



JENSEN HUGHES



Reaction to fire test report

Test standard: BS 8414-2:2015

Test sponsor: Cladding Safety Victoria

Product: Rendered EPS façade system

Job number: RTF250418

Test date: 24 March 2025 Revision: RR1.0



Quality management

Revision	Date	Information about the report			
RR1.0	8 September 2025	Description	Initial issue.		
		Name	Prepared by	Reviewed by	Authorised by
		Signature			

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Executive summary

This report documents the findings of the reaction to fire test for a non-loadbearing external wall system performed on the 24 March 2025 in general accordance with BS 8414-2:2015.

Jensen Hughes performed the test at the request of Cladding Safety Victoria.

Table 1 provides details of the test assembly, and Table 2 provides a summary of the test specimen. A summary of the results is provided in Table 3.

Table 1 Test specimen

Item	Detail	
Nominal non-loadbearing wall system	Height	3000 mm
	Thickness	180 mm
Nominated length of main wall, finished face	5785 mm	
Nominated length of wing wall, finished face	3110 mm	

Table 2 Test specimen

Item	Detail
Test specimen	<p>The façade consisted of a 90 mm MGP10 timber framing that was clad on the unexposed side with 10 mm regular plasterboard and rendered 75 mm thick extruded polystyrene (EPS) on the exposed side.</p> <p>The cavity of the timber framing was filled with R1.5 glasswool insulation, and at the top of the wall a C-channel purlin was installed in place to mimic a gutter protruding from the top of the wall.</p> <p>A four-coat render system was applied on to the face of the 75 mm EPS panels, which started with a 3 mm thick base coat, followed by a layer of primer before the top texture render was applied. Two applications of waterproofing membrane were then applied over the textured render.</p>

Table 3 Test results

Parameter	Results
t_s , start time	2 minutes 53 seconds after ignition of crib
Peak temperature/time at Level 1, 50 mm external	978 °C at 13 minutes 20 seconds after t_s



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1. Introduction

This report documents the findings of the reaction to fire test for a non-loadbearing external wall system performed on the 24 March 2025 in general accordance with BS 8414-2:2015.

Jensen Hughes performed the test at the request of the test sponsor listed in Table 4.

Table 4 Test sponsor details

Test sponsor	Address
Cladding Safety Victoria	717 Bourke Street Docklands VIC 3808 Australia

2. Test specimen

2.1 Schedule of components

Table 5 describes the test specimen and lists the schedule of components. These were specified by the test sponsor and surveyed by Jensen Hughes.

All measurements were done by Jensen Hughes – unless indicated otherwise.

Detailed drawings of the test specimen are provided in Appendix A.

Table 5 Schedule of components

Item	Description	
Cladding		
1.	Item name	EPS panels
	Product name	██
	Material	Approximately 75 mm thick medium grade EPS with a flame-retardant additive and a density of 20 kg/m ³ with one of the large faces covered by a layer of render with a thickness of approximately 1 mm. Within the render facing was a layer of alkaline-resistant 145 GSM fiberglass mesh with a thickness of 0.4 mm and a 6 × 4 mm grid.
	Size	2400 mm long × 1200 mm wide × 76 mm thick
	Mass per area	2.7 kg/m ² (measured)
	Manufacturer	████████████████████
	Batch	2048
2.	Item name	Internal lining
	Product name	████████████████████
	Size	3000 mm long × 1200 mm wide × 10 mm thick
	Areal density	6.3 kg/m ²
	Manufacturer	████████████████████
	Batch date	03/03/2025
Framing		
3.	Item name	Timber framing
	Material	90 × 45 mm MGP10 timber with a density of 430 kg/m ³ with a moisture content of approximately 9 %
	Size	The full frame for the EPS panels (item 1) was approximately 3000 mm tall × 5785 mm wide × 90 mm deep for the main wall and approximately 3000 mm



Item	Description	
		tall × 3275 mm wide × 90 mm deep for the side wall. Studs were at 450 mm centres whilst the noggings were at approximately 1000 mm centres. Where there was a vertical EPS panel joint, a double stud was incorporated for the length of the joint.
	Batch date	11/12/24
4.	Item name	Timber lintel
	Material	190 × 45 mm MGP10 timber with a density of 430 kg/m ³ with a moisture content of approximately 9 %
	Size	The lintel was made up of two 190 × 45 mm timber that was stacked to make up a 90 mm thickness and was installed vertically as the combustion chamber lintel.
	Batch date	Unknown
Flashing		
5.	Item name	Corner beads – aluminium with fiberglass mesh
	Size	22 mm × 22 mm × 0.32 mm thick perforated angle. The angle contained Ø8 mm perforations at repeating 12 mm centres on each flange. On the external corner was fixed an angled fiberglass mesh approximately 85 mm × 115 mm. Mesh: 4 mm × 6 mm grid, 0.4 mm thick, 141 GSM.
	Installation	Installed on all external corners of the specimen fitted around the rendered wall system. It was placed in conjunction with the render (item 16).
	Supplier	██████████
	Batch	Unknown
6.	Item name	Timber reveal and packers
	Size	Vertical reveal timber: 110 mm deep × 17.8 mm thick × 2000 mm tall. Painted white. Mass per linear metre: 1.1 kg/m Horizontal reveal timber: 110 mm deep × 17.8 mm thick × 2032 mm long. Painted white. Mass per linear metre: 1.1 kg/m Plastic packers: ~ 10 mm thick
	Installation	The head of the reveal was screw fixed to the vertical members. To the exposed side of the reveal the aluminium window framing (item 7) was screw fixed (item 22) at approximately 200 mm centres. The reveal assembly was then placed inside the timber framing (item 3) with the packers in between the vertical reveal timber and the timber frame and was screw fixed (item 22) at 300 mm centres.
	Supplier	██████████
	Batch	Unknown
7.	Item name	Aluminium extrusion – window framing
	Size	75 mm total depth × 33 mm visible width × 1.5 mm thick
	Installation	Screw fixed to the exposed side of the timber reveal at ~200 mm centres using plasterboard screws (item 22).
	Manufacturer	██████████
	Batch	Unknown



Item	Description	
8.	Item name	Aluminium starter channel
	Size	0.6 mm thick angled channel with a 78 mm deep web with 2 perforated flanges - 50 mm and 25 mm long.
	Installation	Installed on the bottom of the EPS panels (item 1). Friction fitted and screw (item 22) fixed at 300 mm centres to the EPS panel face (item 1) only.
	Supplier	██████████
	Batch	Unknown
9.	Item name	Steel C-channel purlin, replicating projection of a gutter
	Size	1.9 mm thick × 200 mm wide × 78 mm flange with a 20 mm fold at the end
	Installation	Installed on the top of the EPS panel (item 1) extending 132 mm over the rendered panels. Screw (item 20) fixed at 300 mm centres to the timber framing (item 3).
	Supplier	██████████
	Batch	Unknown
10.	Item name	Rubber infill aluminium control joint spacer
	Size	0.6 mm thick × 73 mm wide with an 8 mm × 8 mm square rubber strip running centrally along the length. The side flanges were 32 mm wide with an 8 mm folded leg on the rubber strip side.
	Installation	Installed between the panel to panel control joint between the EPS panels (item 1). The rubber strip was removed after the base coat curing, leaving the two side flanges embedded into the render system.
	Supplier	██████████
	Batch	Unknown
Sarking		
11.	Item name	Breathable sarking
	Size	2750 mm wide × 0.35 mm thick 100 GSM
	Installation	The sarking was installed horizontally over the timber frame (item 3) with a 200 mm overlap of the top sheet over the bottom. The sarking was fixed using 10 mm staples (item 24) at approximate 200 mm centres around the tracks and up the studs.
12.	Item name	FR sealing membrane – PVC coated polyester fabric
	Size	0.3 mm thick × 75 mm wide
	Installation	Used to tape the sarking (item 11) joints and around the reveal.
	Supplier	██████████
	Batch	Unknown
Insulation		
13.	Item name	R1.5 Glasswool insulation
	Product name	██
	Size	75 mm × 580 mm × 1160 mm
	Density	12.3 kg/m ³ (uncompressed)
	Batch	3422417-3
	Manufacturer	████████████████████



Item	Description	
Render/Sealant/Adhesive		
14.	Item name	Expandable foam
	Product name	[REDACTED]
	Material	Polyurethane-based foam
	Installation	Applied at the panel to panel butt joints.
	Batch	2408758372 07:31
	Manufacturer	[REDACTED]
15.	Item name	Silicone sealant
	Product name	[REDACTED]
	Material	White weather proofing silicone sealant.
	Installation	Applied at the control joint and at the panel and the timber reveal junction.
	Batch	Unknown
	Manufacturer	[REDACTED]
16.	Item name	Render, primer and texture (white)
	Material	<p>Render (grey): High polymer-containing cementitious basecoat modified for EPS render with 10 – 35% Portland cement Thickness: Approximately 4 mm Density: 1896 kg/m³ Moisture content: approximately 5 %</p> <p>Rendercoat primer: tintable acrylic primer Thickness: Approximately 0.5 mm</p> <p>Texture (white): A marble/acrylic paint mix. Thickness: Approximately 1 mm Density: 1550 kg/m³ Moisture content: approximately 22 %</p> <p>Top membrane (clear): A waterproofing membrane Thickness: Approximately 0.5 mm</p> <p>Total render system (including that of EPS board): Mass per unit area: 6.6 kg/m² Free moisture content: approximately 0.5 % Thickness: Approximately 7 mm</p>
	Installation	<p>The render was mixed with water and applied over the EPS panels (item 1). Two coats of base coat render were applied, with alkaline resistant mesh (item 18) embedded between coats The render was allowed to cure for 48 hours.</p> <p>Then primer was added over the render and allowed to dry for 2 hours.</p> <p>The texture was then applied over the top in one application and allowed to cure for 48 hours.</p> <p>The top membrane was applied afterwards, and the full system was allowed to cure for 96 hours before testing.</p>
Batches	[REDACTED]	



Item	Description	
		[REDACTED]
17.	Item name	Sticky mesh tape – red
	Material	Fibreglass grid: 5 mm by 5 mm grid. 150 mm wide × 0.4 mm thick.
	Installation	Applied in combination with render (item 16) over the EPS panel to panel joints.
	Supplier	[REDACTED]
	Batch	Unknown
18.	Item name	Alkaline resistant fiberglass wall mesh
	Material	Fibreglass grid: 5 mm by 5 mm grid. 1185 mm wide × 0.45 mm thick Weight : 160 GSM (nominated)
	Installation	Embedded into the base coat render (item 16) during the render process.
	Supplier	[REDACTED]
	Batch	Unknown
19.	Item name	Expansion joint filler
	Material	75 mm wide × 10 mm thick Density : 24 kg/m ³
	Installation	Used to fill in the control joint of the panels (item 1).
	Manufacturer	[REDACTED]
	Batch	Unknown
Fixings		
20.	Item name	Ø5.4 × 65 mm long hex head (male) screws – 50 mm long thread SDS
	Installation	Used to fix the timber framing (item 3) to the false slabs (item 28) and to fix the purlins (item 9) in place at the top of the specimen.
	Supplier	[REDACTED]
	Batch	Unknown
21.	Item name	#6 × 45 mm long bugle head screws - coarse thread, needle point, Philips drive
	Installation	Used to fix the horizontal aluminium starter channel (item 8) to the panel face (item 1), as well as the timber reveal (item 6) to the aluminium extrusions.
	Supplier	[REDACTED]
	Batch	Unknown
22.	Item name	#6 × 32 mm long plasterboard screws – coarse thread, needle point
	Installation	Used to screw fix the plasterboard (item 2) to the timber framing (item 3). Screw centre were 400 mm centres in-field and 300 mm centres around the perimeter.
	Supplier	[REDACTED]
	Batch	Unknown
23.	Item name	EPS board screws with nylon washer
	Size	Screw: 130 mm long × Ø5.0 mm class 3, bugle head, needle point

Item	Description	
		Washer: O.D. ~48 mm, I.D. (for screw) 6 mm, Min/max thickness: 1 mm/7 mm.
	Manufacturer	██████████
	Batch	Unknown
	Installation	Used to fix the EPS panels (item 1) to the timber framing (item 3).
24.	Item name	10 mm long × 10 mm wide staples
	Installation	Used to fix the sarking (item 11) to the timber frame (item 3).
	Manufacturer	██████████
	Batch	Unknown
25.	Item name	Ø3 mm × 70 mm long nails
	Installation	Used to fix timber framing (item 3) members together. Two nails were used at each end of the noggings and at the top and bottoms of each stud.
	Supplier	██████████
	Batch	Unknown
26.	Item name	Concrete anchor
	Installation	Used to fix timber framing (item 3) to the concrete floor.
	Supplier	██████████
	Batch	Unknown
27.	Item name	#6 × 20 mm long bugle head screws - coarse thread, self-drilling, Phillips drive
	Installation	Used to fix the aluminium extrusion (item 7) to the timber reveal (item 6).
	Supplier	██████████
	Batch	Unknown
Steel substrate		
28.	Item name	Steel substrate
	Size	The steel substrate was 9300 mm high × 3245 mm wide for the main wall and 9300 mm high × 2000 mm wide for the wing wall
	Installation	The substrate consisted of structural steel sections and square hollow sections (SHS). In addition, movable SHS - 150 mm × 150 mm, acting as a false slab were also present. It was located at 3075 mm from the ground (measured from the centre of the false slab).
Installation method		
EW	Overall size	Main wall – 5785 mm × 3000 mm × 170 mm thick Wing wall – 3110 mm × 3000 mm × 170 mm thick
	Installation	To be read in conjunction with the drawings in Appendix A. <ul style="list-style-type: none"> The timber framing (item 3) was first assembled and installed on ground level extending up to 1st false slab level (item 28) with top plate fixed to false slab using hex head screws (item 20) and the bottom plate fixed into the concrete floor using concrete anchors (item 25), at 600 mm centres respectively. One layer of sarking (item 11) was then stapled on the external side of the timber framing (item 3). The horizontal joint of the sarking was taped over using sealing tape (item 12) with the top sarking overlapping the bottom by 200 mm. The combustion chamber opening was capped with painted timber reveals (item 10) – which were screw fixed (item 22) to the timber framing (item 3).

Item	Description
	<p>Attached to these timber strips were aluminium extrusions (item 7), that were screw fixed (item 22). These strips created the reveal of the opening with the aluminium extrusions (item 7) representing the perimeter of an aluminium framed window. Packers (item 10) were placed between the reveal (item 10) and the timber framing (item 3).</p> <ul style="list-style-type: none"> • The EPS panels (item 1) were screw (item 22) fixed over the top of the sarking (item 11). Panel to panel joints were butt joined with a bead of expandable foam (item 14) used at the centre of the thickness of the panel. Mid-width of the 2 m by 2 m opening, extending vertically to the top of the specimen, was a 10 mm wide vertical control joint which was applied with a backing rod (item 19) and sealant (item 15) on top flush with the render face. • To the face of the pre-rendered EPS panels (item 1) was applied render, simultaneously with various reinforcing elements. These reinforcing elements were aluminium beads with a fiberglass mesh (item 18) and self-adhesive fiberglass mesh (item 17) – which was applied to panel to panel joints. The render system was then finished off with a membrane (item 16). Sealant (item 15) was also applied at the corner between the aluminium extrusions (item 7) and the finished render (item 16) at the 2 m by 2 m opening. • The timber framing cavity (item 3) was filled with insulation (item 13) and was then clad with plasterboard (item 2), screw fixed at 300 mm centres using plasterboard screws (item 22).

2.2 Installation details

Table 6 lists the installation details for the test specimen.

Table 6 Installation details

Item	Detail
Start date for construction of the test specimen	10 March 2025
Completion date for construction of the test specimen	20 March 2025
External wall system constructed by	Representatives of Jensen Hughes
Symmetry	<p>Asymmetrical: because:</p> <ul style="list-style-type: none"> • The exposed side was a rendered EPS, while the unexposed side was regular plasterboard. <p>It was confirmed that the system was exposed from the side that would normally face the outside of the building.</p>

3. Test procedure

Table 7 details the test procedure for this reaction to fire test.

Table 7 Test procedure

Item	Detail	
Statement of compliance	The test was performed in general accordance with the requirements of BS 8414-2:2015+A1:2017 for a non-loadbearing external cladding system fixed to and supported by a structural steel frame.	
Variations	<ul style="list-style-type: none"> The ignition source of the test was constructed from Pinus Radiata instead of Pinus Silvestris. This variation is not considered to have affected the outcome of the test. The specimen extended 1000 mm above the top of the combustion chamber, instead of the minimum 6000 mm outlined in section 5.3 of the standard. The finished face of the wing wall was 450 mm away from the side of the combustion chamber opening, instead of the 260 ±100 mm outlined in section 5.4 of the standard. Sections of the test specimen were constructed from substitute materials that were expected to display similar material performance under test conditions. The design was such that the external dimensions mimicked the geometry of a section of the as-built structure. 	
Environmental conditions at the start of the test	Start of the test	25 °C
	Wind speed	0.2-0.6 m/s
Ignition source	Crib material	Softwood (radiata pine)
	Moisture content	12.7 %
	Density	452 kg/m ³
Sampling / specimen selection	<p>The laboratory was not involved in sampling or selecting the test specimen for the reaction to fire test.</p> <p>The results obtained during the test only apply to the test samples as received and tested by Jensen Hughes.</p>	
Test duration	60 minutes	
Instrumentation and equipment	<p>The instrumentation was provided in accordance with BS 8414-2:2015 as follows:</p> <ul style="list-style-type: none"> All exposed and cavity temperatures were measured by mineral insulated metal sheathed (MIMS) Type K thermocouples with an overall diameter of 1.5 mm with the measuring junction insulated from the sheath. Exposed temperatures were measured by 100 mm × 100 mm × 0.7 mm plate thermometers with mineral insulated metal sheathed (MIMS) Type K thermocouples with an overall diameter of 1.5 mm with the measuring junction electrically insulated from the sheath. The thermocouple hot junction was fixed to the geometric centre of the plate by a small steel strip made from the same material-as the plate. The plate thermometers included 97 mm × 97 mm × 10 mm inorganic insulation pads. Before the first use of the plate thermometers, they were aged by being exposed to heat in a fire-resistance test furnace for 90 minutes under the standard temperature/ time curve. The thermocouple positions are shown in Figure 18 in Appendix C. The wind speed was measured by an anemometer at Level 1, 1000 mm forward from the centre line of the combustion chamber. Timber crib moisture was measured by a moisture meter. 	

4. Test measurements and results

Table 9 shows the peak temperatures the test specimen achieved as listed in BS 8414- 2:2015+A1:2017.

The temperature measurements for the test specimen are included in Appendix C.

Table 10 in Appendix B includes observations of any significant behaviour of the specimen and details the occurrence of the various performance criteria specified in BS 8414-2:2015+A1:2017.

Photographs of the specimen are included in Appendix D.

Table 8 Test results

Parameter	Results
t_s , start time	2 minutes 53 seconds after ignition of crib
Peak temperature/time at Level 1, 50 mm external	978 °C at 13 minutes 20 seconds after t_s

5. Application of test results

5.1 Test limitations

The results of these fire tests may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all fire conditions.

These results only relate to the behaviour of the specimen of the element of construction under the particular conditions of the test. They are not intended to be the sole criteria for assessing the potential fire performance of the element in use, and they do not necessarily reflect the actual behaviour in fires.

5.2 Variations from the tested specimen

This report details methods of construction, the test conditions and the results obtained when the specific element of construction described here was tested following the procedure outlined in BS 8414-2:2015+A1:2017.

Any significant variation with respect to size, construction details, loads, stresses, edge or end conditions, other than that allowed under the field of direct application in the relevant test method, is not covered by this report.

5.3 Uncertainty of measurements

Because of the nature of reaction to fire testing and the consequent difficulty in quantifying the uncertainty of measurements obtained from a reaction to fire test, it is not possible to provide a stated degree of accuracy of result.

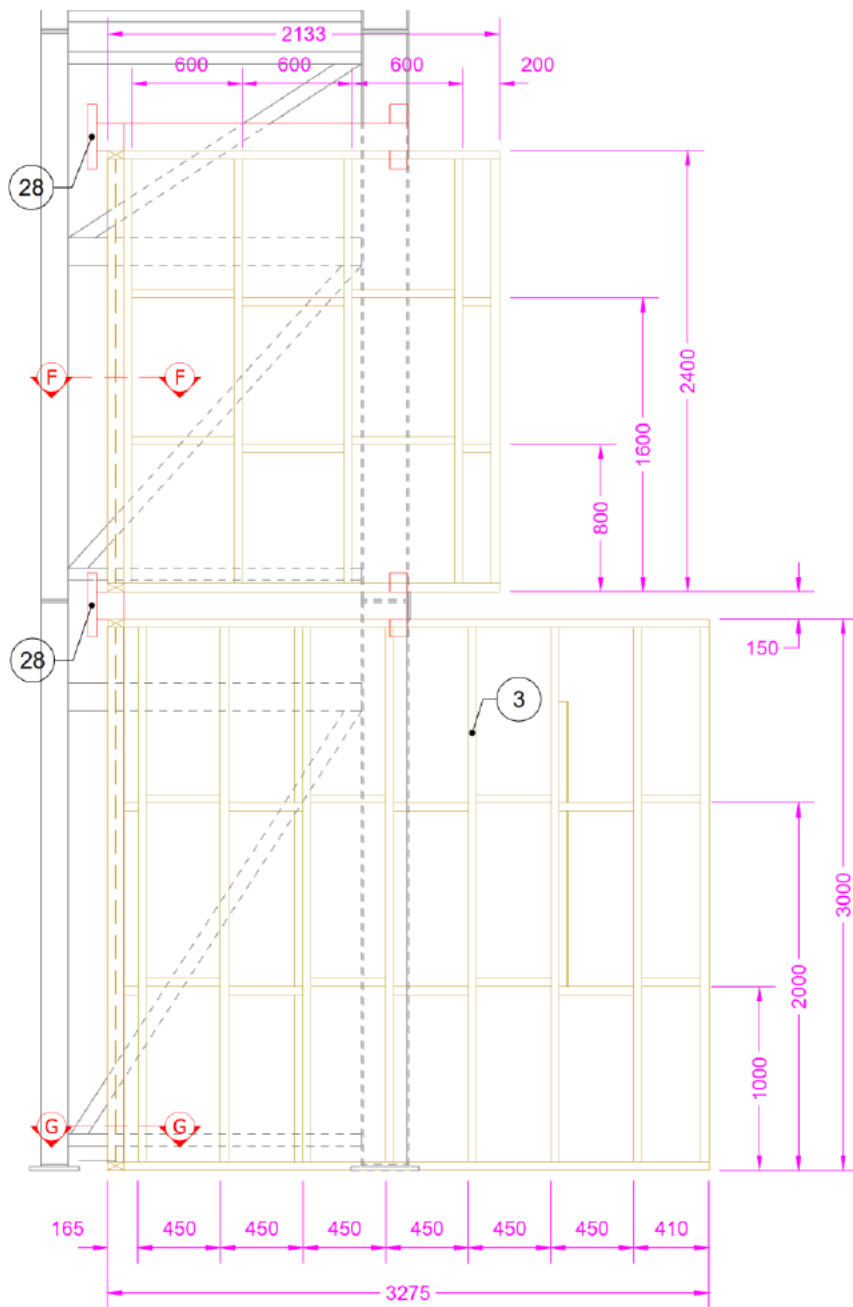


Figure 2 Timber framing, wing wall



Figure 3 Timber framing - cross section F-F and G-G, main wall

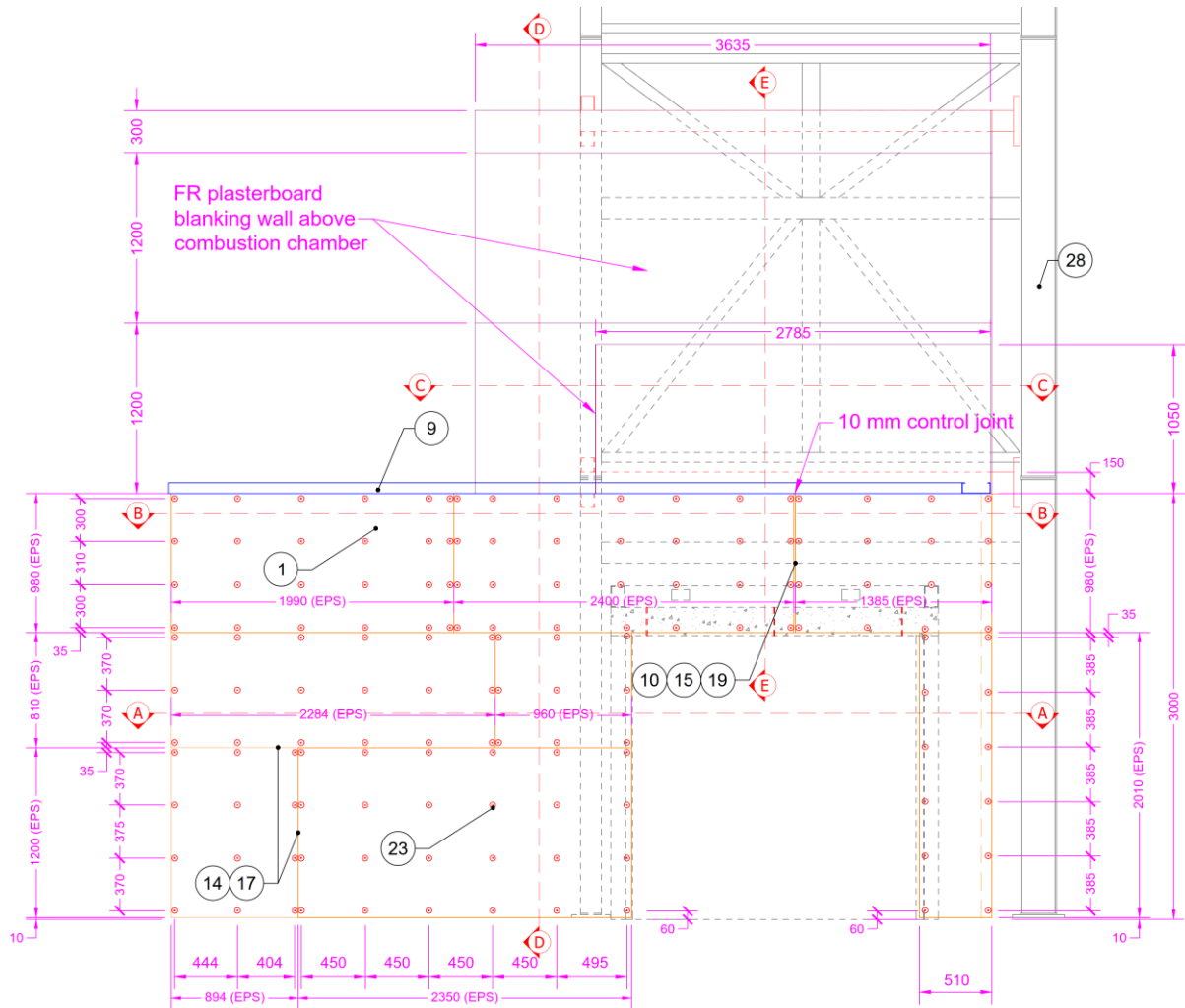


Figure 4 Panel layout, main wall

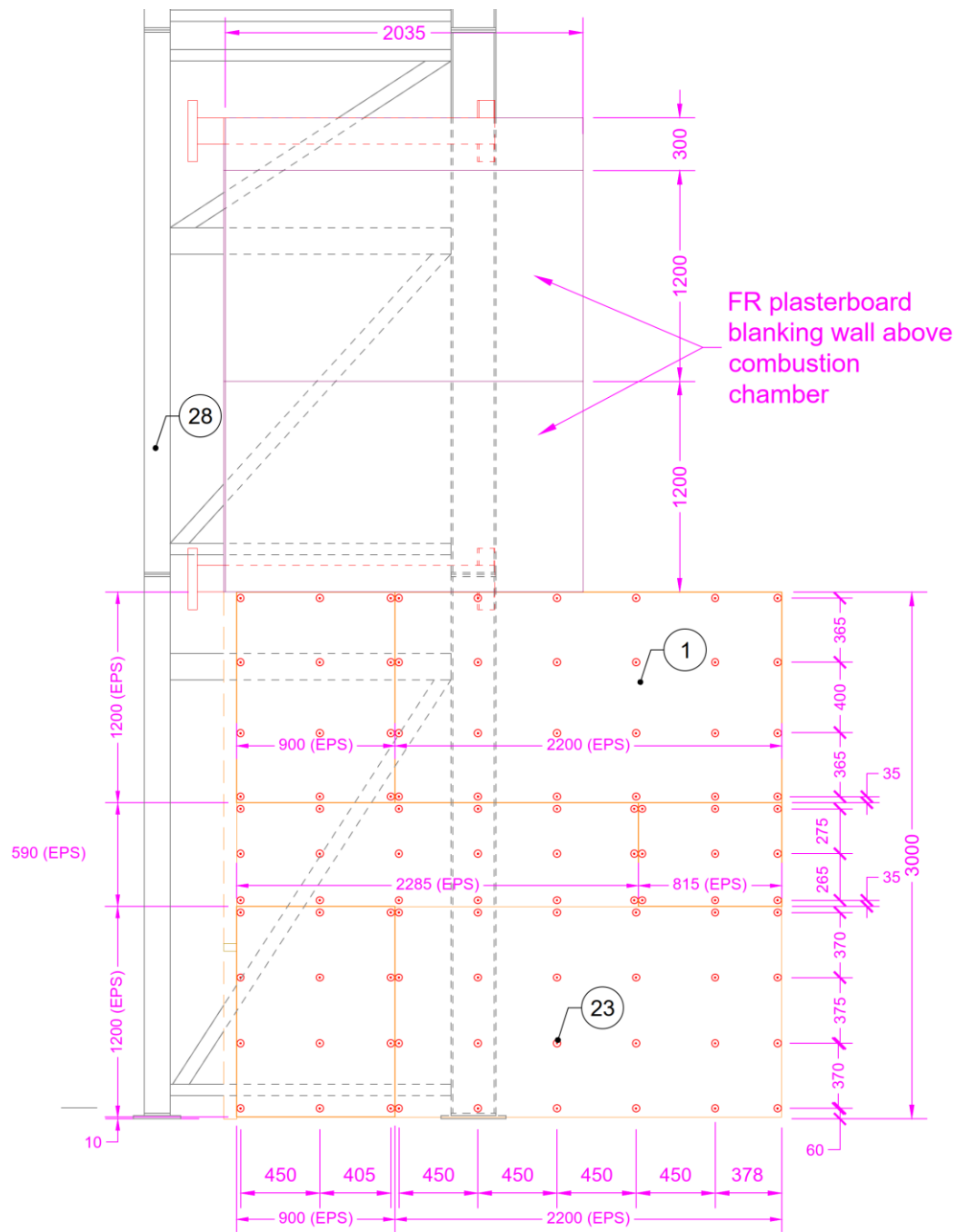


Figure 5 Panel layout, wing wall

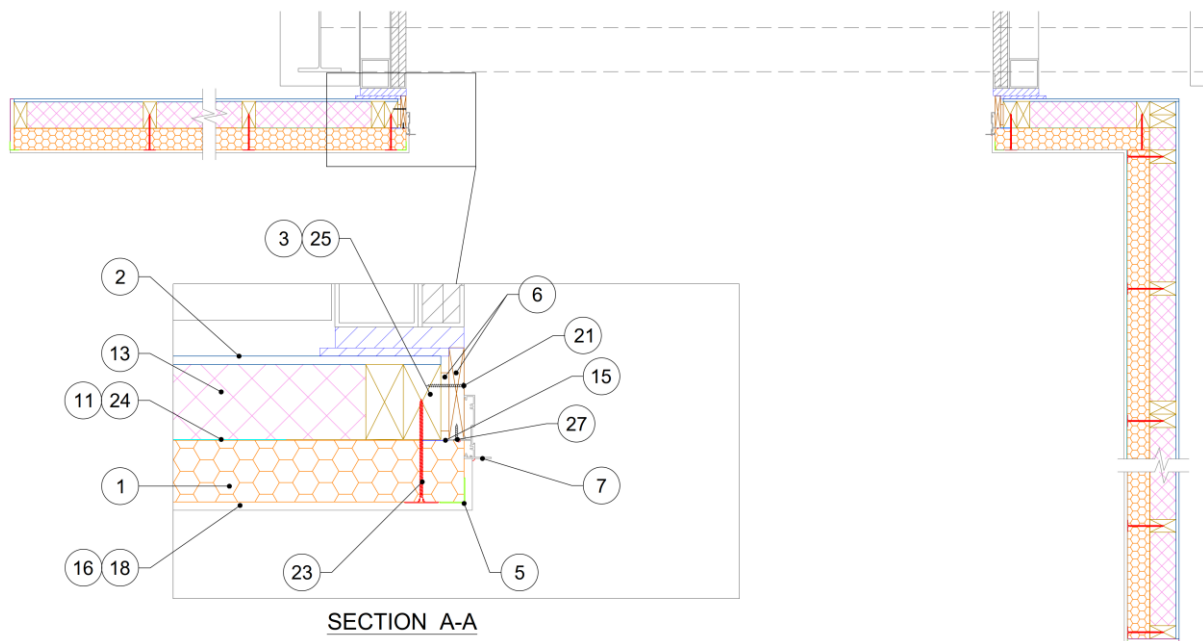


Figure 6 Overall top view, Section A-A

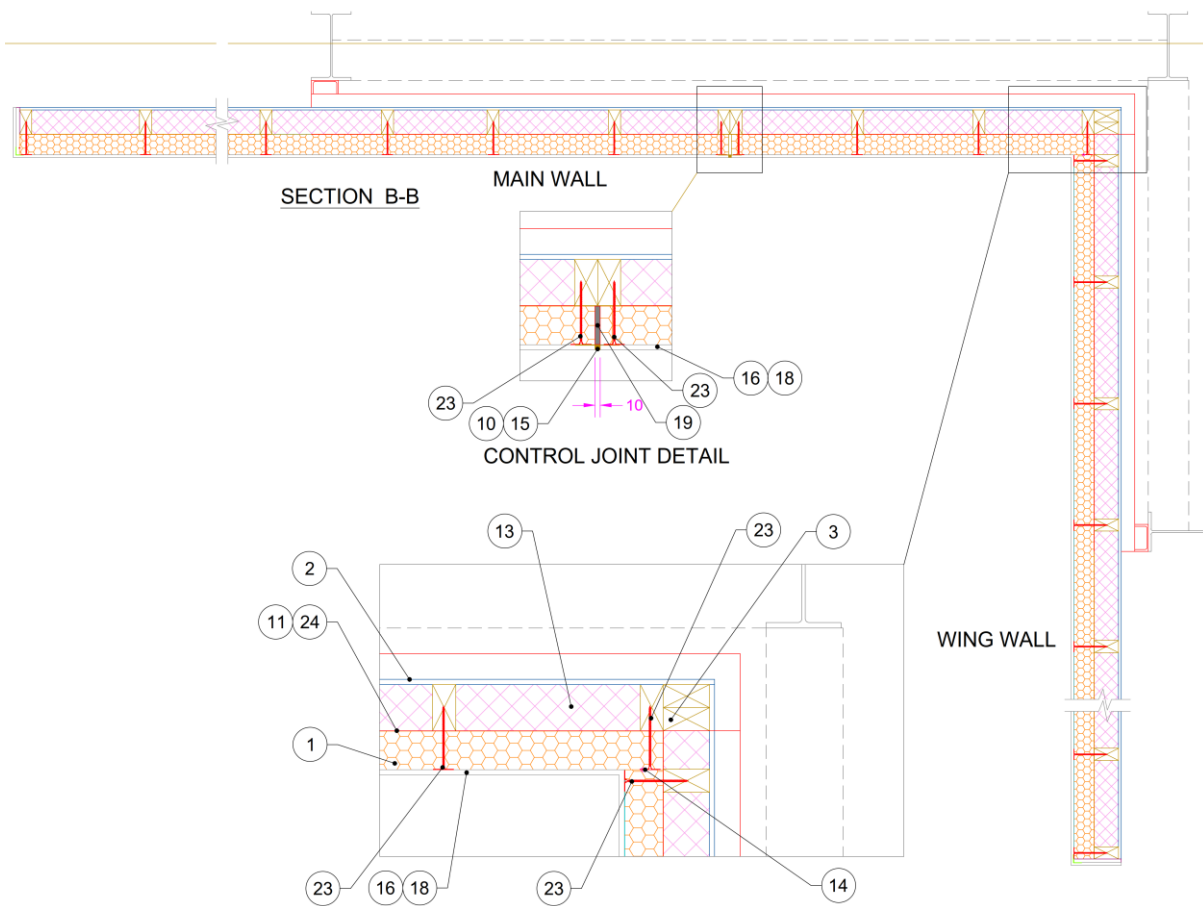


Figure 7 Overall top view, Section B-B

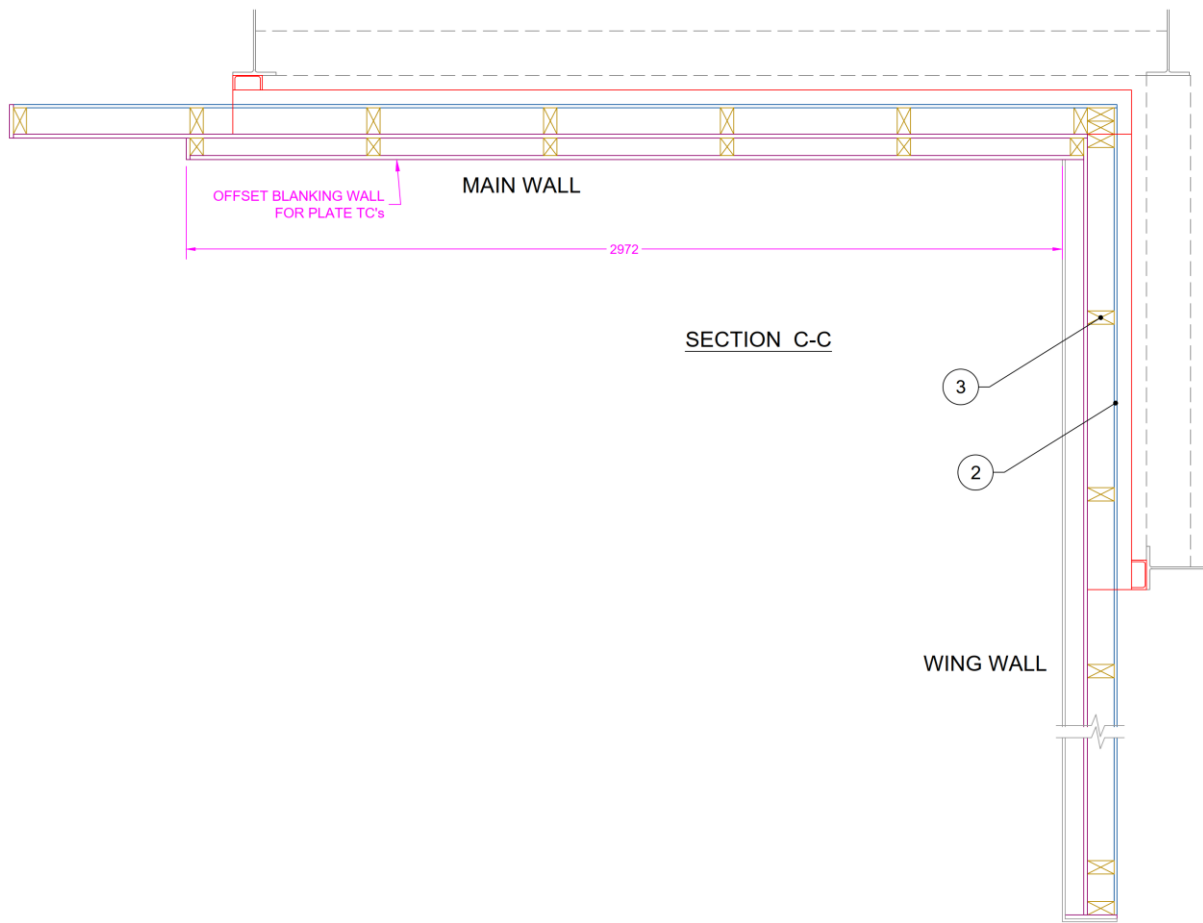


Figure 8 Overall top view, Section C-C

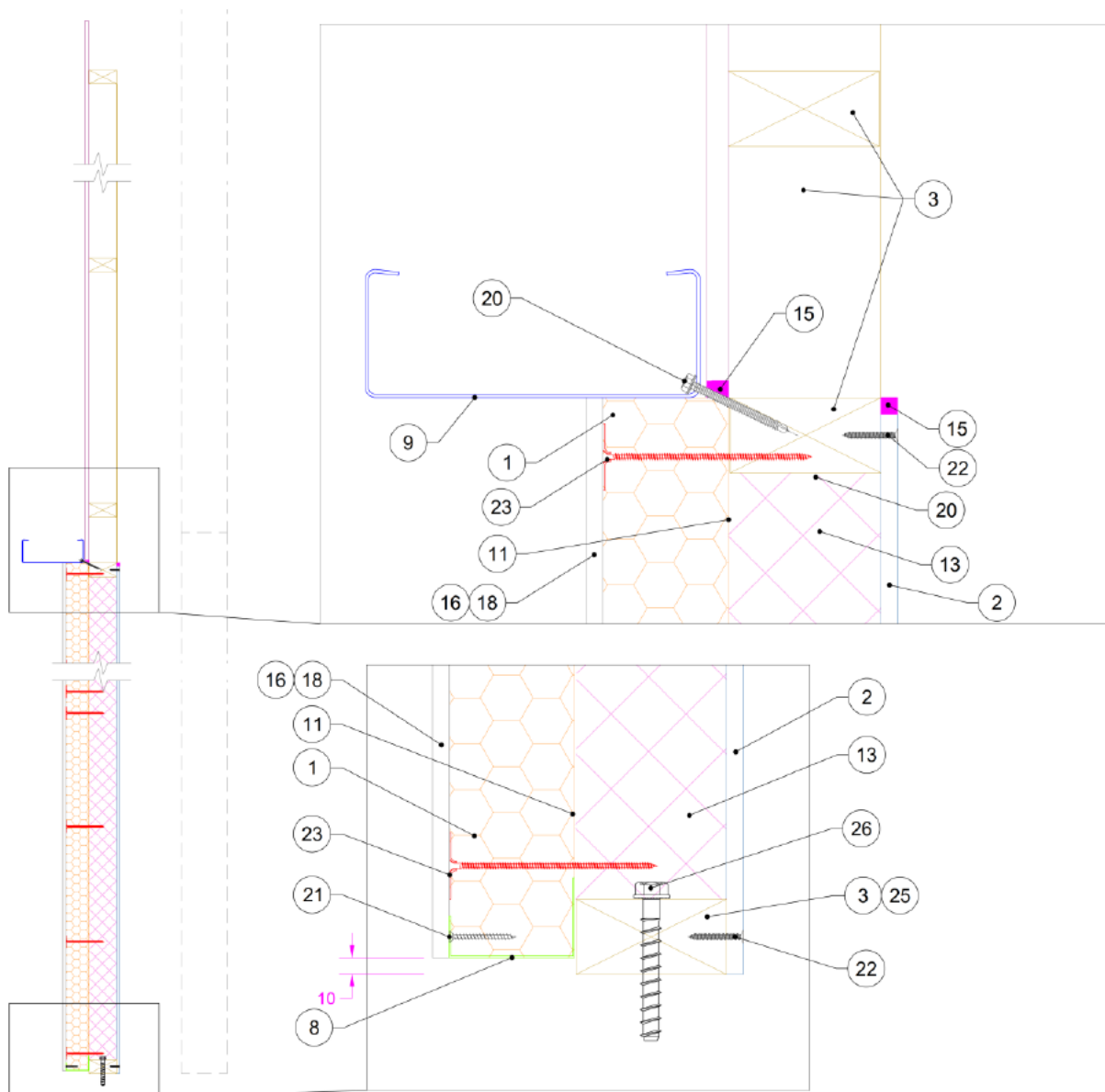


Figure 9 Overall side view, Section D-D

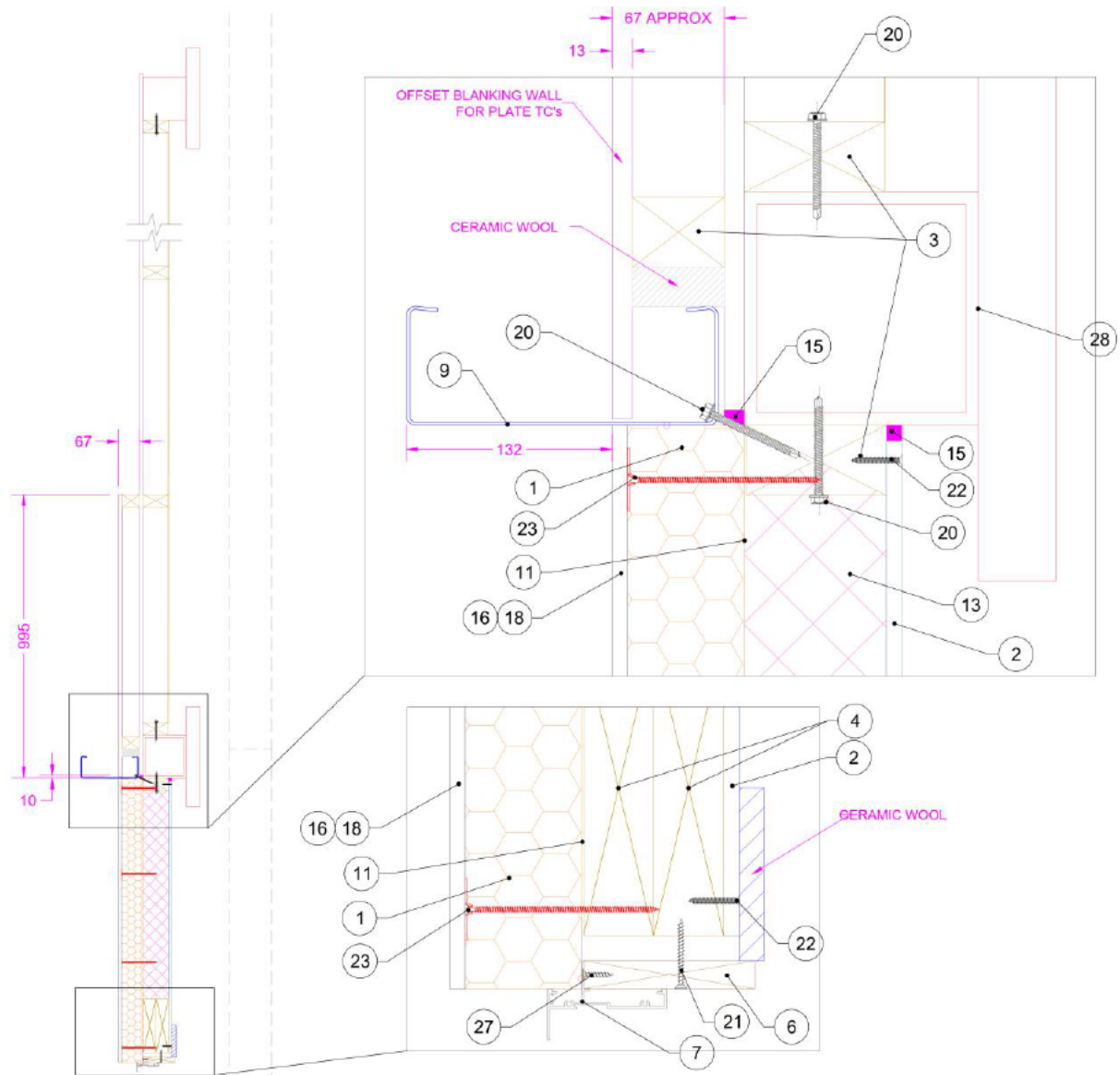


Figure 10 Overall side view, Section E-E

Appendix B Test observations

5.4 Visual observation

Table 9 shows the observations of any significant behaviour of the specimen during the test.

Table 9 Test observations

Time		Observation
Min	Sec	
0	00	The crib was ignited, and the test was started.
1	47	Flames started to flow out of the chamber.
2	03	The face of the render in region C started to discolour.
2	16	The render in region C had bulged out.
2	26	More of the render in region C bulged out.
2	47	The face of the render in region C darkened rapidly.
3	21	The bulged render in region C started to burn independently.
3	44	The flaming bulge in region C started to flake off the specimen.
4	01	Flaming debris was observed on the floor in front of the combustion chamber. The flames died off after 19 seconds.
4	35	More of the render face in region C started to burn independently.
5	10	The flames had visibly reached the thermocouple tree at level 1.
6	31	Some mesh started to be visible in region C.
7	19	Burning debris had collected at the main and wing wall corner.
8	26	The render face of region C started to open up.
9	04	The render face of region H started to discolour.
9	30	Flaming droplets started to eject from region C.
9	53	The render face in region H flamed independently.
10	04	The flames from region H had extended past the top purlins.
10	15	The render face of region I and K started to flame independently.
10	16	The face of the render in region D started to discolour.
11	27	The rendered face of region C had partially detached.
12	45	More of the render face in region C had detached.
13	03	The top section of region G started to discolour.
13	05	The render face in region D flamed independently.
13	07	The render face of region H had started to bulge.
14	01	The render face in region G flamed independently.
14	11	The render face in region H started to delaminate.
14	14	The render face in region B started to discolour and flamed independently.
14	44	The render face in region L started to flame independently.
15	55	Smoke started to emit from the flaming render faces.
16	11	The render face in region H and K delaminated further.
17	06	Flames were escaping from the back of region C.

Time		Observation
Min	Sec	
19	00	The render face in region M started to flame independently.
19	09	The render face in region F started to discolour.
19	59	The render face in region B started to delaminate.
21	33	More of the render face in region B delaminated, as well as the top of region F.
21	47	Most of the render face in region H, I, K and L had delaminated.
26	08	The flames had breached through the plasterboard and flamed on the unexposed side.
26	20	The render face of region B and F had fully delaminated.
27	13	All of the render face on the wing wall had fully delaminated.
28	25	The render face of region A was flaming independently, slowly delaminating simultaneously.
30	00	The crib was removed.
30	01	The timber framing in region C, as well as the render in region A and E was still flaming.
31	15	The render face in region A and E had partially delaminated.
31	35	A pool of burning debris had collected under the wing wall. This continued for the test duration.
33	00	The flames had penetrated through the unexposed plasterboard in region F.
34	10	The timber framing of the wing wall was burning continuously.
37	00	More of the render face in region A and E had delaminated.
38	25	The flames from region A and E had reached the outside edge of the wall.
39	10	The plasterboard behind region L and M had been breached.
41	00	The render face in region A and E had fully delaminated.
42	48	Most of the specimen in region K was fully consumed.
45	00	The molten EPS on the unexposed side was still flaming.
47	51	The framing of the wing wall started to wobble.
48	44	Most of the timber framing of the wing wall had collapsed.
50	52	The combustion chamber lintel in region C collapsed.
60	00	The test was ended and the wall assembly was sprayed.

5.5 Post-test observations

External wall system

All the EPS and insulation was consumed after the test, with most of the render fallen off the wall.

The timber framing for the main wall was fully charred, and collapsed within 10 minutes after the test was ended. The timber framing for the wing wall had collapsed during the test.

The plasterboard on the wing wall and most of the ones on the main wall had either collapsed or consumed.

The approximate mass of collected debris that fell in front of the specimen was 35.81 kg.

Approximate total mass of debris below 100 g was 6.62 kg.

Approximate total mass of debris and number of fragments between 200 g and 300 g was 0.25 kg and 1.



Approximate total mass of debris and number of fragments between 300 g and 400 g was 0.33 kg and 1.

Approximate total mass of debris and number of fragments between 400 g and 500 g was 0.88 kg and 2.

The individual mass of each fragment with a mass greater than 500 g are listed in Table 10 below:

Table 10 Fragments with a mass greater than 500 g

No	Mass (kg)
1	5.05
2	1.37
3	2.88
4	2.4
5	8.53
6	2.19
7	2.67
8	0.82
9	0.7
10	0.61
11	0.51

Appendix C Test data

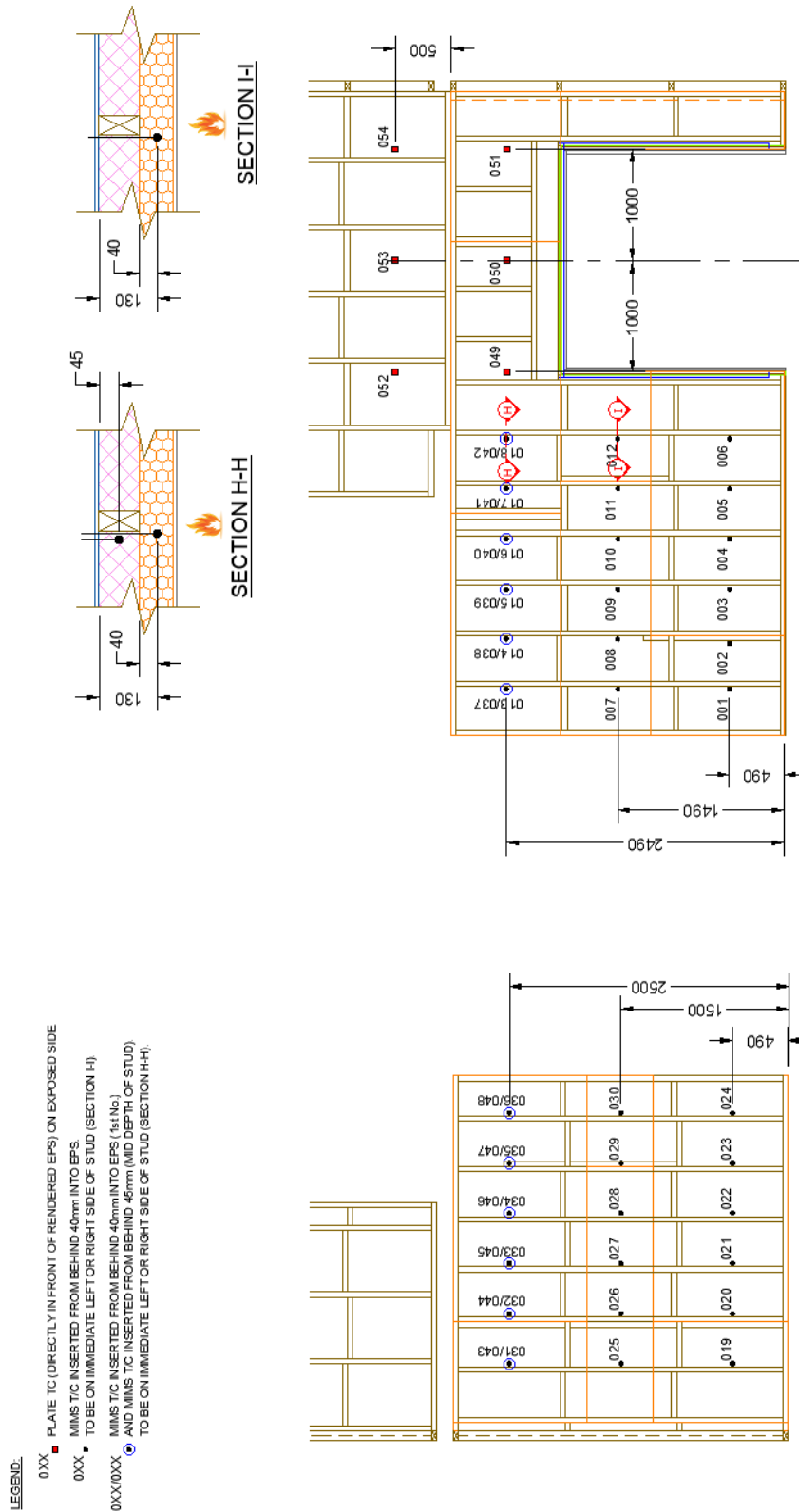


Figure 11 Thermocouple locations, internal thermocouples and plate thermometers

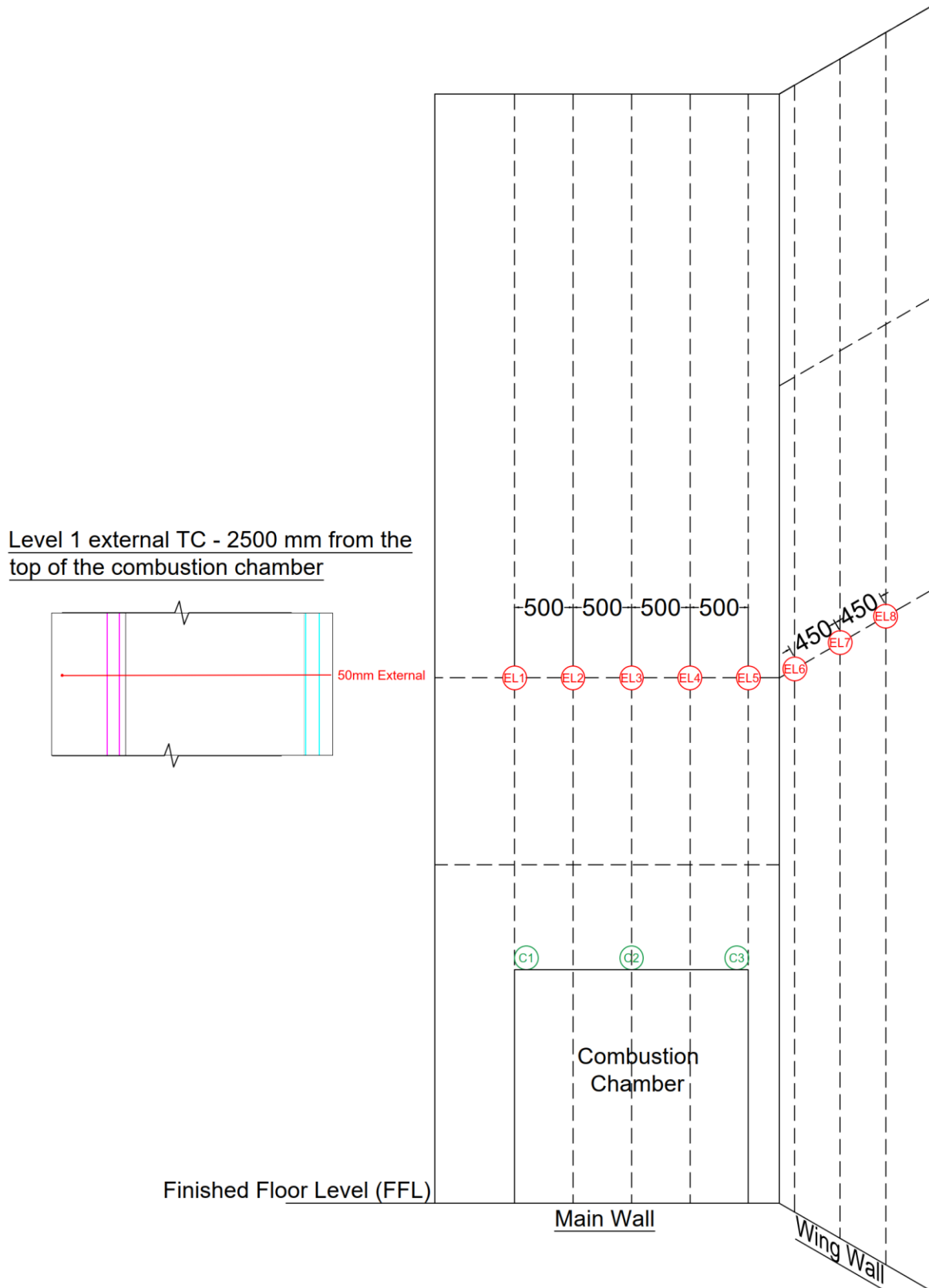


Figure 12 Thermocouple locations, external thermocouples and combustion chamber

C.1 Specimen temperatures

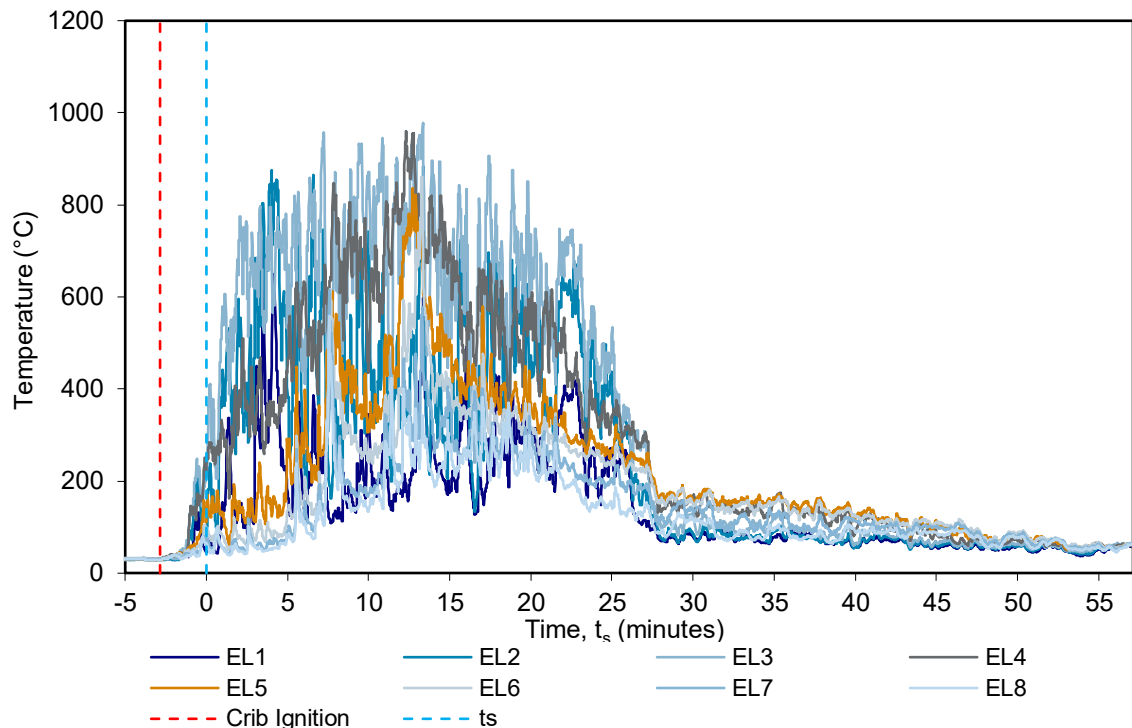


Figure 13 Level 1, external – temperature vs time

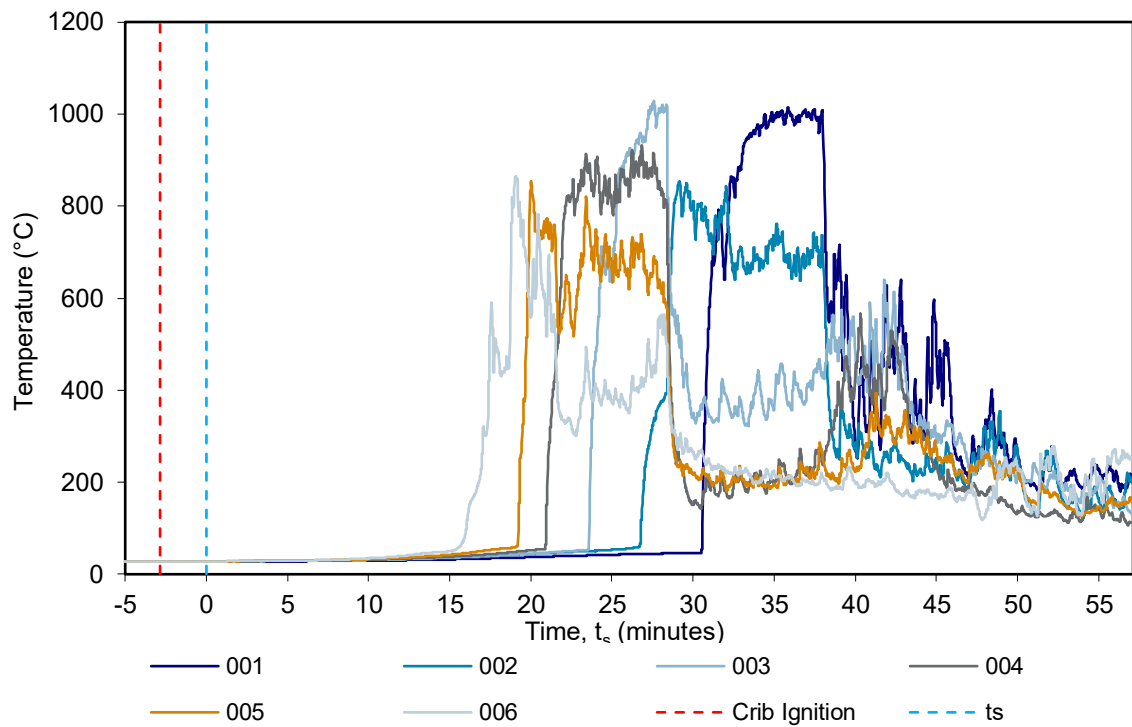


Figure 14 EPS MIMS, main wall 500 mm from the floor – temperature vs time

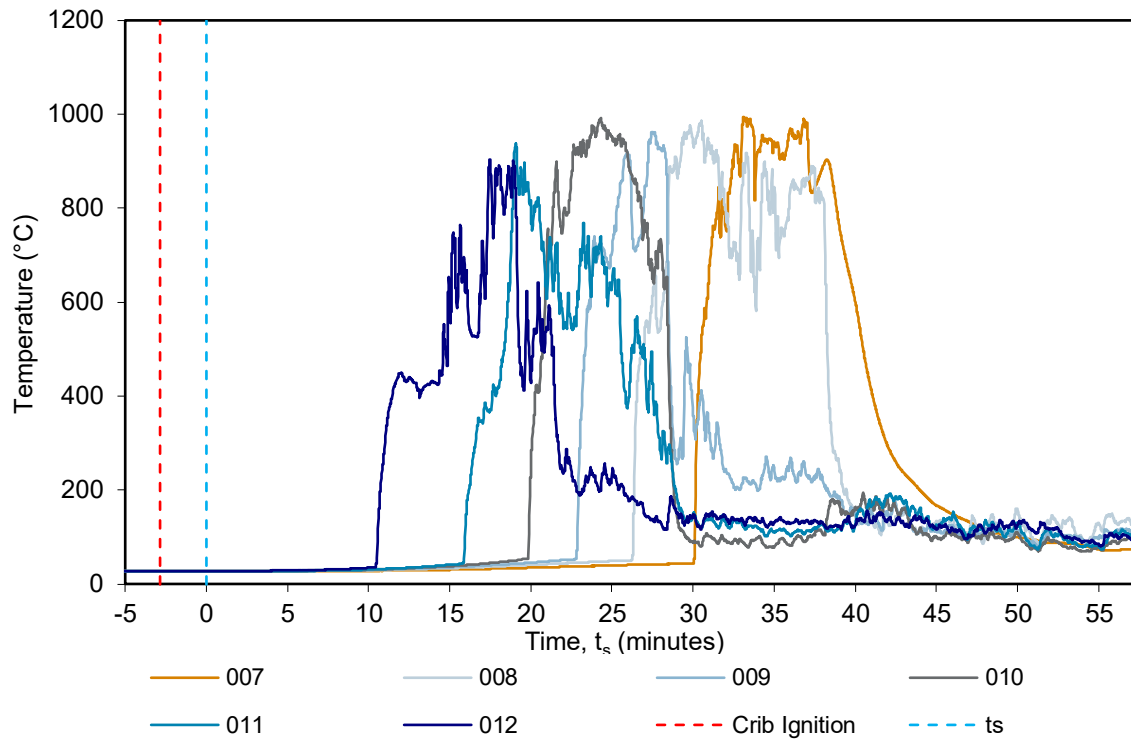


Figure 15 EPS MIMS, main wall 1500 mm from the floor – temperature vs time

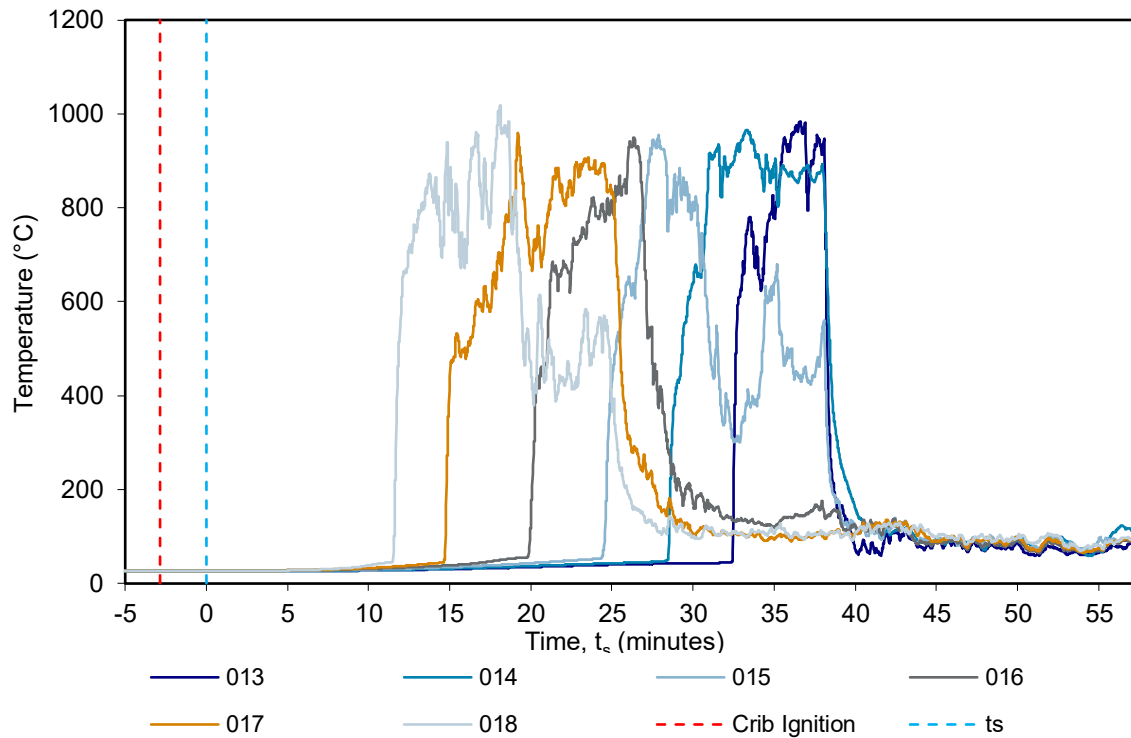


Figure 16 EPS MIMS, main wall 2500 mm from the floor – temperature vs time

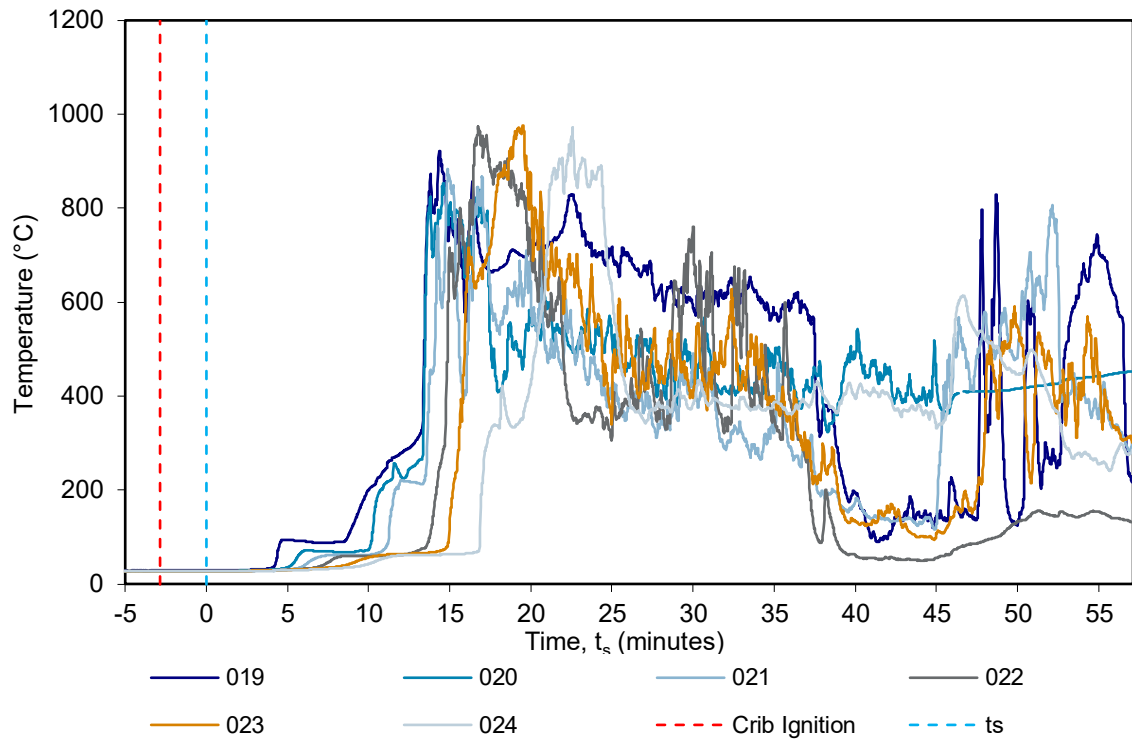


Figure 17 EPS MIMS, wing wall 500 mm from the floor – temperature vs time

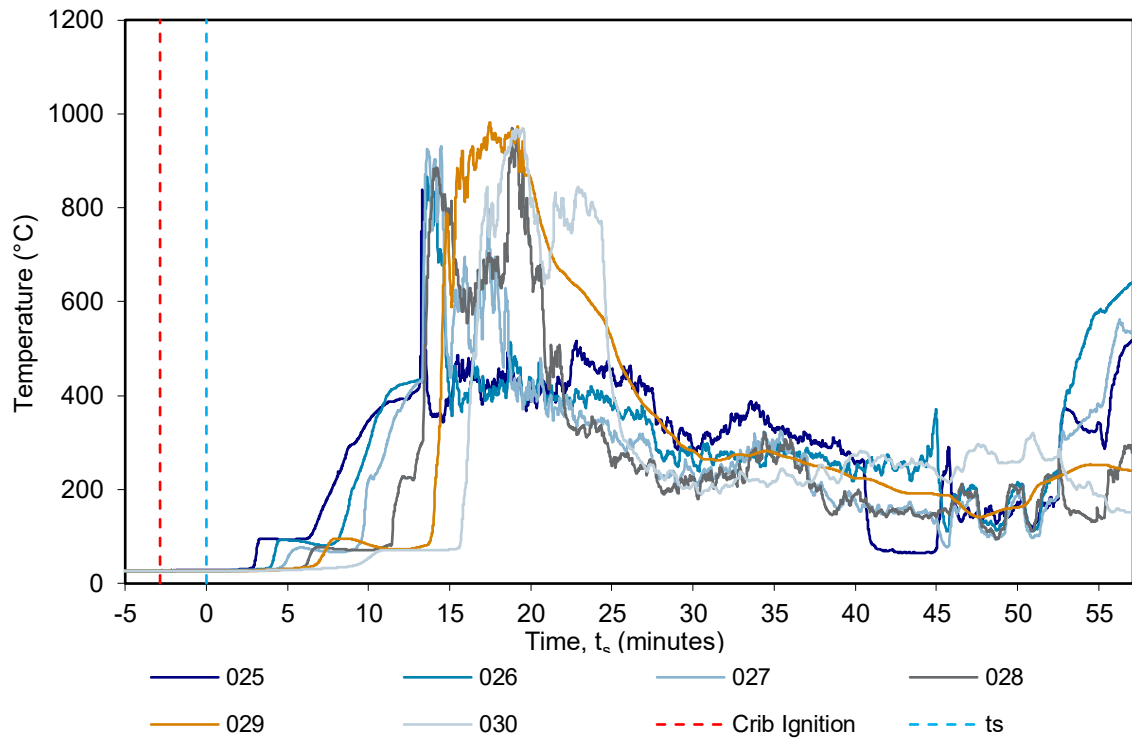


Figure 18 EPS MIMS, wing wall 1500 mm from the floor – temperature vs time – temperature vs time

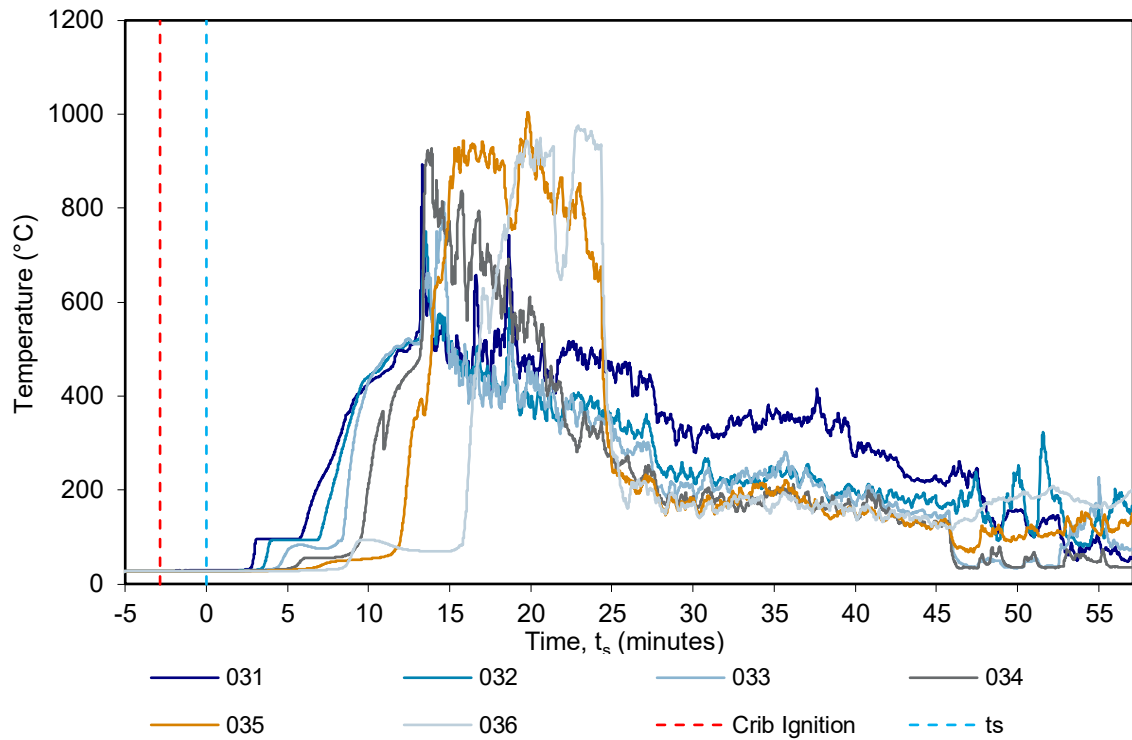


Figure 19 EPS MIMS, wing wall 2500 mm from the floor – temperature vs time

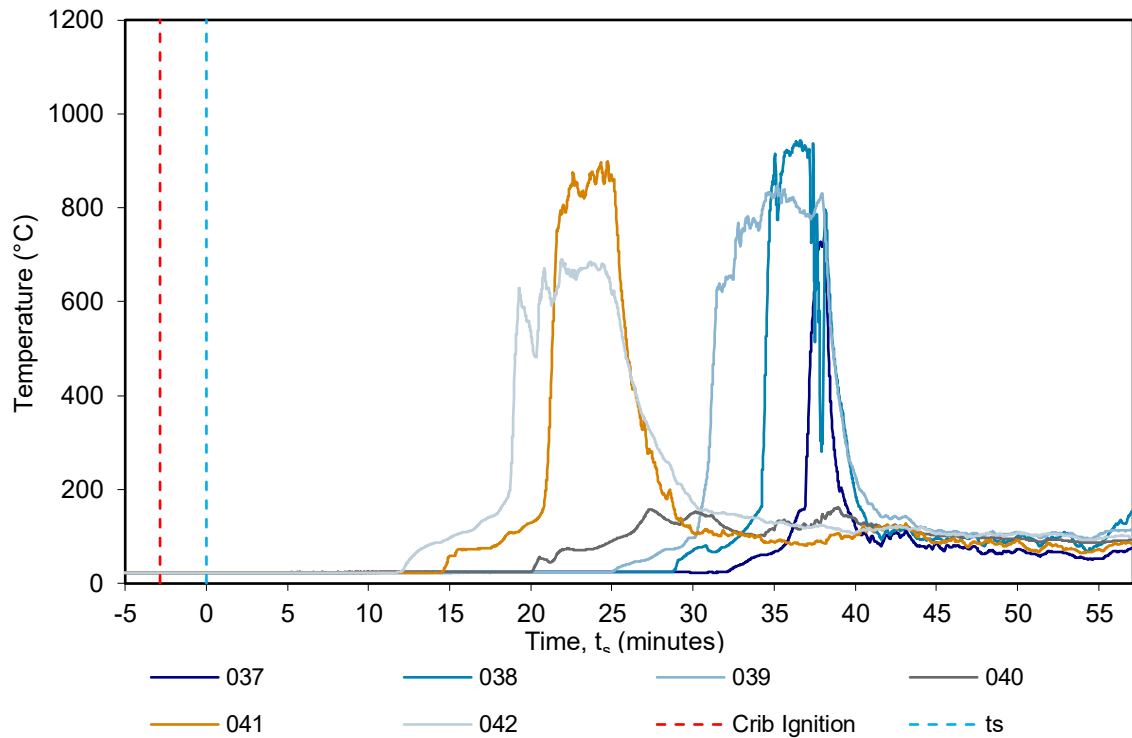


Figure 20 Stud MIMS, main wall – temperature vs time

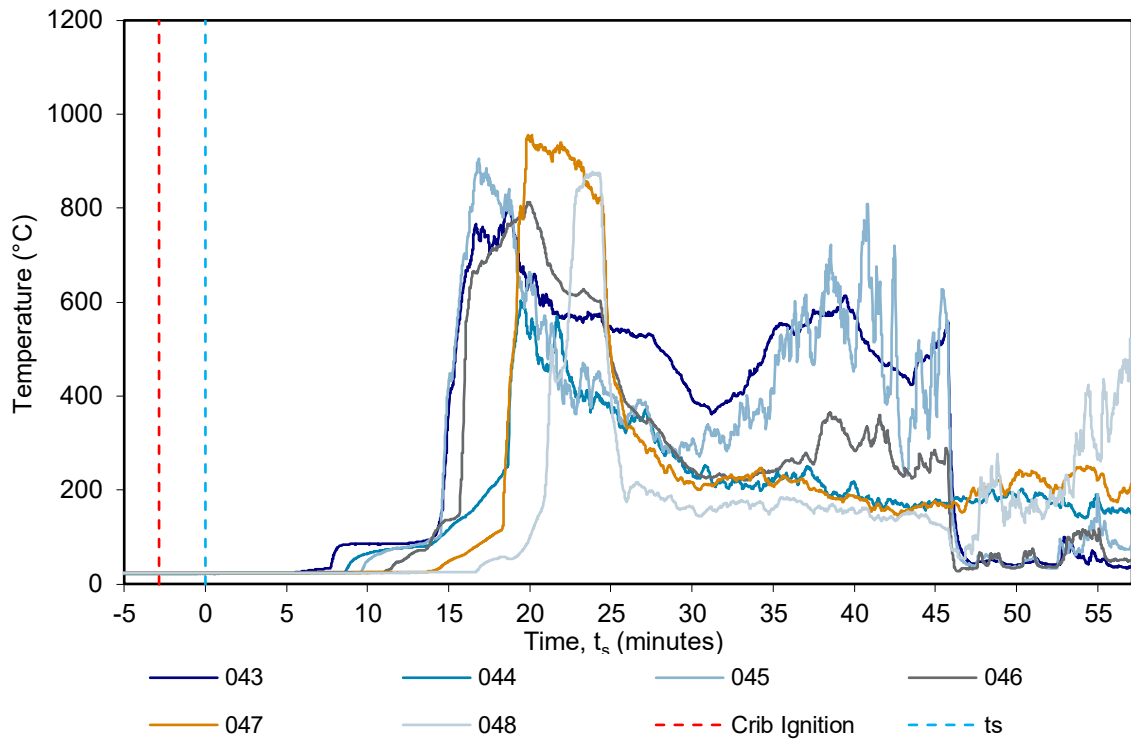


Figure 21 Stud MIMS, wing wall – temperature vs time

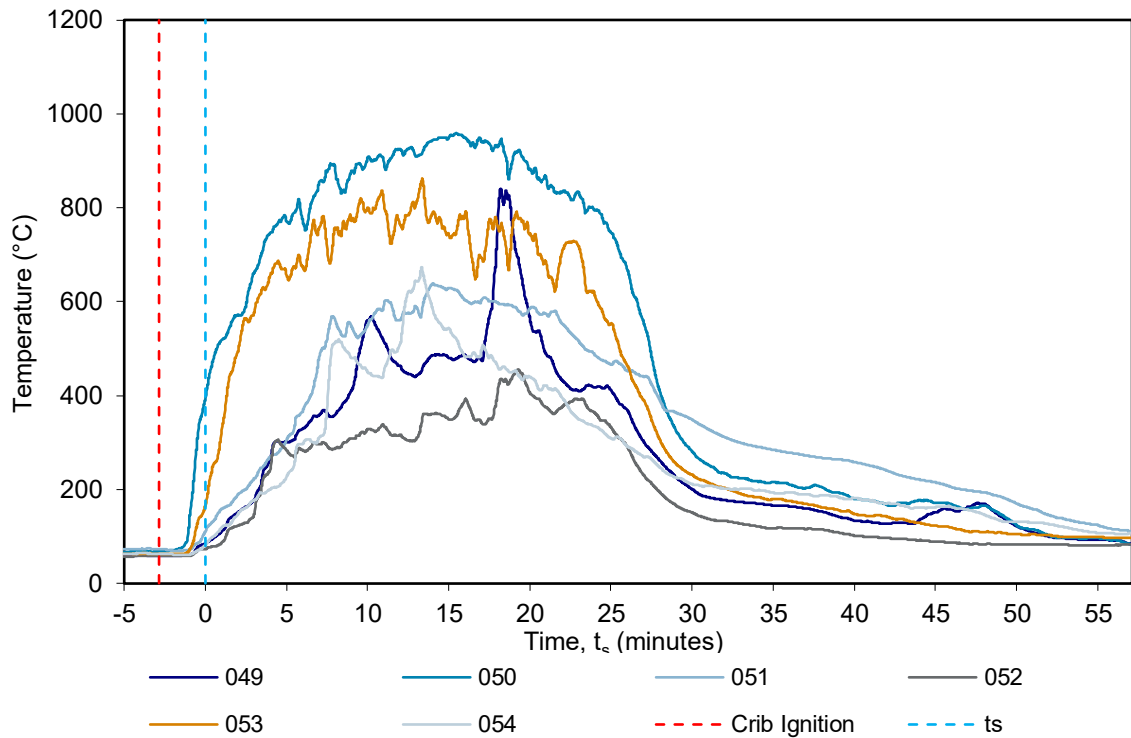


Figure 22 Plate thermometer – temperature vs time

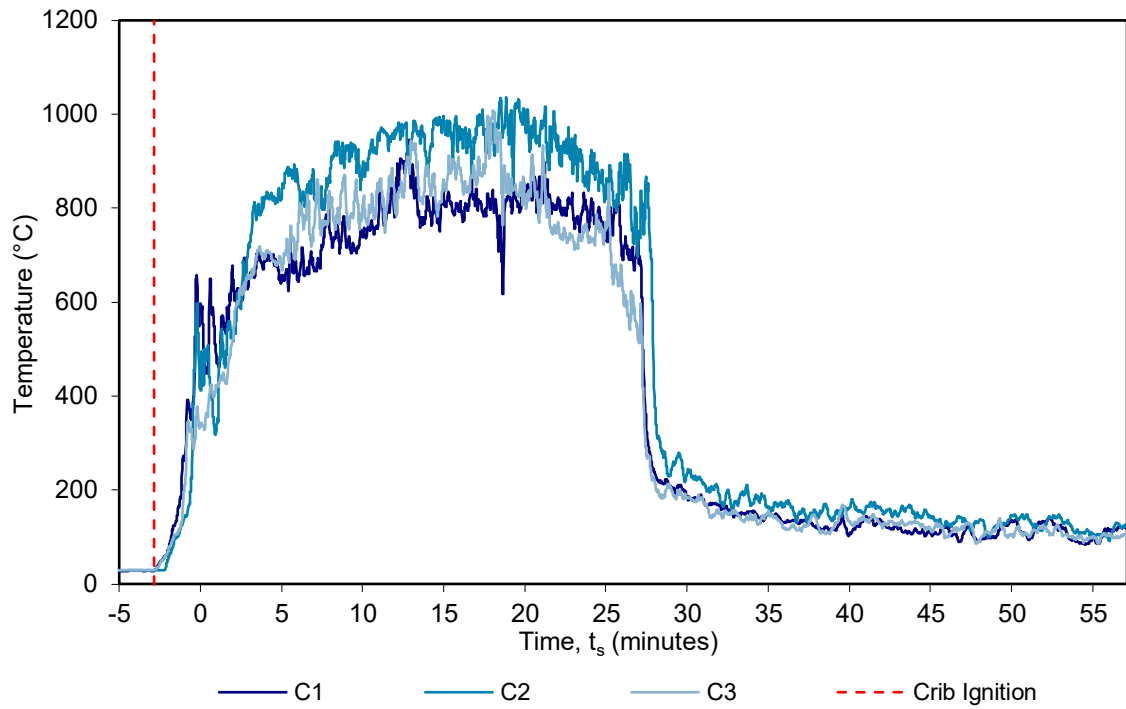


Figure 23 Combustion chamber – temperature vs time

Appendix D Photographs



Figure 24 The wall system before the start of the test – main wall



Figure 25 The wall system before the start of the test – wing wall



Figure 26 The wall system during the test – 4 minutes 55 seconds after crib ignition



Figure 27 The wall system during the test – 9 minutes 54 seconds after crib ignition



Figure 28 The wall system during the test – 14 minutes 54 seconds after crib ignition



Figure 29 The wall system during the test – 19 minutes 54 seconds after crib ignition



Figure 30 The wall system during the test – 24 minutes 54 seconds after crib ignition



Figure 31 The wall system during the test – 29 minutes 55 seconds after crib ignition



Figure 32 The wall system during the test – after removal of the crib, 30 minutes after ignition of crib



Figure 33 The wall system during the test – 34 minutes 55 seconds after crib ignition



Figure 34 The wall system during the test – 39 minutes 55 seconds after crib ignition



Figure 35 The wall system during the test – 44 minutes 55 seconds after crib ignition



Figure 36 The wall system during the test – 49 minutes 55 seconds after crib ignition



Figure 37 The wall system during the test – 54 minutes 55 seconds after crib ignition



Figure 38 The wall system on completion of the test – main wall



Figure 39 The wall system on completion of the test – wing wall



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