Test Report

The fire resistance performance of an Asymmetric, Non-Load Bearing, Partition wall assembly when tested in accordance with BS EN 1364-1: 2015.

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Prepared For	Evolution Fasteners UK Ltd 2A & 2B Clyde Gateway Trade Park Dalmarnock Road Glasgow G73 1AN

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Change History

Issue Date	Revision	Created by	Authorised by	Description of Change
29/08/2025	A	AC	NS	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 3040 mm wide by 3040 mm high by 290 mm thick and was formed from 150 mm thick Rockwool RainScreen stone wool insulation with five different types of Evolution Fasteners on exposed face and 140 mm concrete blockwork wall on unexposed face.

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 13 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 no vertical edges unrestrained.

1.4 Specimen Conditioning

The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of six days. Throughout this period, both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 17.1 °C to 18.5 °C and 74.2 % to 81.7 % respectively.

1.5 Instruction to Test

The test was conducted on 18 August 2025 at the request of the Test Sponsor.

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 specimen as received and test by United Kingdom Testing and Certification.

1.7 Summary of Expression of Results

Summary of results per the criterion specified in BS EN 1364-1:2015 § 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 25.

Integrity		Insulation	Radiation
Sustained Flaming	120 minutes*	120 minutes*	120 minutes*
Gap Gauge	120 minutes*		
Cotton Pad	120 minutes*		
Maximum Deflection	5 mm at 100 minutes		
100 mm Deflection	Not exceeded		

*The test was discontinued after a period of 120 minutes

2 Test Specimen Drawings

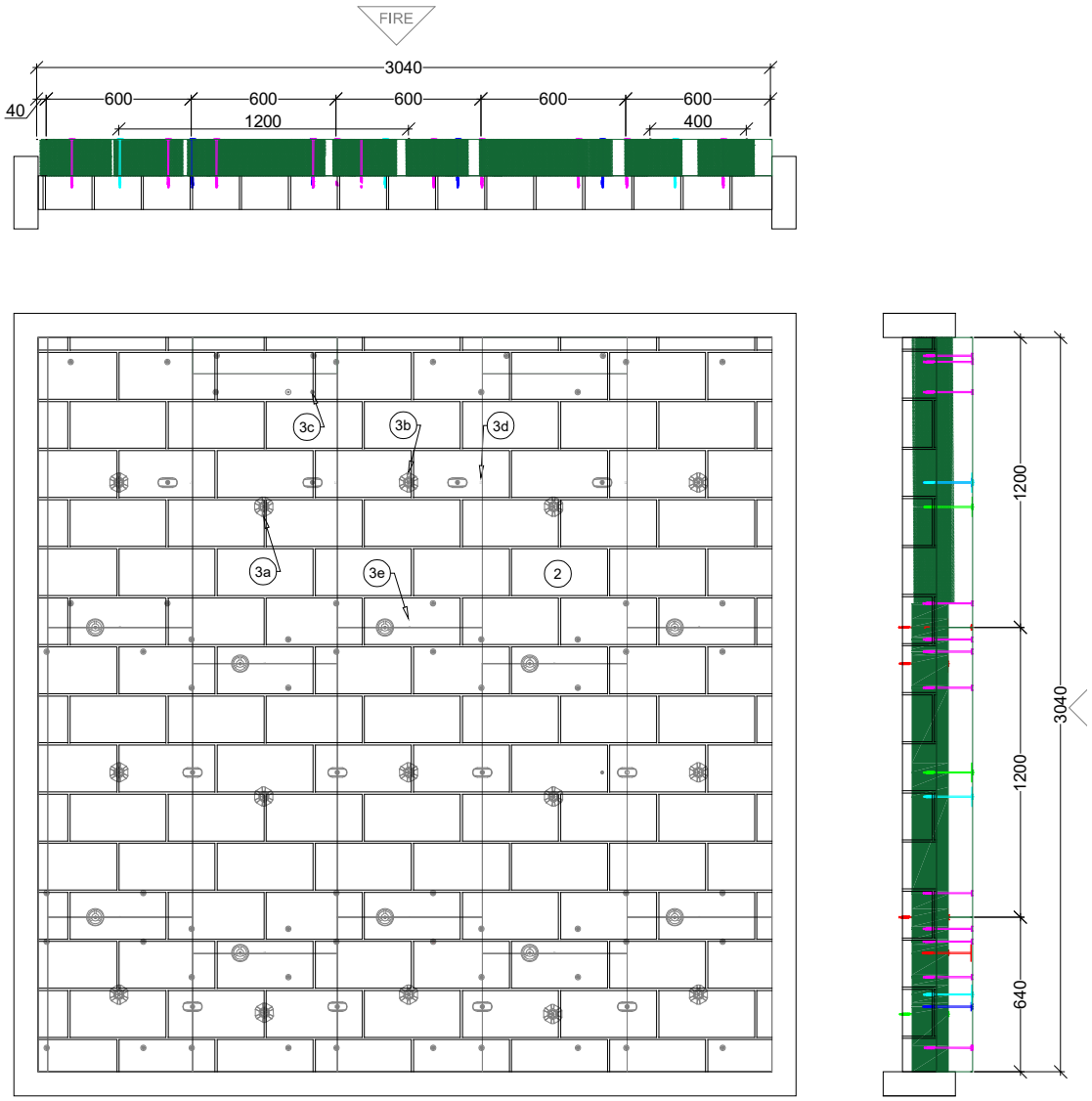


Figure 1 - General arrangement of test construction viewed from the unexposed surface

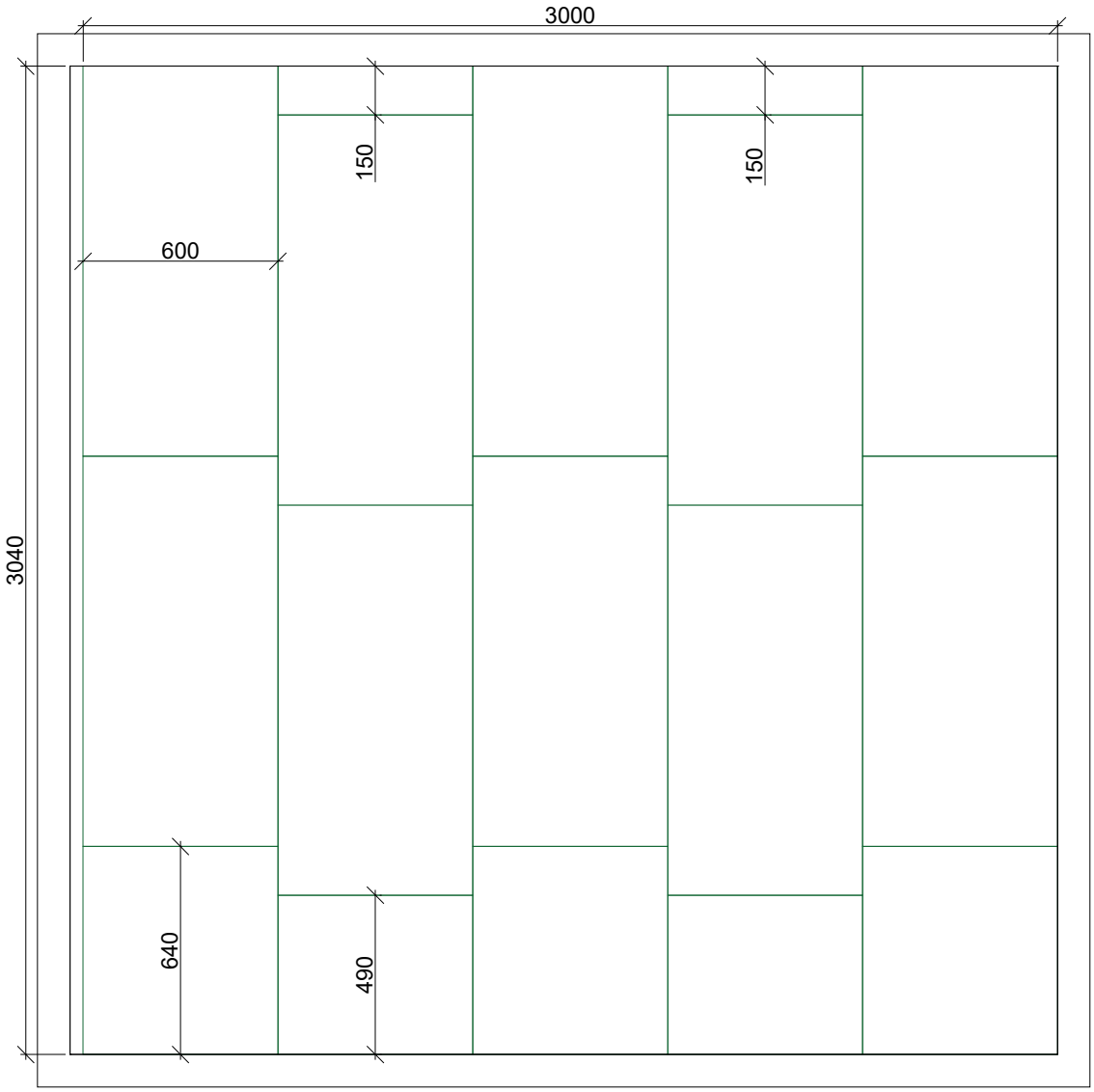


Figure 2 - Layout of Insulation viewed from the exposed surface of the test construction

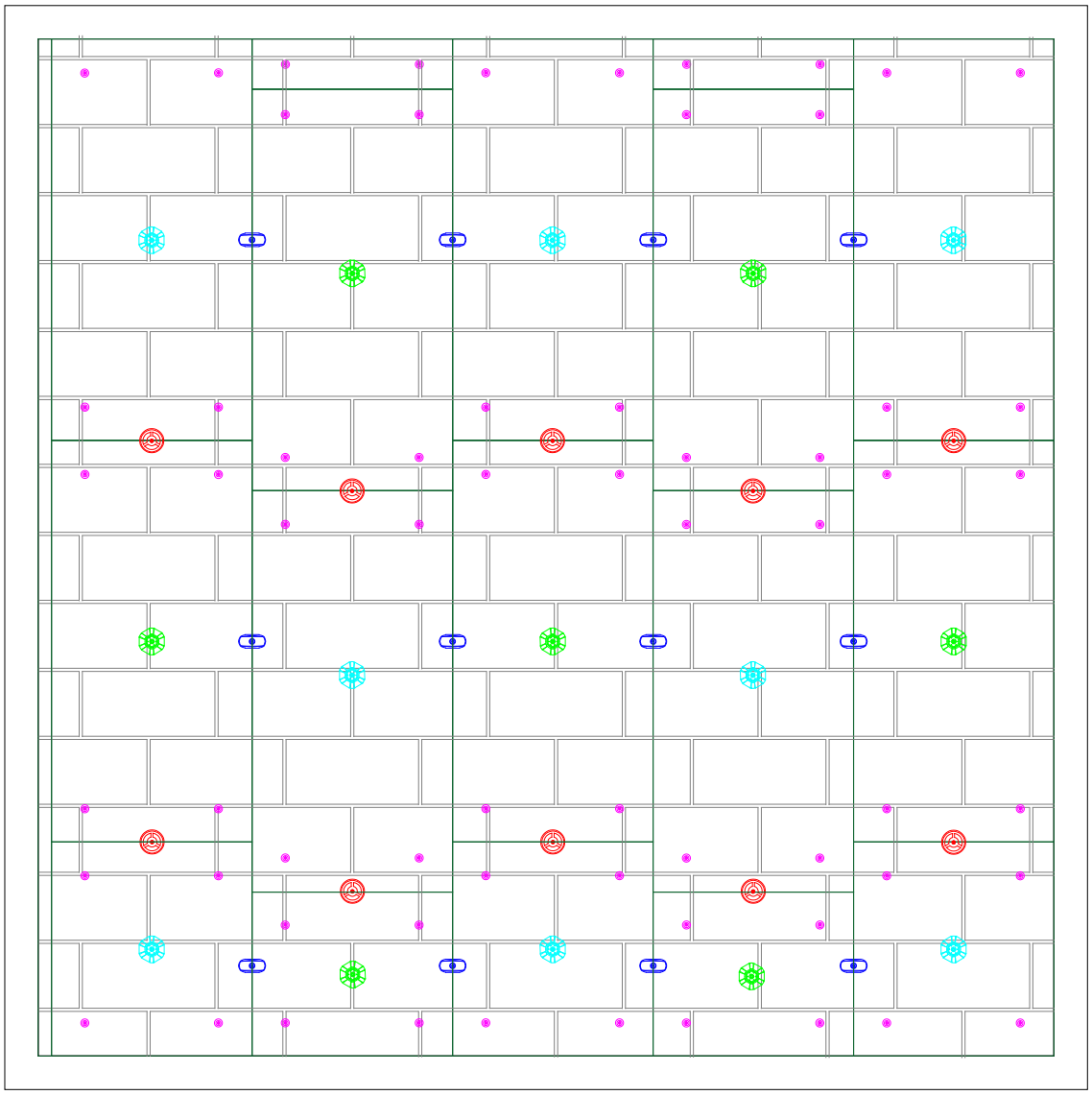


Figure 3 - Layout of Fixings viewed from the exposed surface of the test construction

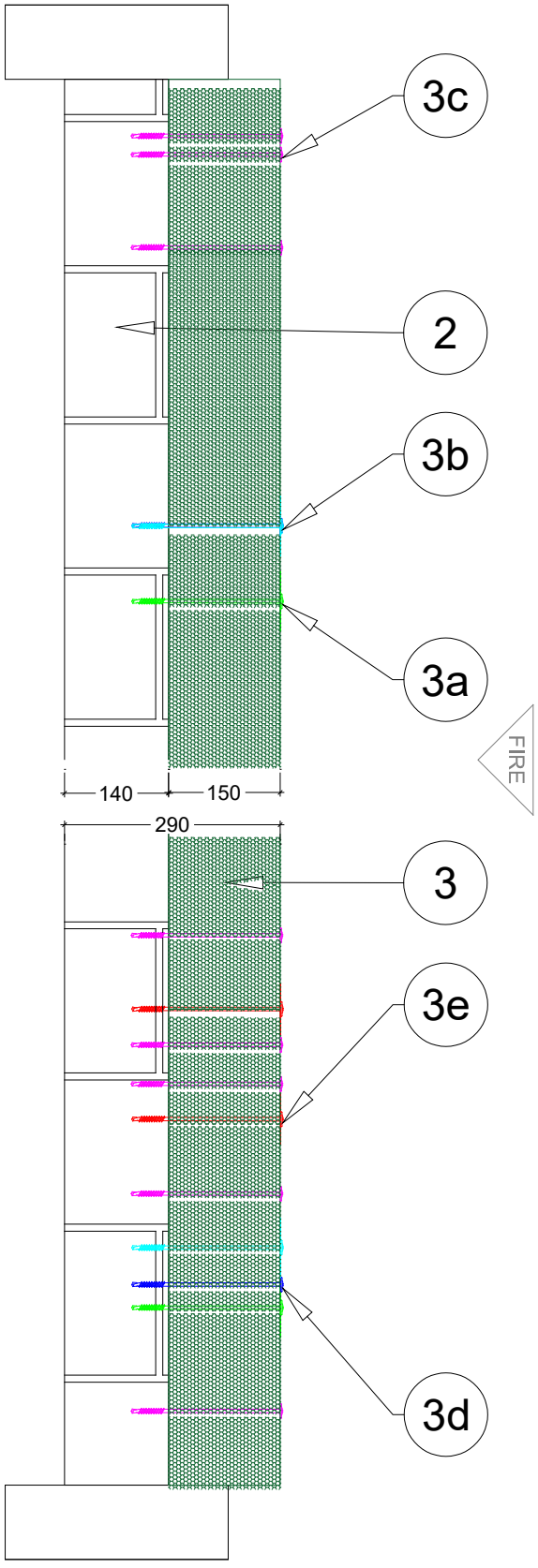


Figure 4 - Typical vertical section through The Specimen

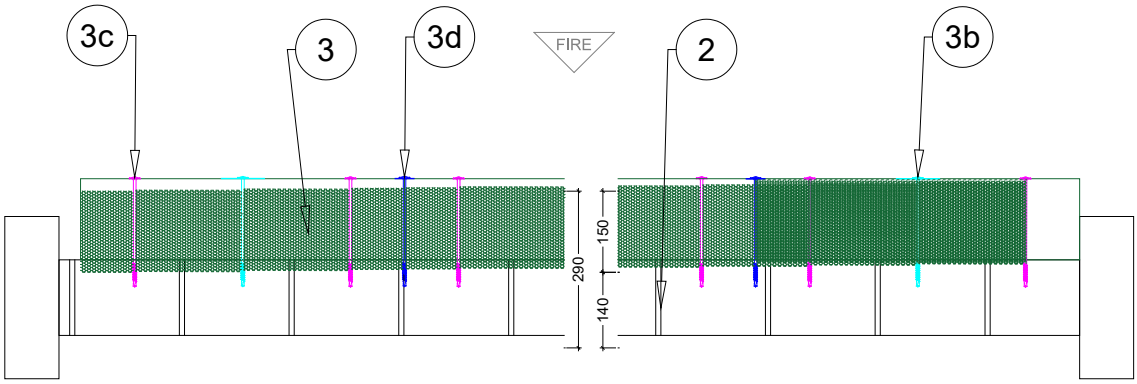


Figure 5 - Typical horizontal section through The Specimen

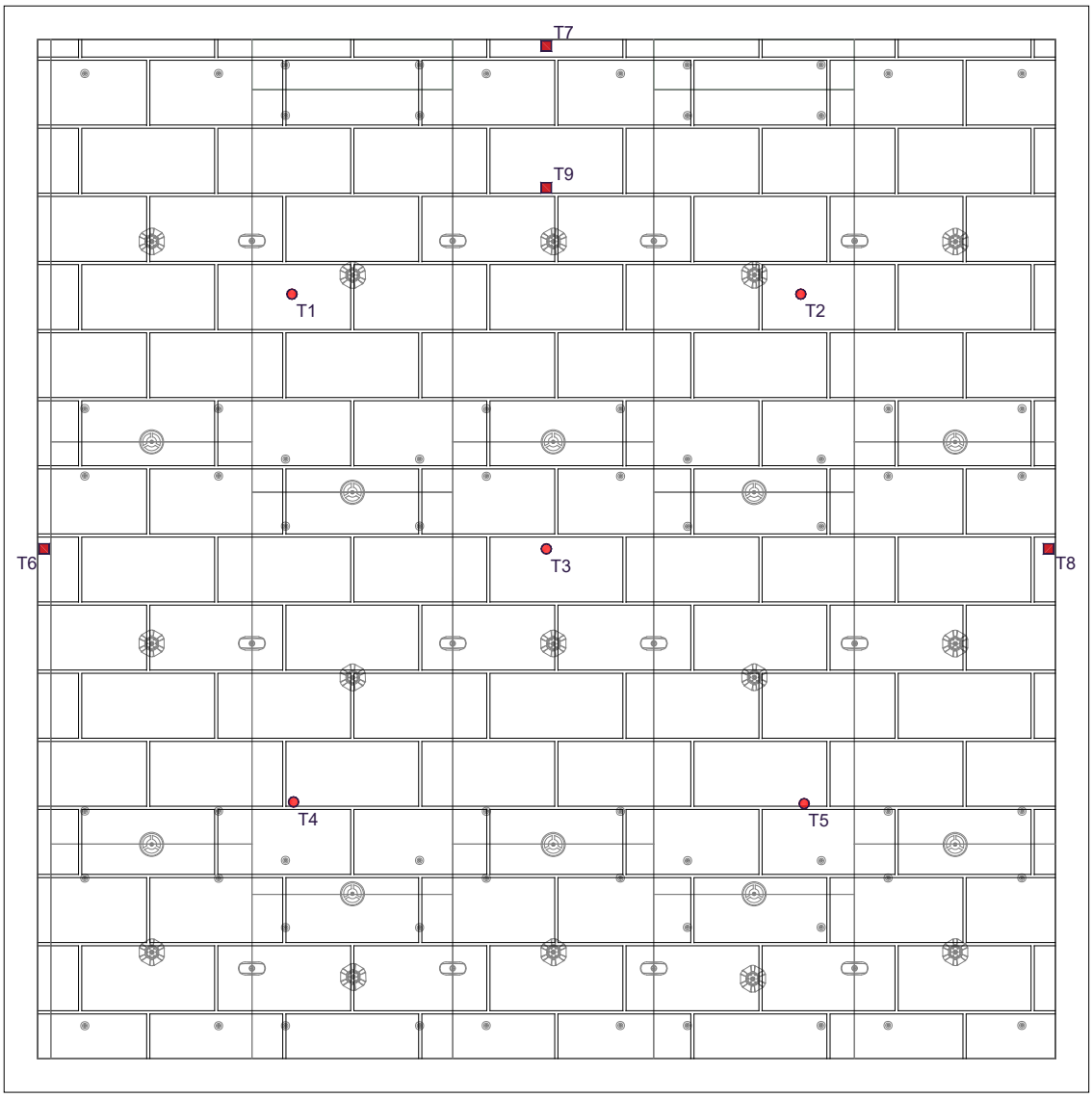


Figure 6 - Layout of instrumentation viewed from the unexposed surface of the test construction

3 Technical Schedule

3.1 Specimen

1. Specimen Overview	
System reference	N/A
Overall Size	3040 mm long x 3040 mm high x 290 mm depth
2. Blockwork	
Supplier	United Kingdom Testing and Certification
a. Wall Supporting Structure	As per BS EN 1363-1:2020 § 7.2.2.2
i. Type & Material	140 mm aerated concrete block 3.6N
ii. Overall Size	440 mm long x 215 mm high x 140 mm deep
iii. Density	650 kg/m^3 [2]
Mortar	As per BS EN 1363-1: 2020 § 7.2.2.3
3. External Wall Insulation	
Manufacturer	Rockwool
Reference	RainScreen Duo Slab®
Material	Stone wool
Density	60kg/m^3 [2]
Dimensions	1200 mm high x 600 mm wide x 150 mm thick
a. Fixing @ Slab Centre (1)	
i. Type	Evolution GIA200 & GIW80
ii. Material	Galvanized Steel[1]
iii. Dimension	Ø 8 mm x 200 mm long & 80 mm washer
iv. Location	Centre of slab
v. Frequency	Every 2nd slab
b. Fixing @ Slab Centre (2)	

i. Type	Evolution A2GIA200 & A2PIW80
ii. Material	Galvanized Steel[1]
iii. Dimension	Ø 8 mm x 200 mm long & 80 mm washer
iv. Location	Centre of slab
v. Frequency	Every 2nd slab
c. Fixing @ Slab Corners	
i. Type	Evolution ICS200
ii. Material	Carbon steel (SAE C1022) [1]
iii. Dimension	Ø 4.8 mm x 200 mm long
iv. Location	Corners of insulation slab
v. Frequency	@ each meeting corner
d. Fixing Between Slabs (Vertical)	
i. Type	Evolution ERS200 & SPO82
ii. Material	Carbon steel (SAE C1022) [1]
iii. Dimension	Ø 6.3 mm x 200 mm long & 82 mm washer
iv. Location	Between slabs vertically
v. Frequency	@ each slab meeting point
e. Fixing Between Slabs (Horizontal)	
i. Type	Evolution STCS202 & SSPR70
ii. Material	Carbon steel (SAE C1022)[1]
iii. Dimension	Ø 7.5 mm x 202 mm long & 70 mm washer
iv. Location	Between slabs horizontally
v. Frequency	@ each slab meeting point

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 are retained on file by United Kingdom Testing and Certification.

4 Specimen Photographs

Figure 7 - Item 3a

Figure 8 - Item 3b

Figure 9 - Item 3e

Figure 10 - Item 3a

Figure 11 - Item 3b

Figure 12 - Item 3e

Figure 13- Item 3c

Figure 14 - Item 3d

Figure 15 - Item 3d

5 Test Procedure

5.1 Ambient Temperature

The ambient air temperature in the vicinity of the test construction was 24.0 °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 18.

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 furnace 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 instances throughout the duration of the test. The Time-Pressure distribution is presented in Figure 19.

5.4 Unexposed Surface Temperature

A roving thermocouple was available for the evaluation of the maximum temperature rise of the unexposed surface of the specimen for the duration of the test. Any measurements using the roving thermocouple are presented on page 18.

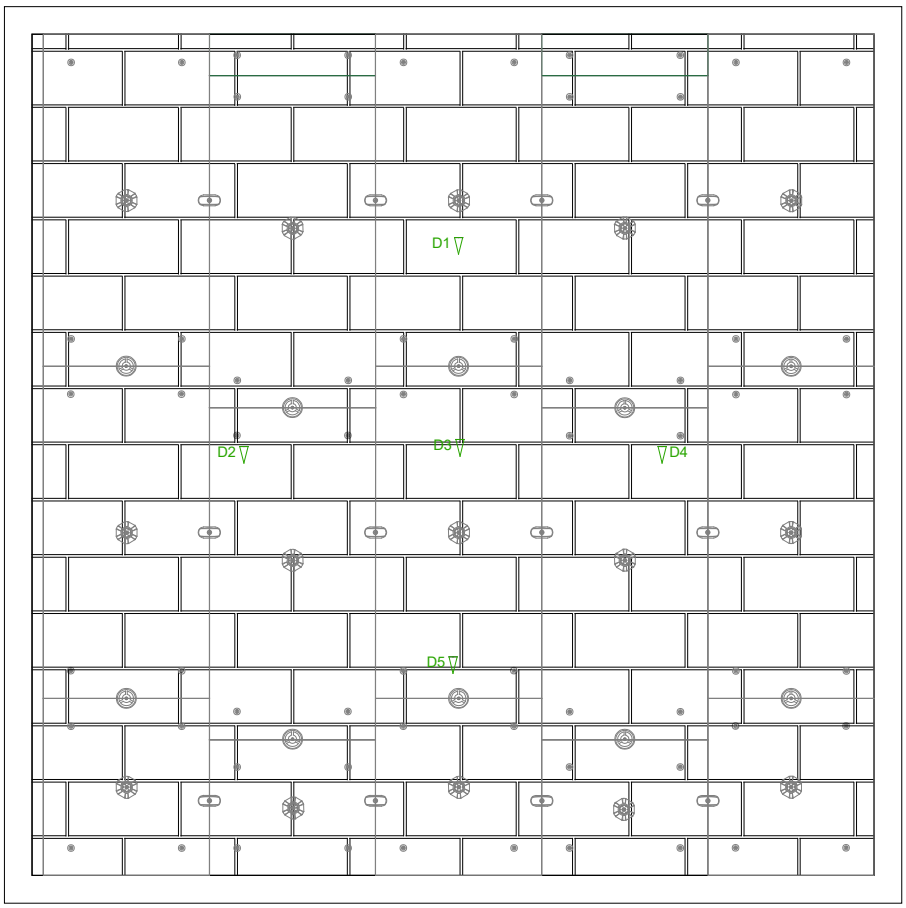
Disc thermocouples were affixed to the unexposed surface of the specimens in accordance with BS EN 1364-1:2015 § 9.1.2 to measure and monitor the maximum and the mean temperature rise of the unexposed surface of the specimen for the duration of the test. A summary of the measurements is presented in Figure 20 and the locations of these thermocouples is illustrated in Figure 6.

5.5 Radiation

The Radiant Heat of the specimen was measured using 180° field of view, water cooled heat flux meters 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 21.

5.6 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
20	0	0	0	1	2
40	1	-1	0	3	3
60	2	2	2	3	3
80	3	2	2	3	4
100	0	1	3	1	3
110	3	1	3	5	3
120	3	3	2	2	4

5.7 Observations

HH	MM	SS	E[1]	U[2]	Observation
00	00	00			The test commences.
00	22	00		X	Plastic on fixing heads melting away.
00	33	00		X	Smoke/Steam releases from mortar joints.
01	04	00		X	No significant visible changes.
01	38	20		X	No significant visible changes.
01	48	00		X	No significant visible changes.
01	59	10		X	No significant visible changes.
02	**00**	**47**			**The test is discontinued at the request of the Test Sponsor.**

[1] Viewed from exposed surface of the test construction.
[2] Viewed from unexposed surface of the test construction.

5.8 Test Images

Figure 16 – The exposed surface of the test construction prior to commencement of the test

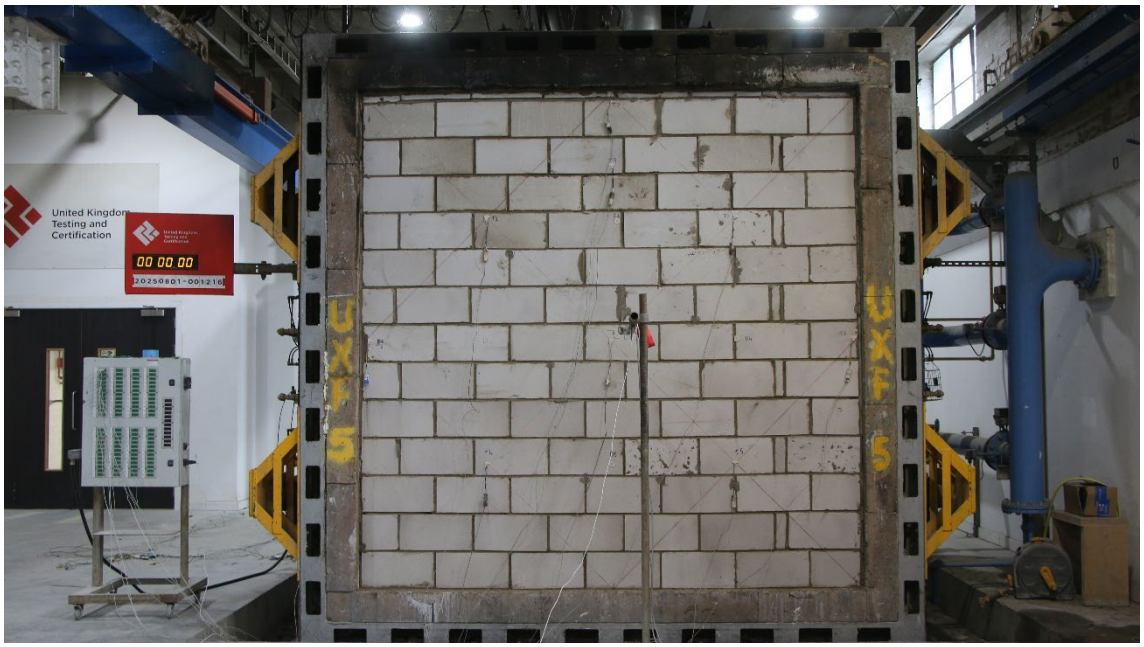


Figure 17 - The unexposed surface of the test construction prior to the commencement of the test

Figure 18 - The unexposed surface of the test construction after a test duration of 20 minutes

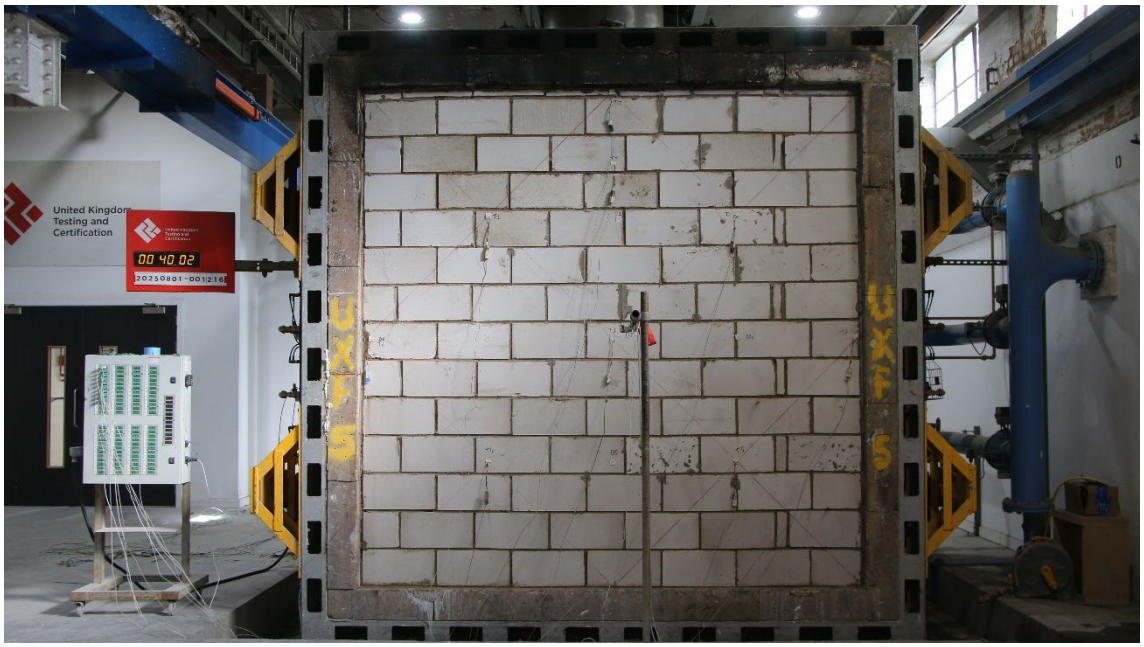


Figure 19 - The unexposed surface of the test construction after a test duration of 40 minutes

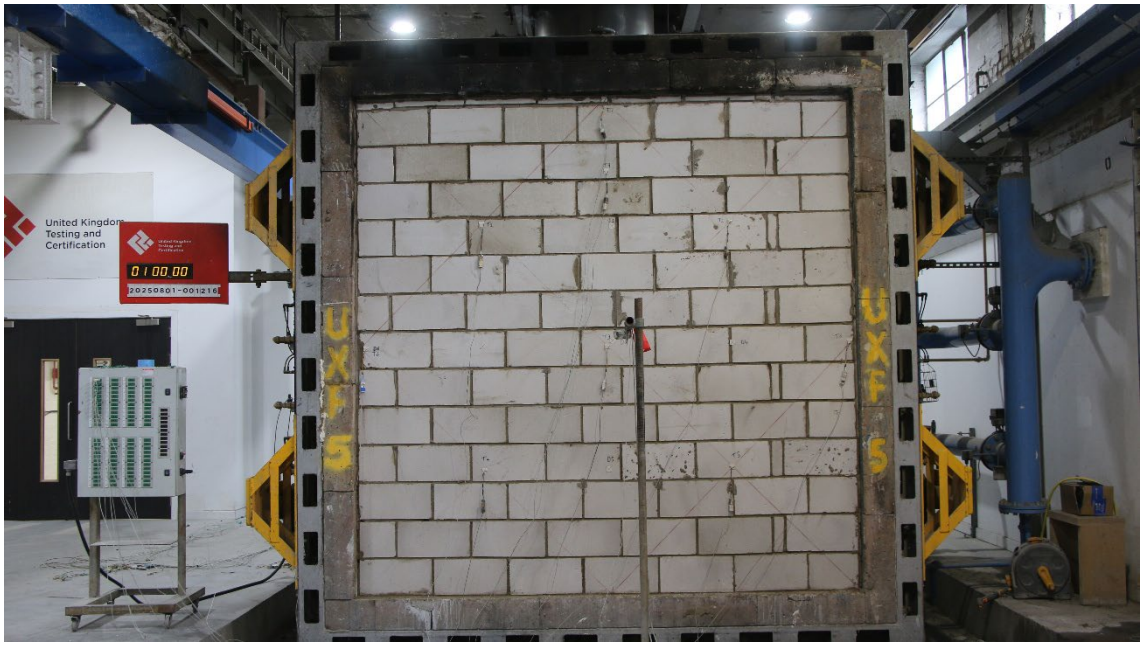


Figure 20 - The unexposed surface of the test construction after a test duration of 60 minutes

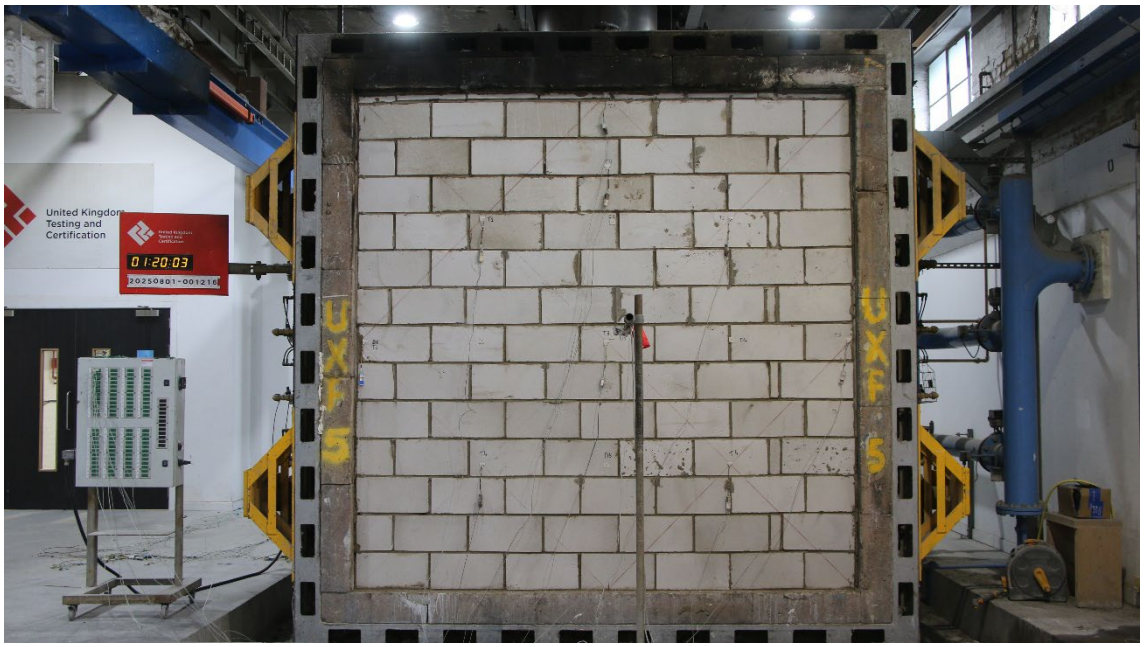


Figure 21 - The unexposed surface of the test construction after a test duration of 80 minutes

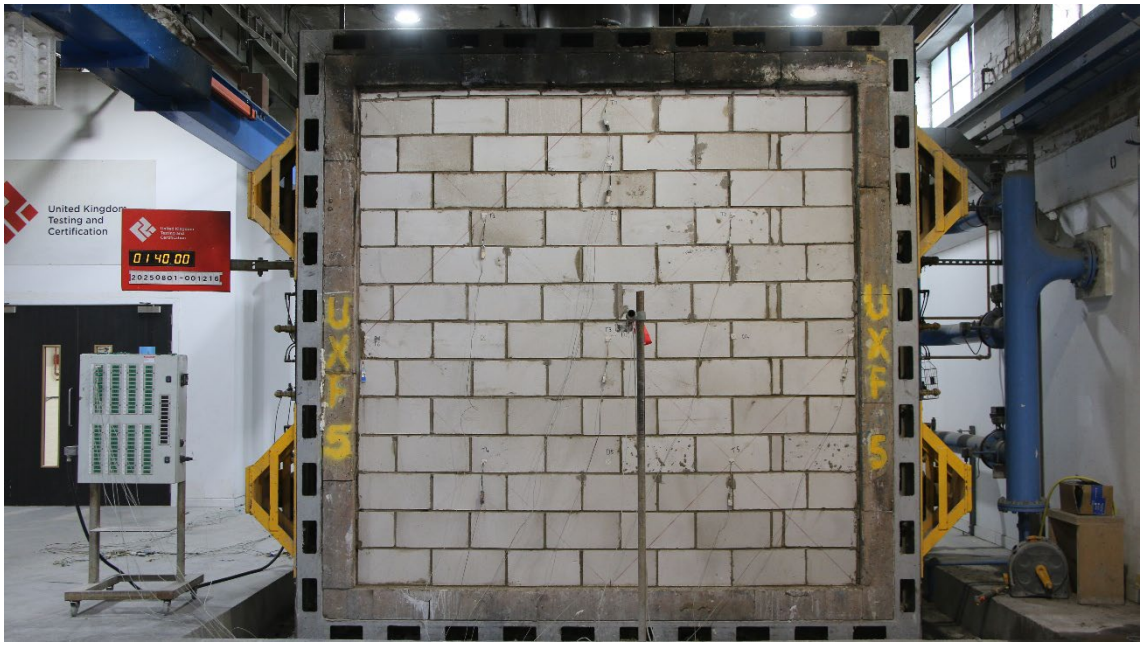


Figure 22 - The unexposed surface of the test construction after a test duration of 100 minutes

Figure 23 - The unexposed surface of the test construction after a test duration of 110 minutes

Figure 24 - The unexposed surface of the test construction after a test duration of 120 minutes

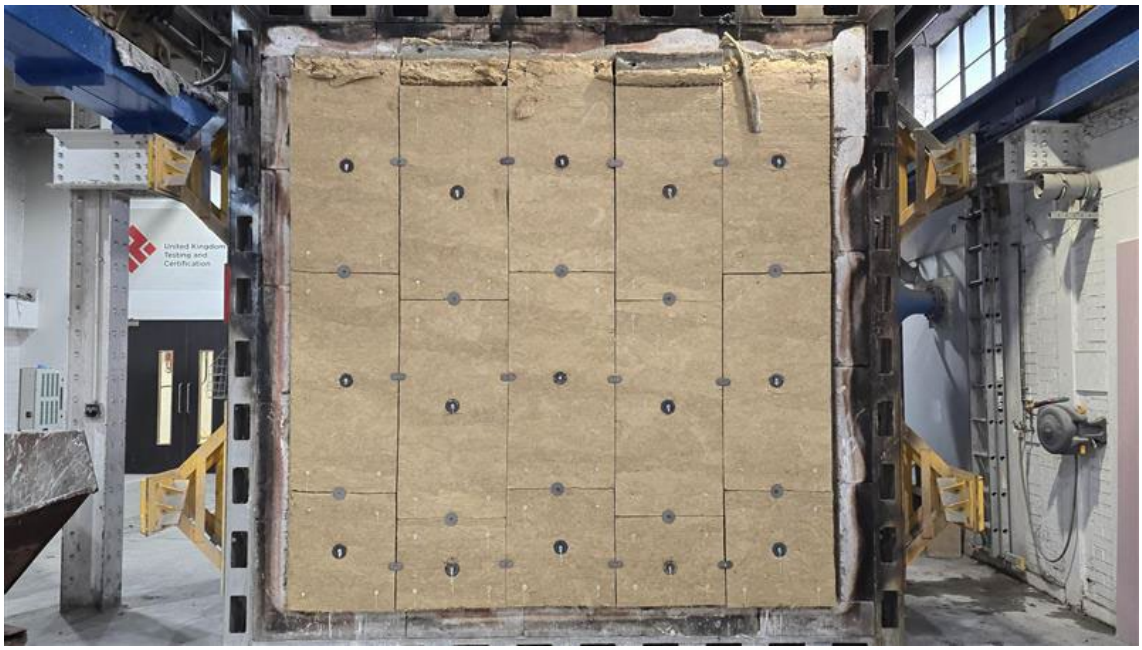


Figure 25 - The exposed surface of the test construction after the test was discontinued

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 can be found in BS EN 1364-1: 2015 and can be applied following the identification of classification(s).

6.2 Deviation from Standard Procedure

The test specimen deviated from the prescribed wall construction requirements of BS EN 1364-1:2015, specifically in that it did not incorporate a free edge in accordance with Clause 6.3.2. The absence of this condition may affect the test's field of application, and the impact of this deviation should therefore be assessed by a competent individual.

6.3 Accuracy of Results

Due to 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.

6.4 European Group of Organisations 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 1364-1:2015 § 11 for the following intervals:

Performance		Criteria	Time (Completed minute)	Failure Criteria Exceeded
Integrity		Ignition of cotton pad	120 minutes	No failure*
		Sustained flaming	120 minutes	No failure*
		Cracks of openings in excess of given dimensions	120 minutes	No failure*
Thermal Insulation	Specimen	Average temperature, increase of Δ 140°C	120 minutes	No failure*
		Maximum temperature, increase of Δ 180°C	120 minutes	No failure*
Radiation	Specimen	Maximum or average radiation value > 5 kw/m^2	120 minutes	No failure*
		Maximum or average radiation value > 10 kw/m^2	120 minutes	No failure*
		Maximum or average radiation value > 15 kw/m^2	120 minutes	No failure*
		Maximum or average radiation value > 20 kw/m^2	120 minutes	No failure*
		Maximum or average radiation value > 25 kw/m^2	120 minutes	No failure*

*The test was discontinued after a period of 120 minutes.

8 Figures

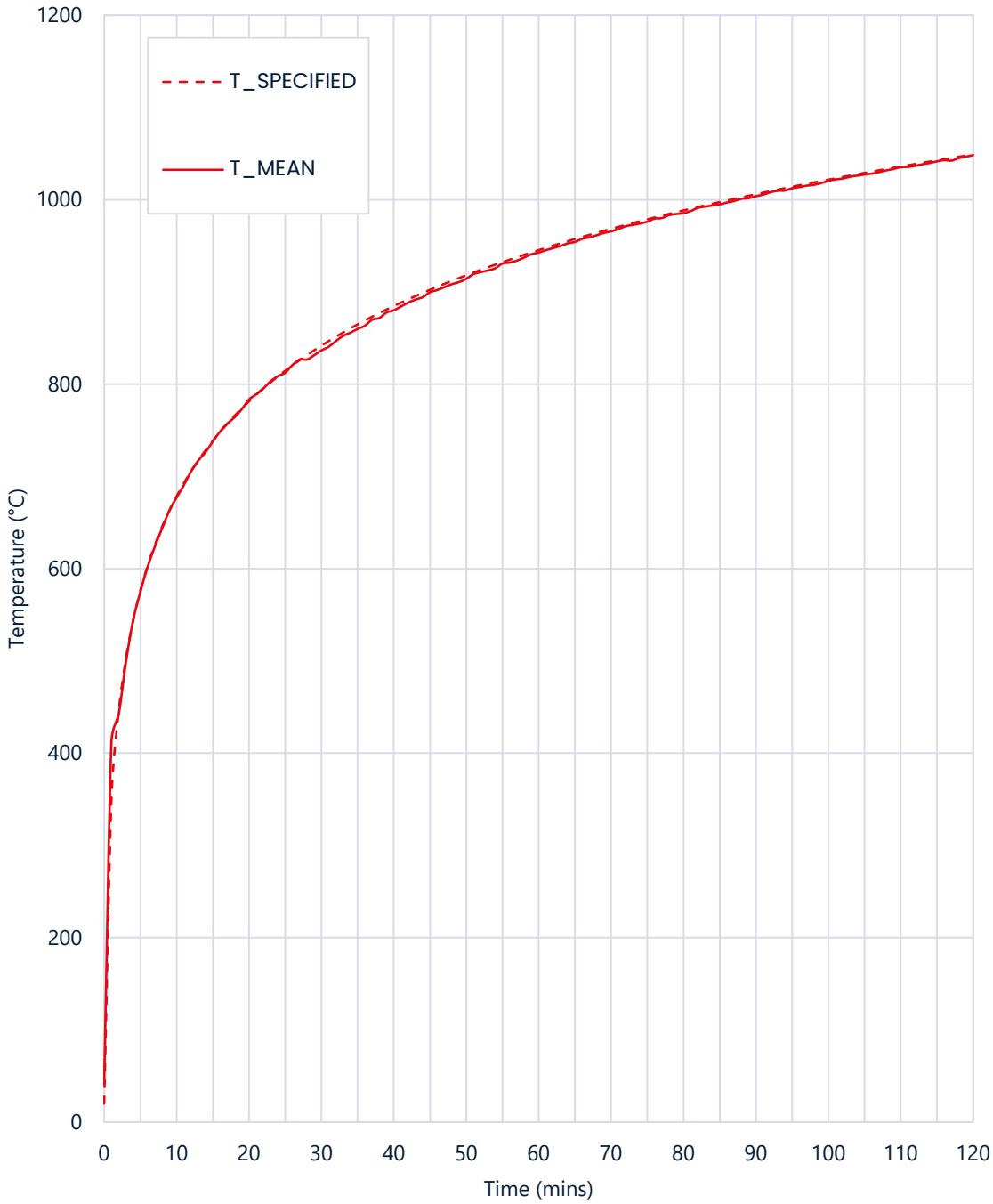


Figure 18 – Graph presenting the Time-Temperature distribution of the furnace

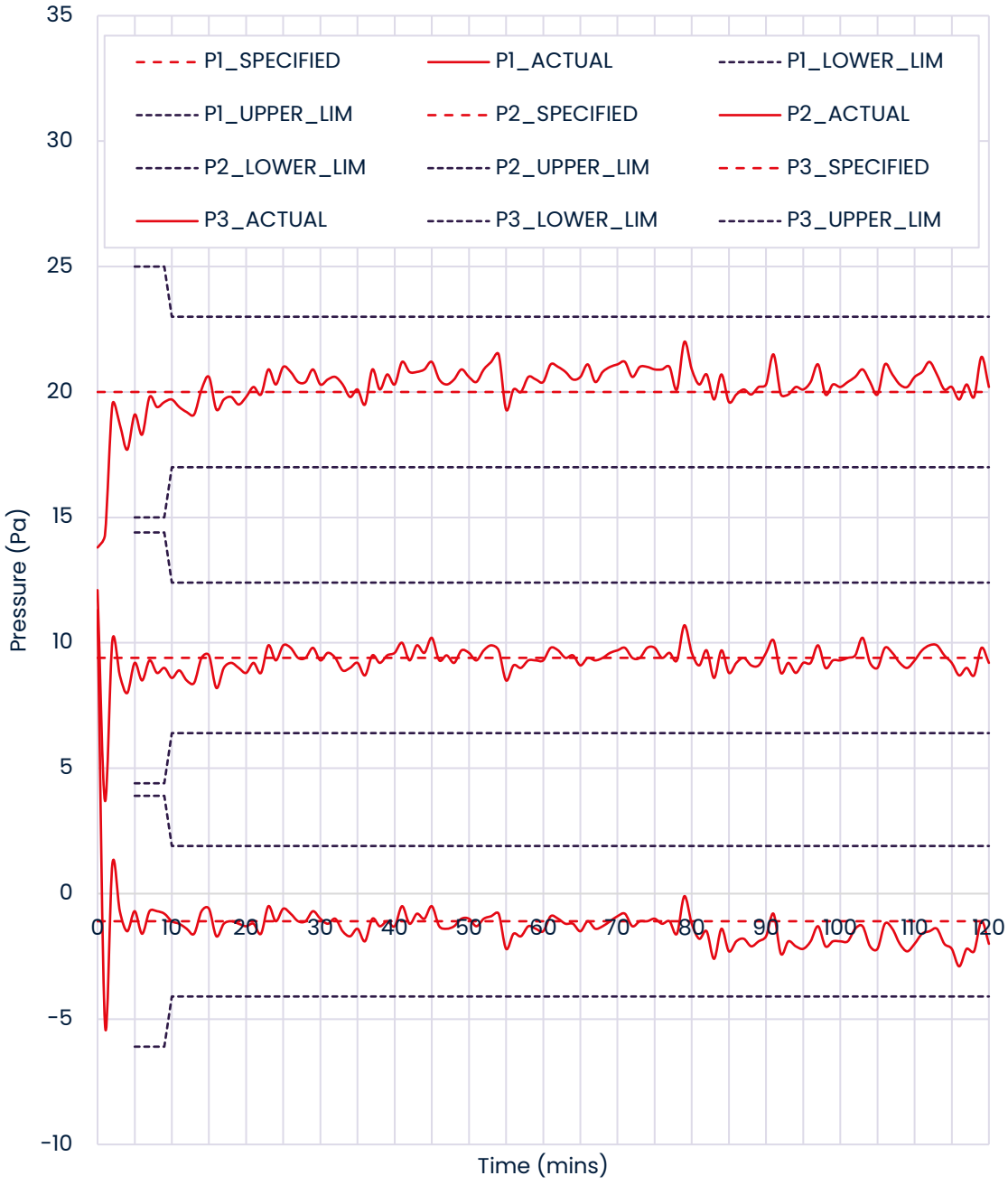


Figure 19 – Graph presenting the Time-Pressure distribution of the furnace

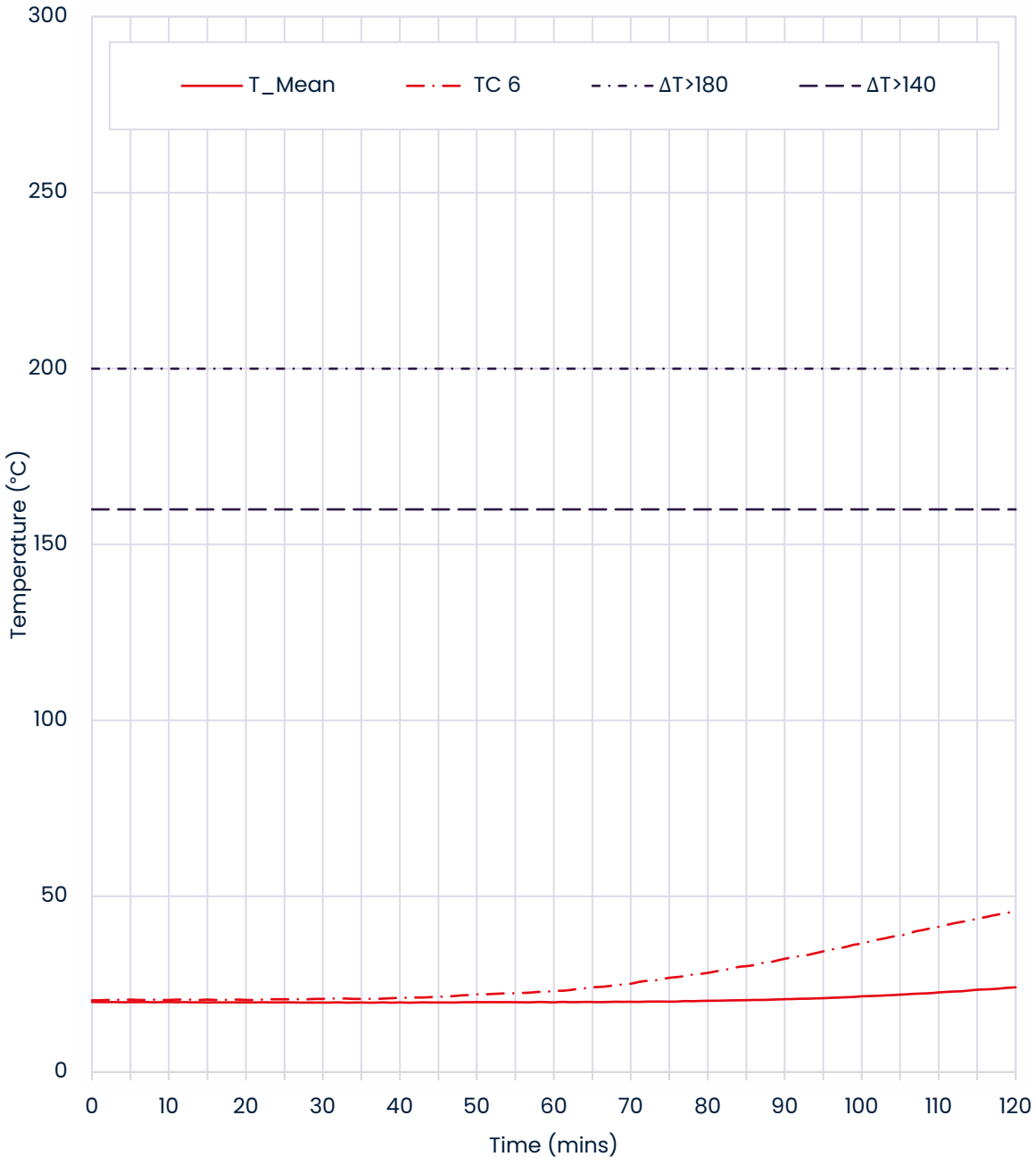


Figure 20 - Graph presenting the Time-Temperature distribution of the unexposed surface of The Specimen

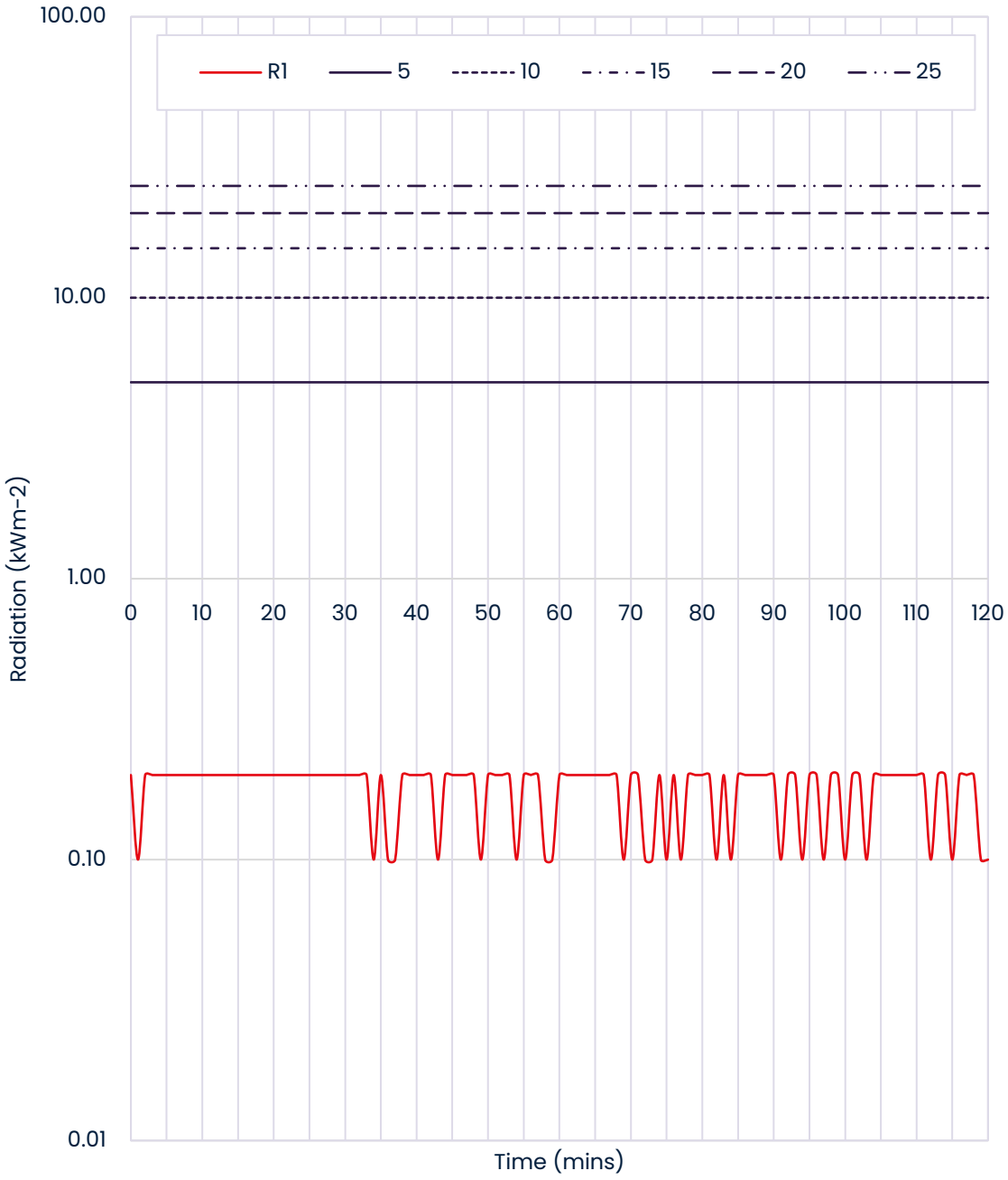


Figure 21 - Graph presenting Time-Radiation distribution of the unexposed surface of The Specimen

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	20.3	20.8	19.7	19.5	19.4
5	20.3	20.6	19.7	19.5	19.3
10	20.2	20.7	19.7	19.5	19.4
15	20.1	20.5	19.7	19.4	19.3
20	20.2	20.6	19.6	19.4	19.3
25	20.2	20.6	19.6	19.4	19.3
30	20.1	20.5	19.5	19.4	19.3
35	20.1	20.6	19.5	19.4	19.3
40	20.2	20.6	19.5	19.4	19.3
45	20.2	20.6	19.4	19.4	19.3
50	20.4	20.8	19.5	19.4	19.3
55	20.5	20.7	19.5	19.4	19.2
60	20.5	20.7	19.4	19.3	19.2
65	20.6	20.8	19.5	19.4	19.3
70	20.9	21.0	19.5	19.3	19.2
75	21.1	21.0	19.5	19.3	19.2
80	21.6	21.4	19.6	19.4	19.3
85	22.1	21.7	19.6	19.4	19.4
90	22.7	22.1	19.7	19.6	19.5
95	23.5	22.3	19.9	19.6	19.7
100	24.4	23.3	20.2	19.9	19.9
105	25.3	23.9	20.5	20.1	20.2
110	26.4	24.9	20.9	20.4	20.6
115	27.7	25.8	21.5	20.9	21.1
120	28.8	26.8	22.0	21.2	21.6

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

Time (mins)	TC6	TC7	TC8	TC9
0	20.4	21.7	19.4	20.4
5	20.6	21.6	19.4	20.3
10	20.5	21.4	19.5	20.3
15	20.6	21.3	19.5	20.2
20	20.5	21.2	19.6	20.1
25	20.7	21.2	19.6	20.2
30	20.8	21.2	19.5	20.2
35	20.8	21.1	19.5	20.2
40	21.1	21.3	19.5	20.3
45	21.4	21.3	19.5	20.3
50	22.1	21.5	19.5	20.3
55	22.4	21.6	19.6	20.5
60	23.1	21.6	19.6	20.6
65	24.1	21.6	19.6	20.7
70	25.1	21.7	19.6	20.7
75	26.8	21.9	19.6	21.0
80	28.2	22.0	19.8	21.2
85	30.1	22.1	19.9	21.8
90	32.2	22.4	20.0	22.7
95	34.3	22.7	20.1	23.1
100	36.5	23.0	20.3	23.8
105	38.8	23.0	20.5	24.7
110	41.3	23.4	20.8	25.3
115	43.6	23.7	21.1	26.9
120	45.7	24.0	21.5	27.2