimen or any of the components. The results obtained during the test apply to the specimens as received and tested by United Kingdom Testing and Certification.

1.7 Expression of Results

Summary of results per the criterion specified in BS EN 1365-1:2012 § 11 for each specimen is presented in the table below. A detailed breakdown of the results for each specimen is contained within Section 7 on Page 30.

Load Bearing Capacity			
Maximum vertical contraction		The maximum permissible axial contraction for the specimen was calculated as 30 mm. The specimen satisfied this criterion for 90 minutes. *	
Maximum rate of vertical contraction		The maximum permissible rate of axial contraction for the specimen was calculated as 9 mm/ min. The specimen satisfied this criterion for 90 minutes. *	
Integrity		Insulation	Radiation
Sustained Flaming	65 minutes	64 minutes	90 minutes*
Gap Gauge	90 minutes*		
Cotton Pad	64 minutes		

*The test was discontinued after a period of 90 minutes

2 Test Specimen Drawings

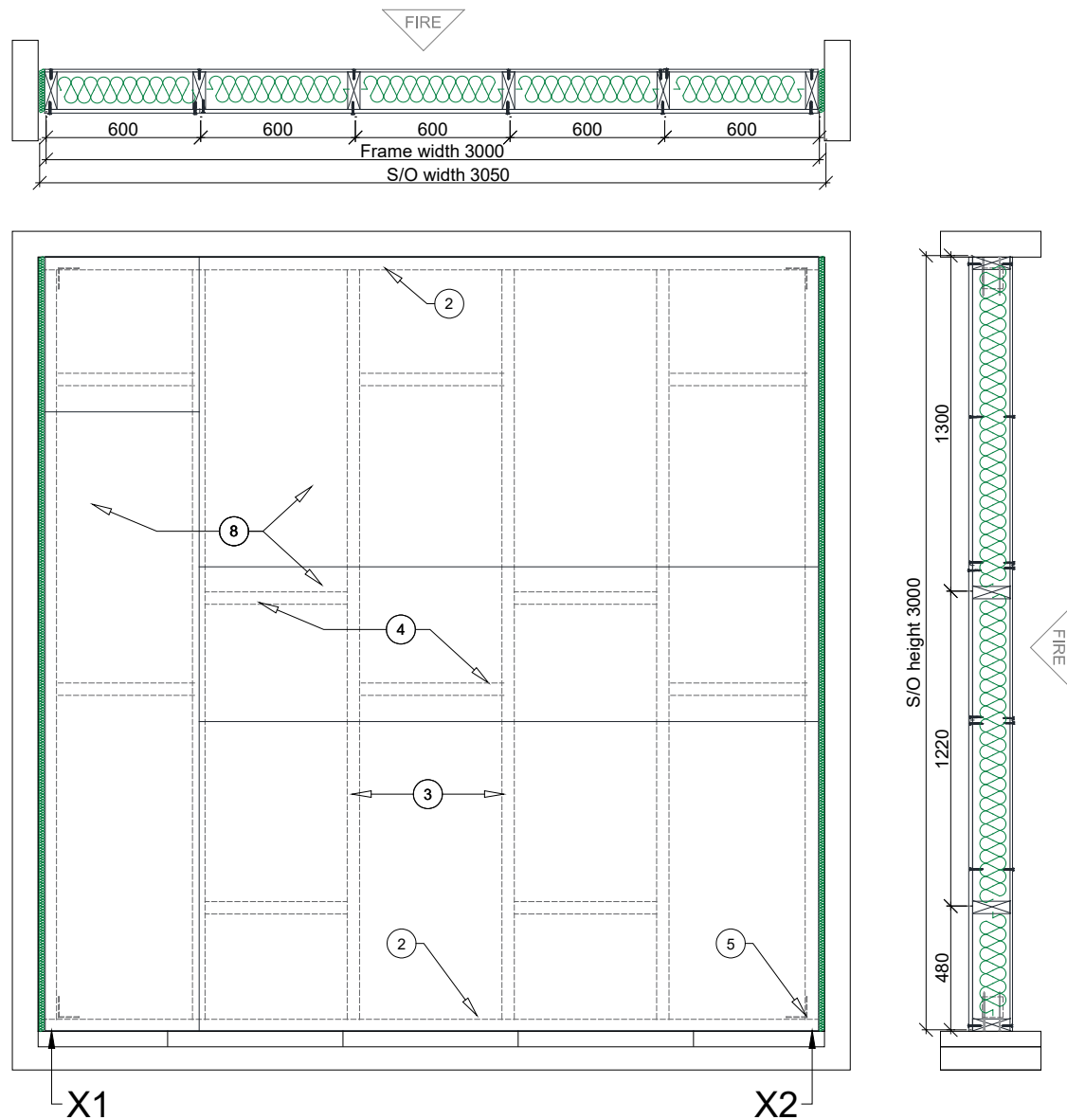


Figure 1 - General arrangement of test construction viewed from the unexposed surface

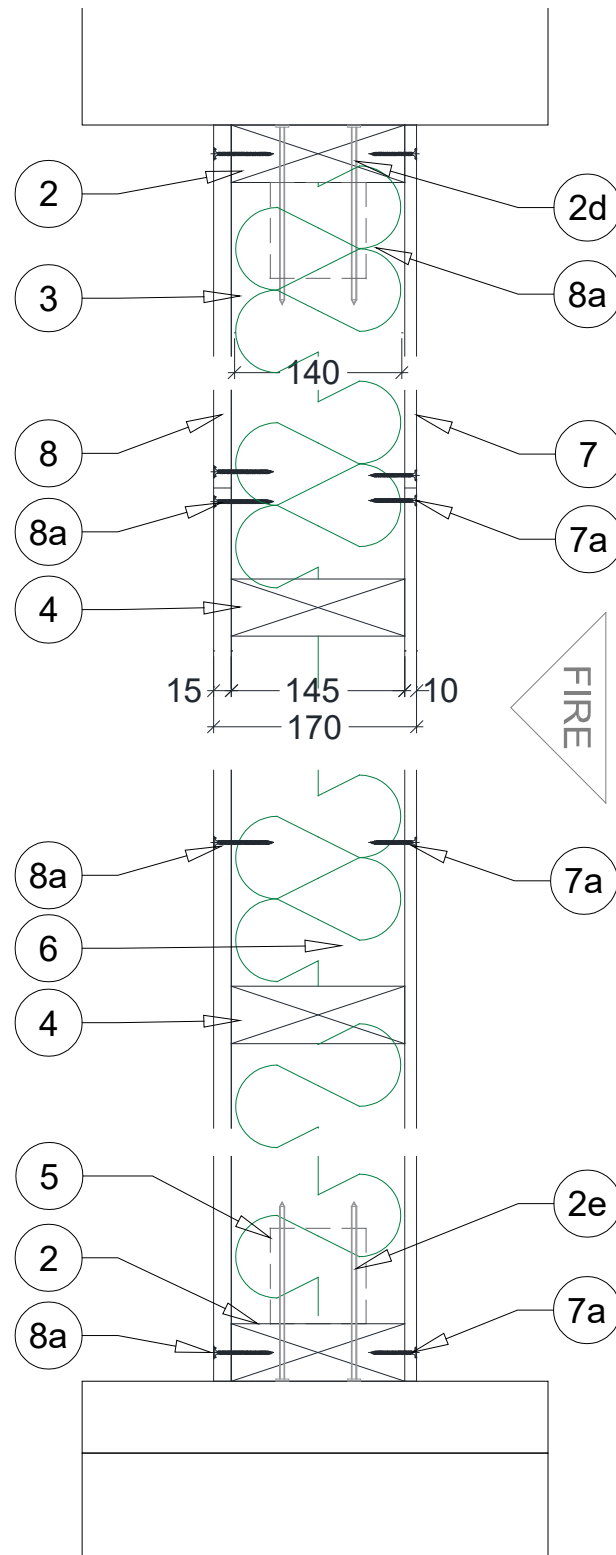


Figure 2 - Typical vertical section through the specimen

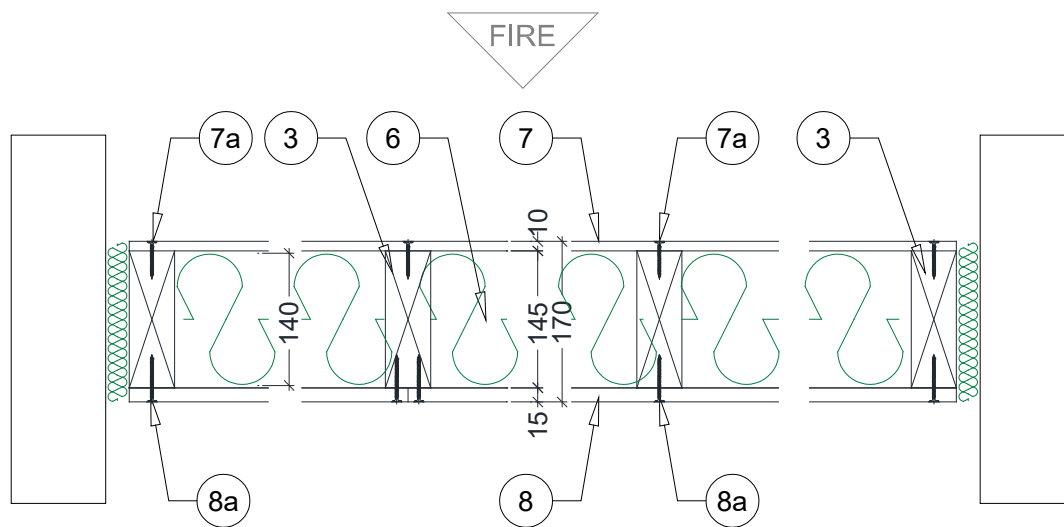


Figure 3 - Typical horizontal section through the specimen

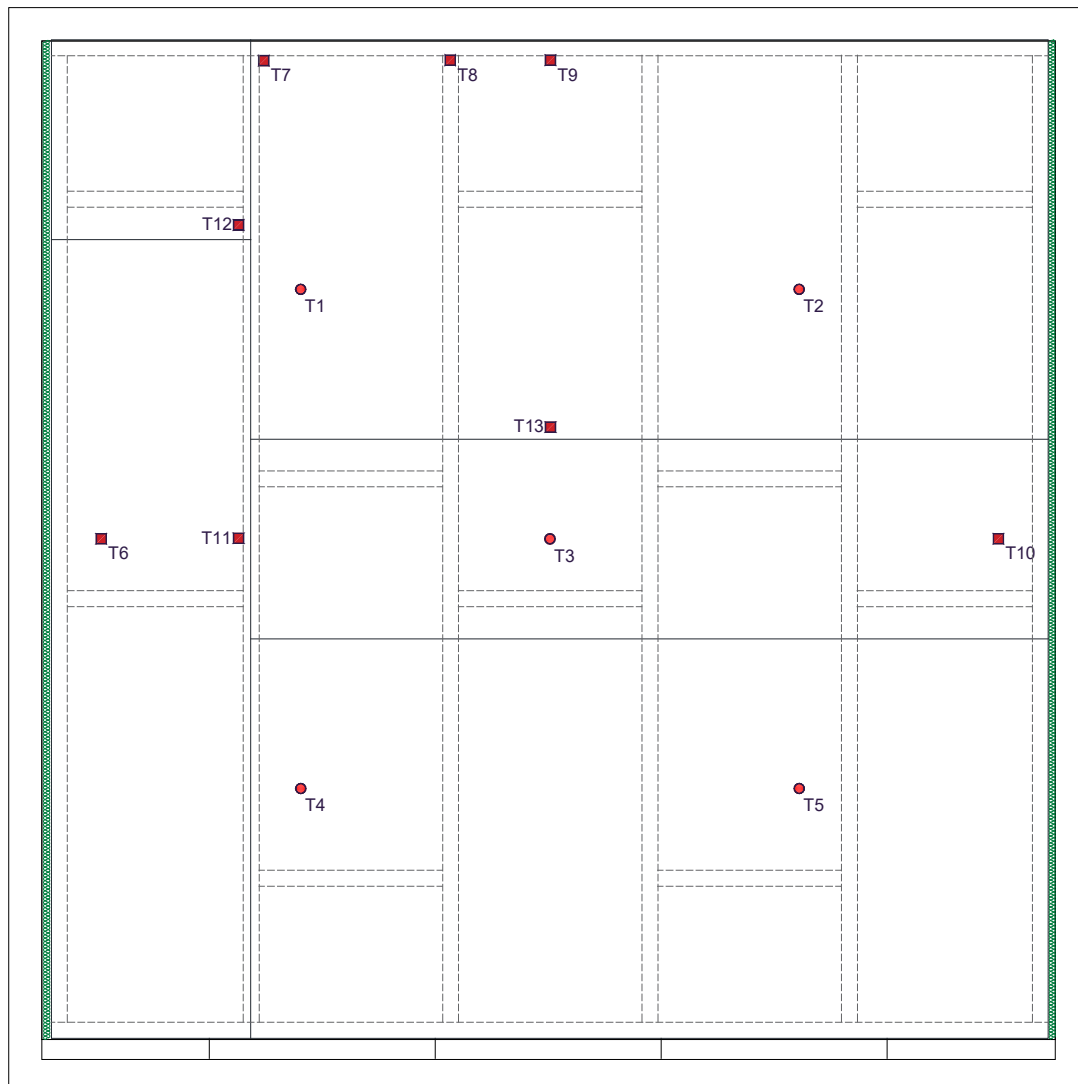


Figure 4 - Layout of instrumentation viewed from the unexposed surface of the test construction

3 Technical Schedule

3.1 Specimen

1. Specimen Overview	
System reference (N/A if no reference)	N/A
Overall Size (mm)	3000 mm long x 3000 mm high x 170 mm depth
2. Head/ Floor Track	
Manufacturer	Sodra Timber ¹
a. Reference	
i. Head Track	C24 Carcassing Timber Joist ¹
ii. Base Track	C24 Carcassing Timer Joist ¹
b. Type	
i. Head Track	C24 green treated timber ¹
ii. Base Track	C24 green treated timber ¹
Material	C24 timber ¹
Density (include tolerances)	420 kg/ m ³ ¹
c. Dimensions (mm)	
i. Head Track	3000 mm long x 145 mm deep x 48 mm thick
ii. Floor Track	3000 mm long x 145 mm deep x 48 mm thick
d. Fixing to Head Track	
i. Manufacturer	John George ¹
ii. Reference	Impact Wood Screws ¹
iii. Material	Hardened Steel ¹
iv. Dimension	Ø 6.0 mm x 150 mm long ¹
v. Location	Through top of joist
vi. Frequency	600 mm centres
e. Fixing to Base Track	

i. Manufacturer	John George ¹
ii. Reference	Impact Wood Screws ¹
iii. Material	Hardened Steel ¹
iv. Dimension	Ø 6.0 mm x 150 mm long ¹
v. Location	Through top of joist
vi. Frequency	600 mm centres
3. Studs	
Manufacturer	Sodra Timber
Reference	C24 Carcassing Timber Joist ¹
Type (Stud Variation Type)	Timber ¹
Material	C24 green treated timber ¹
Density (include tolerance)	420 kg/ m ³ ¹
Dimensions (mm)	2904 mm long x 145 mm deep x 48 mm thick
Stud centres	600 mm
Fixing Method	Screws
a. Fixing(s)	
i. Manufacturer	John George ¹
ii. Reference	Impact Wood Screws ¹
iii. Material	Hardened Steel ¹
iv. Dimension	Ø 6.0 mm x 150 mm long ¹
v. Location	Through top of joist
vi. Frequency	600 mm centres
4. Noggins	
Manufacturer	Sodra Timber ¹
Reference	C24 Carcassing Timber Joist ¹
Type (Stud Variation Type)	Timber ¹
Material	C24 green treated timber ¹

Density (include tolerance)	420 kg/ m ³ ¹
Dimensions (mm)	4 No. 528 mm long x 145 mm deep x 48 mm thick 6 No. 552 mm long x 145 mm deep x 48 mm thick
Stud centres	1200 mm
Fixing Method	Screws
a. Fixing(s)	
i. Manufacturer	John George ¹
ii. Reference	Impact Wood Screws ¹
iii. Material	Hardened Steel ¹
iv. Dimension	Ø 6.0 mm x 150 mm long ¹
v. Location	Through both end of joist
vi. Frequency	1200 mm centres
5. Fixing Strap	
Manufacturer	Eliza Tinsley ¹
Reference	Sleeper Corner Bracket ¹
Material	Galvanised Steel ¹
Dimensions (mm)	80 mm long x 80 mm wide x 3 mm thick ¹
Location of fixing straps	Internal frame corners ¹
a. Fixing(s)	
i. Manufacturer	Q-Crimp ¹
ii. Reference	QWS10-15 ¹
iii. Material	Hardened Steel ¹
iv. Dimension	Ø 5 mm x 40 mm long ¹
v. Location	Internal frame corners ¹
vi. Frequency	In each of 4 internal corners (8/bracket) ¹
6. Wall Insulation	
Manufacturer	Rockwool ¹

Reference	Flexislab ¹
Material	Rockwool insulation ¹
Density (include tolerance)	10 kg/ m ³ ²
a. Dimensions	
i. Overall Size	1200 mm long x 600 mm wide ¹
ii. Thickness	140 mm thick ¹
Locations	Between studs ¹
Fixing Method	Friction Fitted
7. Lining – Exposed Face	
Manufacturer	Cladco Profiles ¹
Reference	Fibre Cement Construction Board ¹
Type & Material	Fibre Cement ¹
Density (include tolerance)	1.1 – 1.4 kg/ m ³ ²
Dimensions	2400 mm high x 1200 mm wide x 10 mm thick
Fixing Method	Screws
a. Fixing	
i. Manufacturer	Cladco Profiles ¹
ii. Reference	Fibre Cement Screws ¹
iii. Material	Ruspert Steel ¹
iv. Dimension	Ø 7 mm x 38 mm long
v. Location	On paperface of board
vi. Frequency	600 mm centres
b. Joint Filler	
i. Manufacturer	Cladco Profiles ¹
ii. Reference	Multi Purpose Adhesive ¹
iii. Material	Adhesive
iv. Application Method	Sealant Gun

8. Lining – Unexposed Face	
Manufacturer	British Gypsum ¹
Reference	Gyproc Fireline 15 ¹
Type & Material	Plasterboard ¹
Density (include tolerance)	760–846 kg/ m ³ ²
Dimensions	2400 mm high x 1200 mm wide x 15 mm thick
Fixing Method	Screws
a. Fixing(s)	
i. Manufacturer	Raptor ¹
ii. Reference	Drywall Screw ¹
iii. Material	Hardened Steel ¹
iv. Dimension	Ø 7 mm x 50 mm long
v. Location	600 mm centres, 300 mm around perimeter
b. Joint Tape	
i. Manufacturer	Gyproc ¹
ii. Reference	Fibatape Xtreme ¹
iii. Material	Joint Tape
iv. Application Method	Self adhesive
9. Sealant	
Manufacturer	Cladco Profiles ¹
Reference	Multi Purpose Adhesive ¹
Material	Adhesive ¹
Location(s)	Fibre Cement Construction Board joints
Application Method	Sealant Gun

3.2 Supporting construction

10. Free Edge Gasket	
Manufacturer	Knauf Insulation Ltd.
Reference	Rocksilk® RS45
Type & Material	Semi Rigid Insulation Slabs; Rock mineral wool
Dimensions	1200 mm high x 600 mm wide x 50 mm thick slab sections
Density	Nominal 45 kg/ m ³ - (tolerance -7.5% +15%)
Location	At the free edge of the supporting construction

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

1. Information provided by the Test Sponsor. Not verified by United Kingdom Testing and Certification.
2. Nominal value.
3. Information is commercial in confidence. Full details retained on file by United Kingdom Testing and Certification.

4 Specimen Photographs



Figure 5 – Item 2, 3



Figure 6 – Item 2, 7, 8



Figure 7 – Item 3, 7,8



Figure 8 – Item 7a

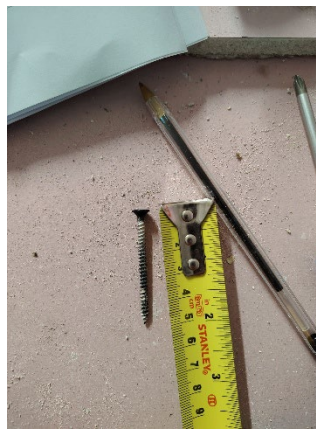


Figure 9 – Item 8a



Figure 10 – Item 3, 8



Figure 11- Item 7, 9



Figure 12 – Item 7, 9



Figure 13 – Item 8

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5 Test Procedure

5.1 Ambient Temperature

The ambient air temperature in the vicinity of the test construction was 18.3 °C at the start of the test with a maximum variation of ± 2.8 °C during the test.

5.2 Heating Conditions

The specimen was subject to heating conditions in accordance with BS EN 1363-1:2020 § 5.1. This was monitored and controlled for the duration of the test using type K thermocouples which were distributed across a vertical plane 100 ± 50 mm from the exposed surface of the test construction. The resulting Time-Temperature distribution is presented in Figure 24.

5.3 Pressure Conditions

The specimen was subject to a pressure regime in accordance with BS EN 1363-1:2020 § 5.2. The calculated pressure differential relative to the laboratory atmospheric pressure at a height of 365, 1612 and 2850 mm from the notional floor level was -1.1, 9.4 and 20.0 Pa respectively which equates to 0 Pa at a height of 500 mm from the furnace floor level. The furnace was maintained at these pressures within ± 5 Pa five minutes after the commencement of the test and ± 3 Pa ten minutes after the commencement of the test and for the remainder of the test duration. The pressure deviated from the specified conditions on no instance throughout the duration of the test. The Time-Pressure distribution is presented in Figure 25.

5.4 Unexposed Surface Temperature

A roving thermocouple was available for the evaluation of the maximum temperature rise of the unexposed surface of the specimens for the duration of the test. Any measurements using the roving thermocouple are presented on page 22.

Disc thermocouples were affixed to the unexposed surface of the specimens in accordance with BS EN 1365-1:2012 § 9.1.2 to measure and monitor the maximum and the mean temperature rise of the unexposed surface of the specimens for the duration of the test. A summary of the measurements is presented in Figure 26 and the locations of these thermocouples is illustrated in Figure 4.

5.5 Radiation

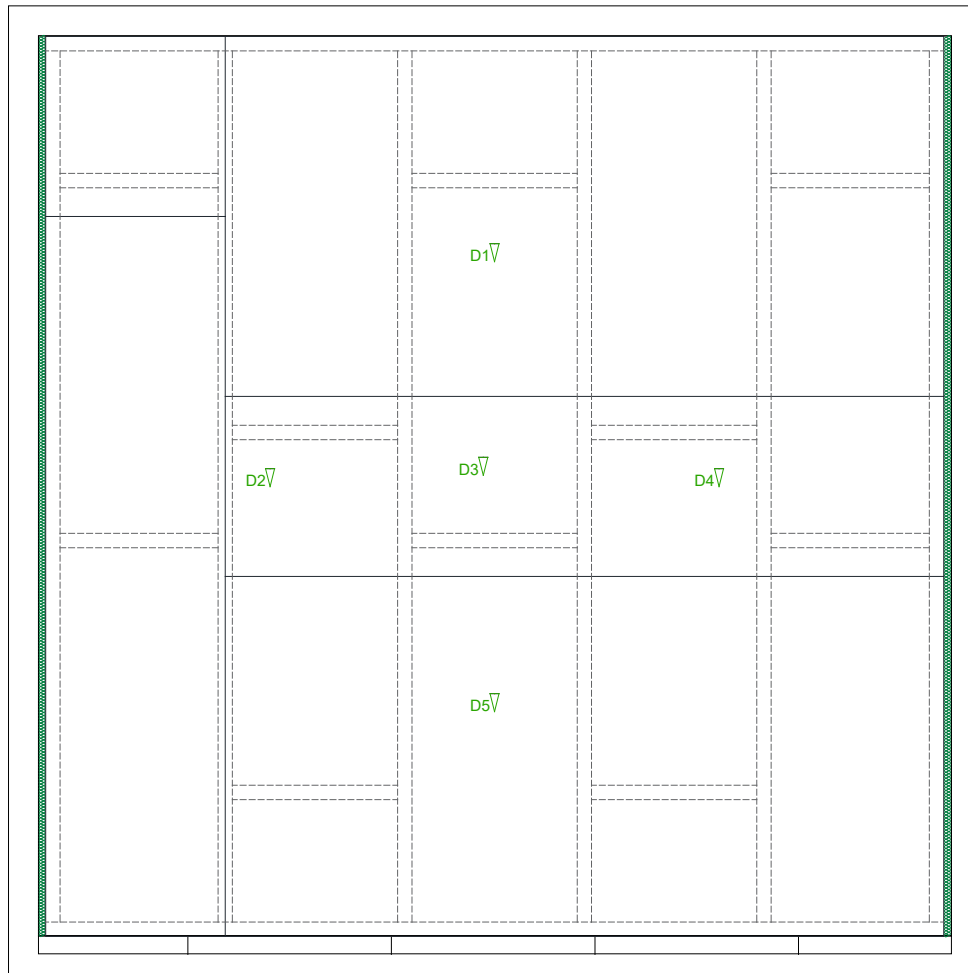
The Radiant Heat of the specimens was measured using a 180° field of view, water cooled heat flux meter that was positioned at the geometric center of each specimen at a distance of 1000 mm from the unexposed surface. Measurements were recorded for the duration of the test and a summary of the recorded measurements is presented in Figure 27.

5.6 Loadbearing

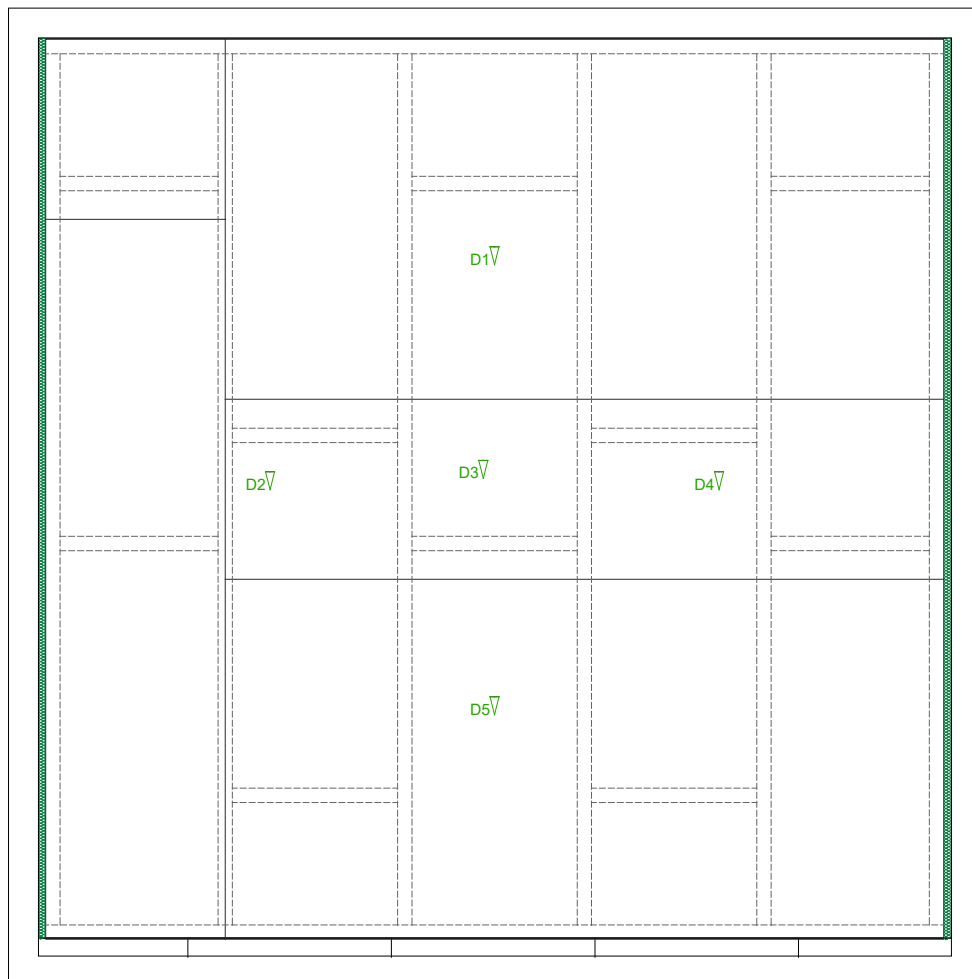
The loadbearing capacity of the specimen was carried out according to the requirements of BS EN 1363-1:2020 10.4.4.2, the specimen was subject to the test load for a period of 15 minutes prior to the test commencement and in accordance with the criterion of 11.1 of BS EN 1363-1:2020. The specimen was subject to a test load of 25 kN as per test sponsor request. A summary of the results is presented in Figure 28 and Figure 29

5.7 Deflection

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



Time (mins)	D1	D2	D3	D4	D5
0	0	0	0	0	0
10	2	-6	2	0	-1
20	3	-8	0	0	-2
30	4	-6	1	-1	0
40	4	-5	4	-1	0



Time (mins)	D1	D2	D3	D4	D5
50	4	-7	0	-2	1
55	4	-7	-1	-3	2
60	3	-7	0	-4	2
65	2	-7	-2	-3	2
70	1	-8	-2	-5	2
75	2	-8	-4	-4	1
85	3	-9	-5	-3	1

5.8 Observations

HH	MM	SS	E ¹	U ²	Observation
00	00	00			The test commences.
00	04	00		X	Popping sound coming from the exposed face of the specimen.
00	04	10		X	Smoke/Steam releases from the vertical joint at mid height.
00	15	00		X	Smoke/Steam releases from horizontal joints, head of the specimen and fixing locations.
00	19	45		X	Tape on the unexposed face has started to come off.
00	28	20		X	Discoloration along the vertical board joint.
00	48	31		X	Cotton pad test applied to the vertical joint at mid height, Cotton pad discolored.
00	51	24		X	Cotton pad test applied to the vertical joint at mid height, Cotton pad discolored.
00	55	58		X	Cotton pad test applied to the vertical joint near TC 12, Cotton pad discolored.
00	57	54		X	Cotton pad test applied to the vertical joint near TC 12, Cotton pad discolored.
01	04	54		X	Cotton pad test applied to the vertical joint near TC 12, Cotton pad ignited. Cotton pad integrity failure and by virtue insulation failure is deemed to have occurred.
01	05	00		X	A flame emits and sustains for more than 10 seconds on the vertical joint near TC 12. Sustained flame integrity failure is deemed to have occurred.

¹ Viewed from exposed surface of the test construction.

² Viewed from unexposed surface of the test construction.

HH	MM	SS	E ³	U ⁴	Observation
01	10	00		X	Discoloration is observed on multiple spots on unexposed face boards.
01	30	15			The test is discontinued at the request of the Test Sponsor.

³ Viewed from exposed surface of the test construction.

⁴ Viewed from unexposed surface of the test construction.

5.9 Test Images



Figure 14 – The exposed surface of the test construction prior to commencement of the test



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



Figure 16 - The unexposed surface of the test construction after a test duration of 10 minutes



Figure 17 - The unexposed surface of the test construction after a test duration of 20 minutes



Figure 18 – The unexposed surface of the test construction after a test duration of 30 minutes



Figure 19 – The unexposed surface of the test construction after a test duration of 40 minutes



Figure 20 – The unexposed surface of the test construction after a test duration of 50 minutes

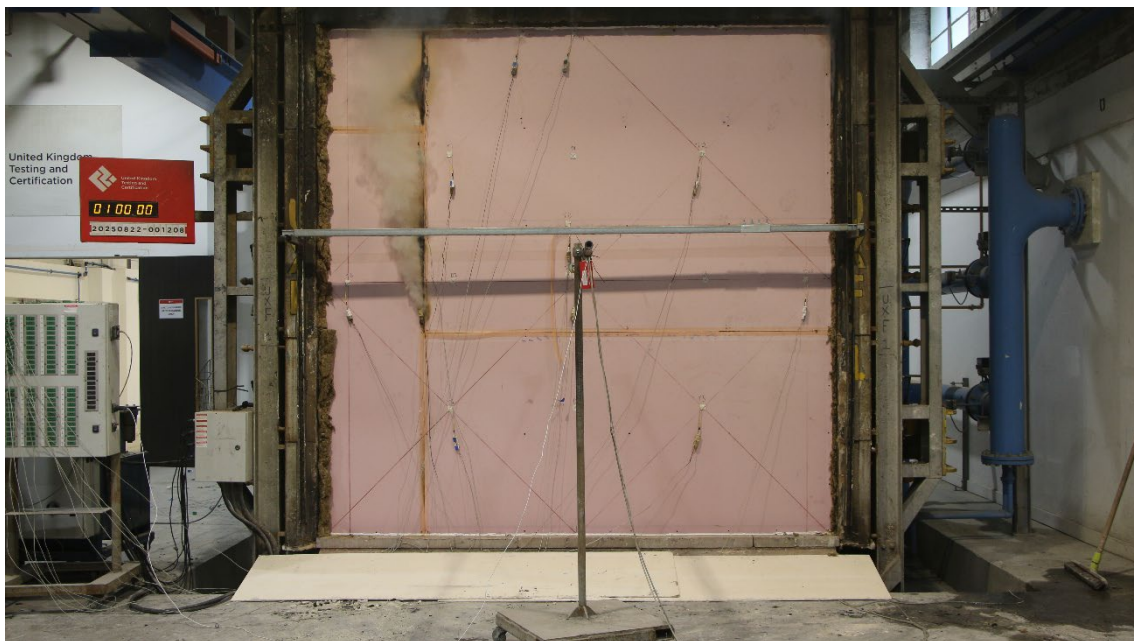


Figure 21 – The unexposed surface of the test construction after a test duration of 60 minutes



Figure 22 - The unexposed surface of the test construction after a test duration of 85 minutes



Figure 23 - The unexposed surface of the test construction after a test duration of 90 minutes

6 On-going Implications

6.1 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, and where appropriate BS EN 1363-2. 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 and should be the subject to design appraisal by a competent individual.

Guidance on the field of direct application of results is given within BS EN 1365-1: 2012 § 13

6.2 Accuracy of Results

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

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

6.3 European Group of Organizations for Fire Testing (EGOLF)

Certain aspects of some fire test specifications are open to different interpretations. EGOLF have identified several such areas and have agreed resolutions which define common agreement of interpretations between fire test laboratories which are members of the Group. The following resolutions have been followed when conducting this test:

1. EGOLF AGREEMENT 034-2018 – Use of cotton pad in fire resistance tests
2. EGOLF AGREEMENT 036-2018 – Discontinuity-different interpretations
3. EGOLF RECOMMENDATION 013-2017- Content of statements of 'Field of direct application' in test reports

7 Detailed Expression of Results

The specimen satisfied the performance criterion specified in BS EN 1365-1:2012 § 11 for the following intervals:

Performance		Criteria	Time (Completed minute)	Failure Criteria Exceeded
Loadbearing capacity	Loadbearing vertical element	Limiting vertical contraction	90 minutes	No failure*
		Limiting rate of vertical contraction	90 minutes	No failure*
	Flexural loaded element	Limiting deflection	90 minutes	No failure*
		Limiting rate of deflection	90 minutes	No failure*
Integrity		Ignition of cotton pad	64 minutes	No failure*
		Sustained flaming	65 minutes	
		Cracks of openings in excess of given dimensions	90 minutes	
Thermal Insulation	Specimen	Average temperature, increase of Δ 140°C	64 minutes	Due to integrity failure
		Maximum temperature, increase of Δ 180°C	64 minutes	Due to integrity failure
Radiation	Specimen	Maximum or average radiation value > 5 kw/m²	90 minutes	No failure*
		Maximum or average radiation value > 10 kw/m²	90 minutes	No failure*
		Maximum or average radiation value > 15 kw/m²	90 minutes	No failure*
		Maximum or average radiation value > 20 kw/m²	90 minutes	No failure*
		Maximum or average radiation value > 25 kw/m²	90 minutes	No failure*

*The test was discontinued after a period of 90 minutes.

8 Figures

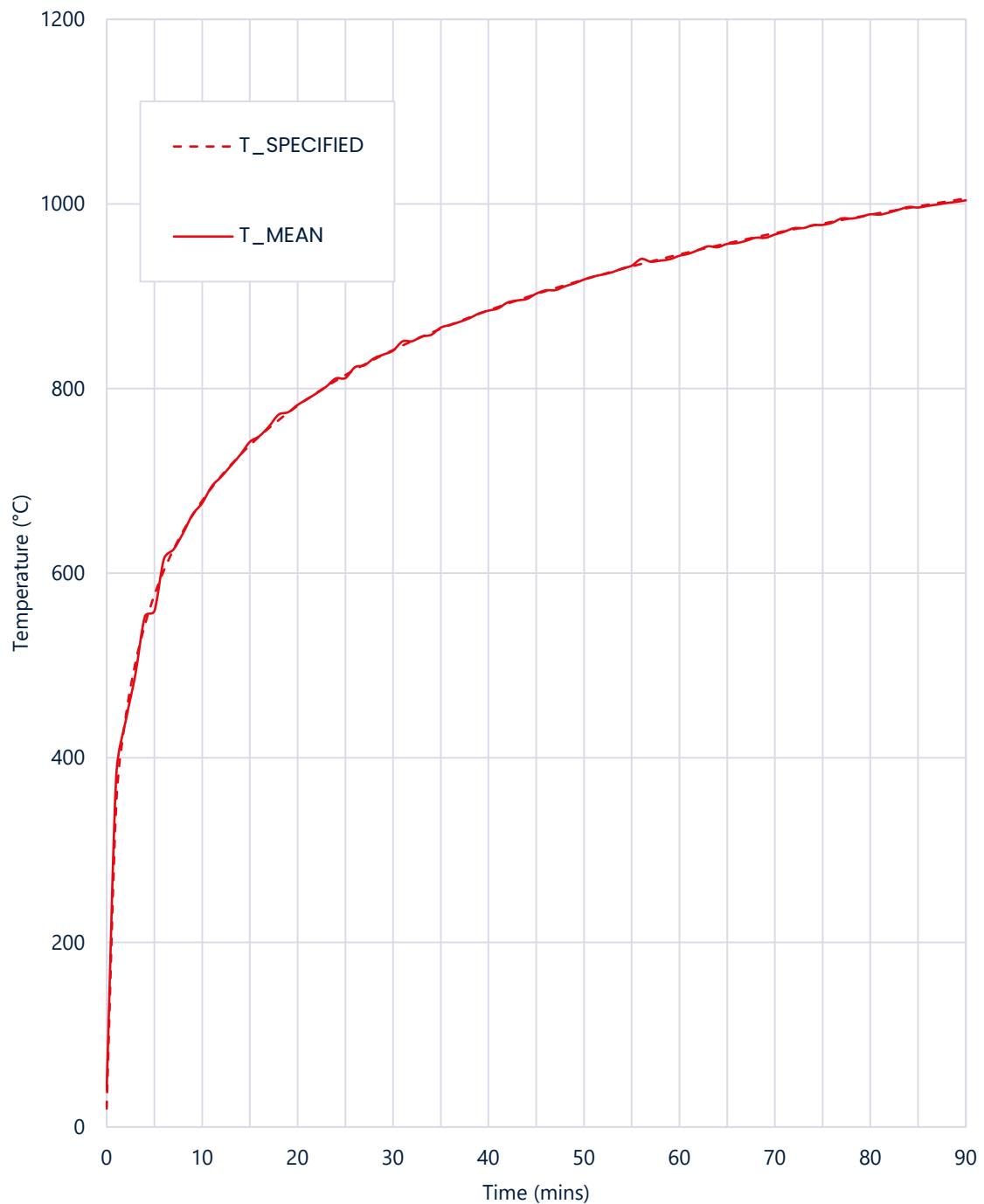


Figure 24 – Graph presenting the Time-Temperature distribution of the furnace

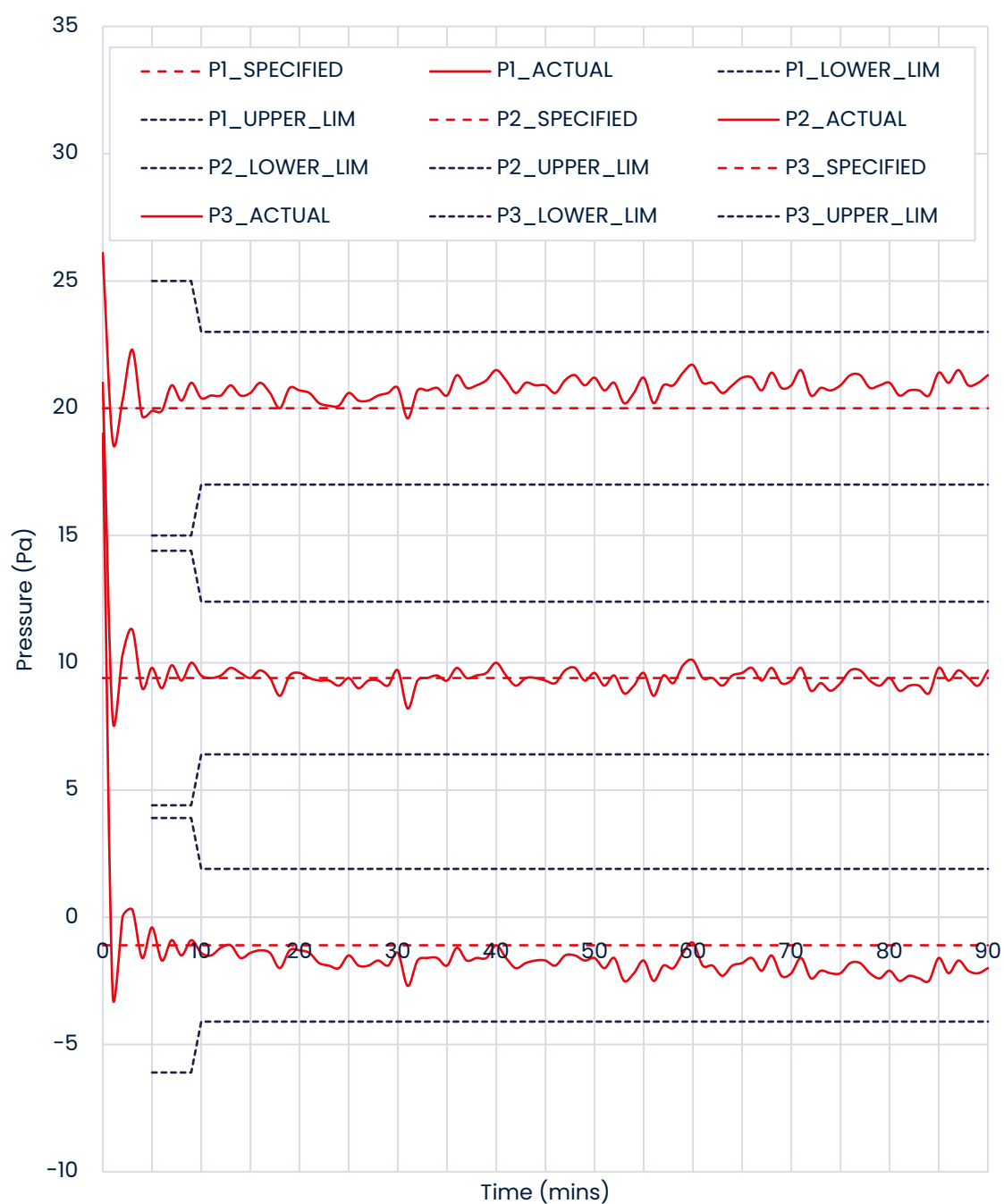


Figure 25 – Graph presenting the Time-Pressure distribution of the furnace

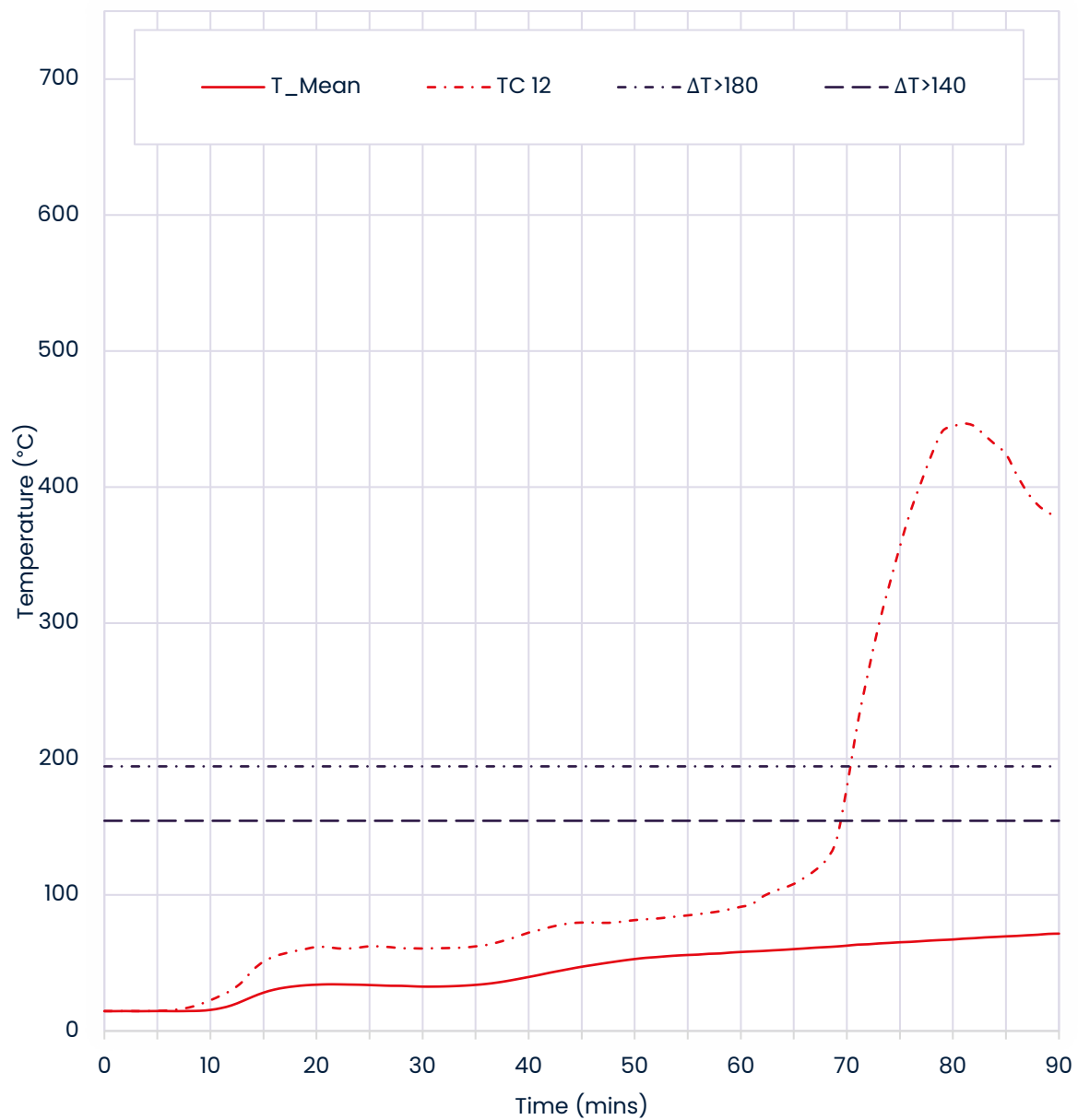


Figure 26 - Graph presenting the Time-Temperature distribution of the unexposed surface of the Specimen

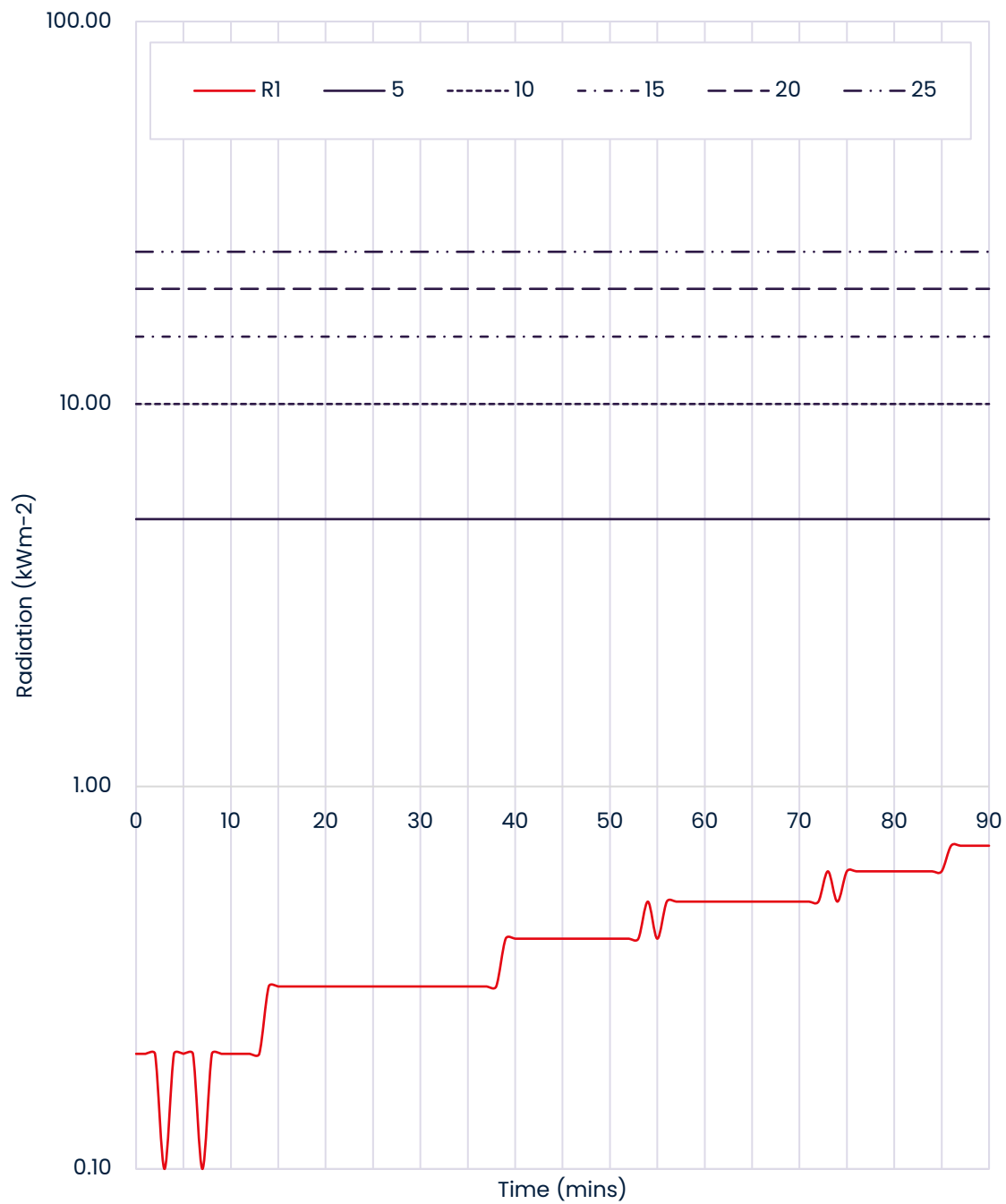


Figure 27 - Graph presenting Time-Radiation distribution of the unexposed surface of the Specimen

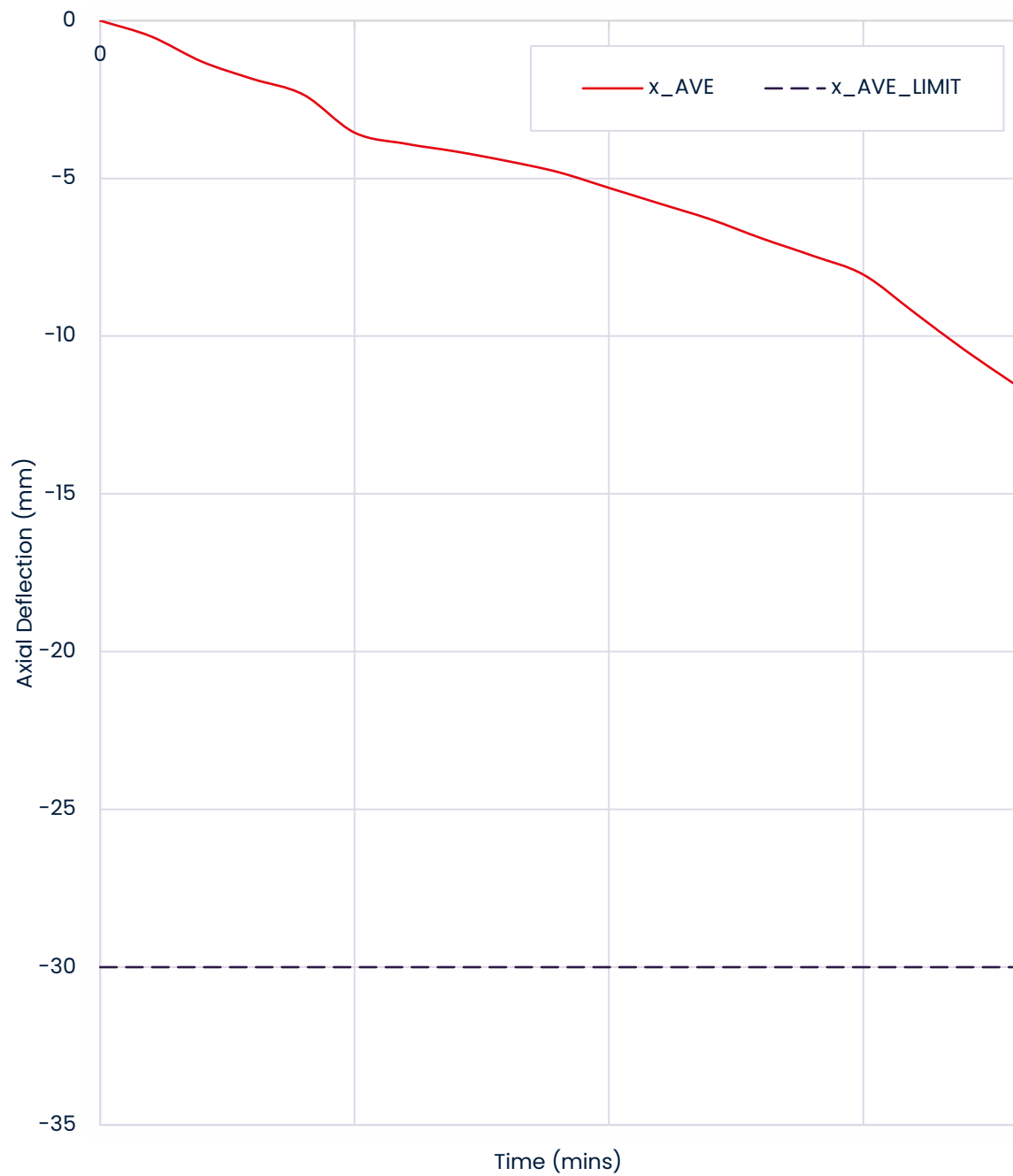


Figure 28 Graph presenting time-Vertical Deflection distribution of the Specimen

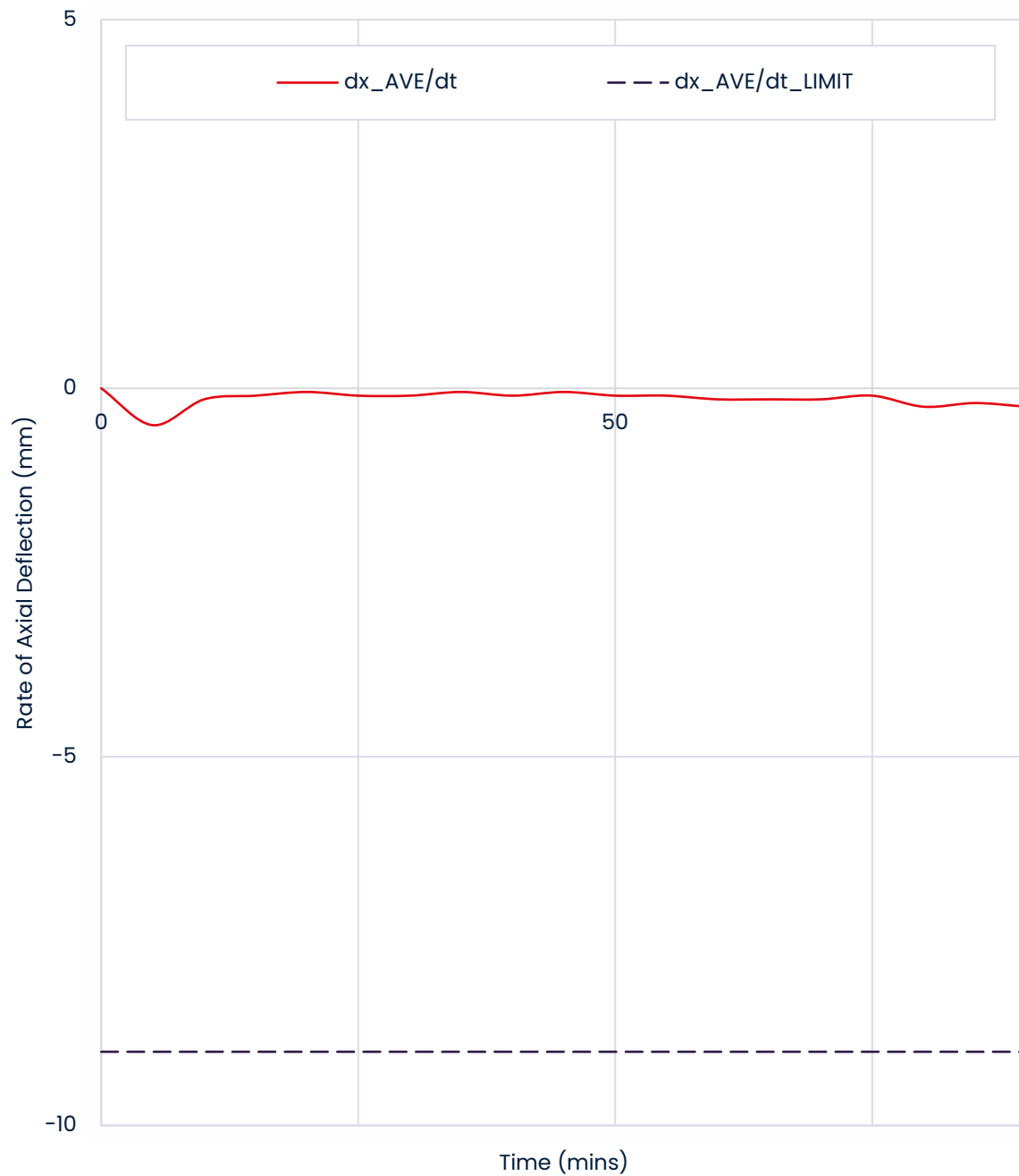


Figure 29 Graph presenting Time-Rate Deflection distribution of the Specimen

9 Tables

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

Time (mins)	TC1	TC2	TC3	TC4	TC5
0	15.5	13.4	15.0	14.9	14.0
4	15.6	13.1	15.1	14.9	14.1
8	15.8	13.0	15.2	15.1	14.3
12	23.9	14.3	22.0	17.6	16.4
16	52.8	17.3	32.6	29.3	19.8
20	59.6	17.7	37.2	33.3	22.3
24	56.7	17.7	38.2	33.3	24.1
28	51.5	17.8	38.1	32.6	25.9
32	47.4	17.1	37.9	32.2	29.0
36	46.0	17.8	39.7	33.7	35.7
40	48.8	19.1	46.2	39.4	44.9
44	54.4	20.4	53.7	46.7	53.8
48	60.5	21.5	58.1	53.2	60.6
52	66.1	21.3	60.3	58.8	64.9
56	69.3	21.5	60.7	61.2	68.1
60	70.7	22.2	62.7	62.8	72.0
64	69.6	22.6	66.1	64.6	75.4
68	69.2	23.1	70.2	67.5	78.2
72	70.9	23.2	73.2	71.3	80.1
76	74.0	23.1	74.6	74.0	81.9
80	78.0	24.3	75.7	75.1	83.2
84	81.6	25.2	77.2	77.0	84.7
88	83.9	25.9	79.1	78.8	86.1
90	85.1	26.7	79.9	79.4	86.7

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

Time (mins)	TC6	TC7	TC8	TC9	TC10	TC11	TC12	TC13
0	15.0	14.8	14.8	15.5	13.9	15.1	14.6	15.3
4	15.0	14.9	15.0	15.5	14.0	15.1	14.6	15.4
8	15.5	22.1	29.3	28.2	14.0	16.7	17.3	21.5
12	32.7	56.3	51.4	52.7	15.1	36.8	30.1	42.1
16	55.6	63.1	57.7	68.0	16.6	57.8	54.7	49.0
20	59.4	61.1	59.9	61.7	18.1	59.6	61.8	47.8
24	58.4	58.7	65.8	59.5	19.2	59.7	61.3	46.0
28	54.8	58.0	66.9	69.4	20.2	58.0	60.8	44.7
32	51.9	57.2	65.0	72.5	20.8	55.3	60.9	46.8
36	50.9	59.2	65.8	73.2	21.5	55.5	63.2	53.5
40	51.8	62.4	68.5	74.4	22.5	58.7	72.3	60.1
44	53.5	65.3	72.9	79.9	24.1	60.9	79.2	65.0
48	56.3	67.2	75.8	88.1	26.0	66.0	79.7	66.5
52	59.7	75.0	76.8	91.8	27.8	65.4	82.6	66.7
56	62.5	79.6	77.6	93.8	29.4	65.3	85.9	67.7
60	65.0	81.5	80.7	96.3	30.3	67.9	91.3	71.7
64	66.9	87.9	86.1	100.2	31.3	69.5	105.1	75.3
68	68.2	95.1	92.0	106.6	32.0	69.8	125.3	78.0
72	69.5	97.1	105.6	126.5	32.7	71.9	263.3	79.3
76	70.4	101.1	116.3	199.9	33.4	77.3	382.1	81.2
80	70.9	101.5	147.6	280.3	34.0	81.0	444.5	83.0
84	72.7	107.7	210.3	350.2	34.6	82.2	431.2	84.8
88	76.1	122.1	251.2	411.0	35.1	83.4	386.9	86.5
90	78.1	137.6	273.6	422.0	35.3	84.3	377.3	87.0

Table 3 – The displacement recorded by the Linear Variable Differential Transformers (LVDT) used to monitor the vertical deflection of the specimen. Values are in millimetres (mm) unless otherwise stated. Negative values indicate vertical contraction, and positive values indicate vertical expansion.

Time		X1	X2	X_AVE	X_RATE
mm	ss				
0	00	0.0	0.0	0.0	0.0
5	00	-0.5	-0.5	-0.5	-0.5
10	00	-1.7	-0.9	-1.3	-0.2
15	00	-2.7	-1.0	-1.9	-0.1
20	00	-3.4	-1.3	-2.4	-0.1
25	00	-4.4	-2.7	-3.6	-0.1
30	00	-4.8	-3.0	-3.9	-0.1
35	00	-5.1	-3.2	-4.2	-0.1
40	00	-5.3	-3.6	-4.5	-0.1
45	00	-5.5	-4.1	-4.8	0.0
50	00	-5.9	-4.7	-5.3	-0.1
55	00	-6.3	-5.3	-5.8	-0.1
60	00	-6.7	-5.9	-6.3	-0.2
65	00	-7.2	-6.6	-6.9	-0.2
70	00	-7.7	-7.2	-7.5	-0.2
75	00	-8.3	-7.8	-8.1	-0.1
80	00	-9.2	-9.3	-9.3	-0.3
85	00	-10.2	-10.7	-10.5	-0.2
90	00	-11.1	-12.0	-11.6	-0.3