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**Title:**

The fire resistance performance of 3no. vertical and 3no. horizontal cavity barriers, when tested in accordance with BS EN 1366-4:2021 (with deviations) and BS EN 1363-1: 2020

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**Date Of Test:**

14/02/2023

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**Version No. 2 Issue Date:**

08/09/2023

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**WF Report No:**

WF 521939



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**Prepared for:**

Timloc Building Products

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Ozone Business Park  
Howden  
DN14 7SD

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**Approved Body No: 1314**



This report is a revision to that issued as 521939 Version 1 and dated 24/07/2023. The details of the test report 521939 Version 1 are held on file by Warringtonfire. The original report and any previous revisions are replaced by this revised report 521939 Version 2.

# Test Specimen

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## **Summary of Tested Specimen**

The specimens were installed into AAC concrete slab type supporting constructions. Both vertical and horizontal construction had 3 no. apertures respectively to accommodate the 6 test specimens in total. The specimens were designated names A, B, C, D and E, with A to C being vertical and D and E being horizontal.

The test specimens all comprised of uncompressed mineral wool based cavity barriers of varying widths and thicknesses, wrapped in polyethene sleeves. The seals were fitted in place by means of PVC extrusions which themselves were nail fitted to the supporting construction.

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

# Performance Criteria and Test Results

## Test results – Specimen A

Criteria	Results
<b>Integrity</b>	<b>30 (thirty) minutes*</b>
Cotton pad	<i>Specimen could not be evaluated for this criteria</i>
Sustained flaming	No integrity failure for this criteria
Gap gauge	No integrity failure for this criteria
<b>Thermal Insulation</b>	<b>30 (thirty) minutes*</b>

\* No failure of this test criteria was observed at termination of the test at 30 minutes

\*\* Failure by virtue of integrity failure

## Test results – Specimen B

Criteria	Results
<b>Integrity</b>	<b>30 (thirty) minutes*</b>
Cotton pad	No integrity failure for this criteria
Sustained flaming	No integrity failure for this criteria
Gap gauge	No integrity failure for this criteria
<b>Thermal Insulation</b>	<b>25 (twenty five) minutes</b>

\* No failure of this test criteria was observed at termination of the test at 30 minutes

\*\* Failure by virtue of integrity failure

## Test results – Specimen C

Criteria	Results
<b>Integrity</b>	<b>30 (thirty) minutes*</b>
Cotton pad	No integrity failure for this criteria
Sustained flaming	No integrity failure for this criteria
Gap gauge	No integrity failure for this criteria
<b>Thermal Insulation</b>	<b>30 (thirty) minutes*</b>

\* No failure of this test criteria was observed at termination of the test at 30 minutes

\*\* Failure by virtue of integrity failure

**Test results – Specimen D**

Criteria	Results
<b>Integrity</b>	<b>30 (thirty) minutes*</b>
Cotton pad	No integrity failure for this criteria
Sustained flaming	No integrity failure for this criteria
Gap gauge	No integrity failure for this criteria
<b>Thermal Insulation</b>	<b>30 (thirty) minutes*</b>

\* No failure of this test criteria was observed at termination of the test at 30 minutes

\*\* Failure by virtue of integrity failure

**Test results – Specimen E**

Criteria	Results
<b>Integrity</b>	<b>30 (thirty) minutes</b>
Cotton pad	No integrity failure for this criteria
Sustained flaming	No integrity failure for this criteria
Gap gauge	30 (thirty) minutes
<b>Thermal Insulation</b>	<b>30 (thirty) minutes*</b>







\* No failure of this test criteria was observed at termination of the test at 30 minutes

\*\* Failure by virtue of integrity failure

**Integrity:** It is required that the test specimen of a separating element of building construction, when exposed to fire on one side, will prevent the passage of flames and hot gases through and prevent the occurrence of flames on the unexposed side.

**Insulation:** It is required that the maximum temperature rise shall not be greater than 180°C at any individual location. Insulation failure also occurs simultaneously with integrity failure.

# Quality Management

Version	Date	Information about the report									
1	24 July 2023	Description	Initial issue								
2	8 September 2023	Description	At the request of the test sponsor, this report has been revised to omit the presence of 'Specimen F'.								
			<table border="1"> <thead> <tr> <th>Prepared by</th> <th>Authorised by</th> </tr> </thead> <tbody> <tr> <td>Name</td> <td>Adriano Montanino</td> <td>Adam Scott</td> </tr> <tr> <td>Signature</td> <td></td> <td></td> </tr> </tbody> </table>	Prepared by	Authorised by	Name	Adriano Montanino	Adam Scott	Signature		
		Prepared by	Authorised by								
Name	Adriano Montanino	Adam Scott									
Signature											

Signed for and on behalf of Warringtonfire Testing and Certification Limited

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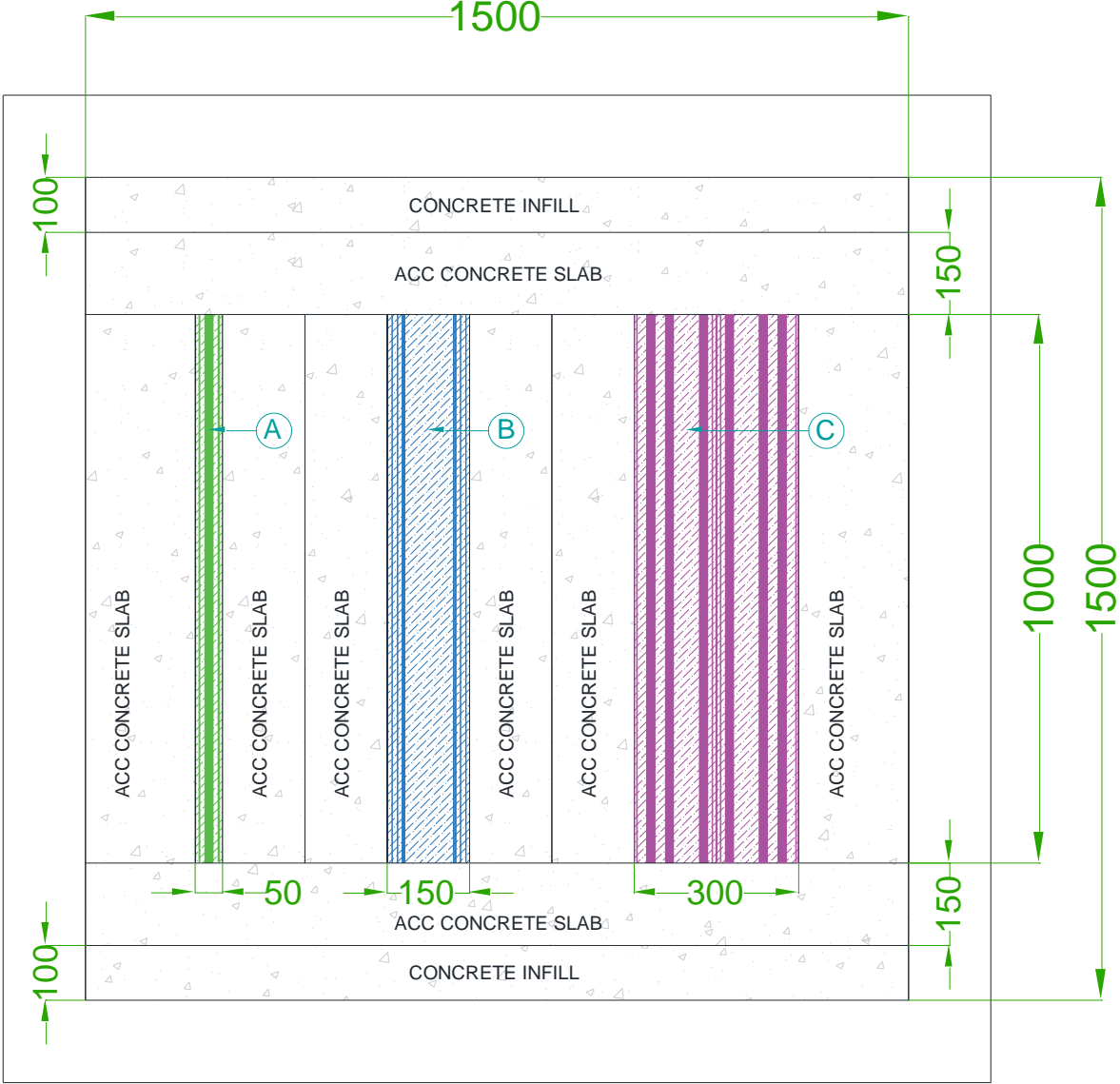
# Test Conditions

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<b>Standard</b>	BS EN 1366-4: 2021, Fire resistance tests for service installations Part 4: Linear Joint Seals and BS EN 1363-1: 2020, Fire resistance tests Part 1: General requirements.
<b>Deviations from test method</b>	<p>The horizontal test construction was tested at a higher pressure than that specified in BS EN 1366-4: 2021, the standard required a maximum pressure of 20Pa at a height 100mm below the lowest part of the construction. The test was ran to a pressure of 17.1Pa at a height of 1m, equating to 23.6Pa at a height 100mm below the lowest part of the test construction. This deviation was agreed between the test sponsor and laboratory in advance of the test.</p> <p>Unforeseen changes to external weather conditions before the test caused the ambient temperature to drop below the minimum of 10°C just before the start of the test.</p> <p>Due to the narrow aperture width of Specimen A, thermocouples could not be applied to the cavity barrier surface and the supporting construction, as is required by BS EN 1366-4: 2021.</p> <p>Due to the narrow aperture width of Specimen A, cotton pad integrity tests could not be performed when a glow was visible.</p>
<b>Sampling</b>	Warringtonfire was not involved in factory sampling of the products and materials used for the test specimen described in this report, and as such the results of this test apply to the sample as received.
<b>Supporting Construction</b>	Warringtonfire provided an autoclaved aerated concrete slab type supporting construction as defined in clause 7.3.2 of BSEN 1366-4:2021.
<b>Installation</b>	The components were received during the month of February. The specimens were installed directly into the supporting construction by representatives of by representatives of the client with the assistance of <b>Warringtonfire</b> , as necessary.
<b>Induced Movement</b>	The scope of this test did not include an induced movement to the installed sample, and hence it was not conducted.
<b>Conditioning</b>	Warringtonfire stored the specimens in climatic conditions approximate to those expected in normal service, and used the guidelines of Annex F.1 of BS EN 1363 – 1: 2020 to establish a suitable conditioned level where possible.
<b>Ambient Temperature</b>	The ambient air temperature in the vicinity of the test construction was 9°C at the start of the test with a maximum variation of -1°C during the test.
<b>Furnace</b>	The furnace was controlled so that its mean temperature complied with the requirements of BS EN 1363-1: 2020 Clause 5.1 using ten plate thermometers, distributed over a plane 100±50 mm from the surface of the test constructions.
<b>Thermocouples</b>	<p>Thermocouples were provided to monitor the unexposed surface of the specimen at the positions described in BSEN 1366-4:2021. 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.</p> <p>A roving thermocouple was available to monitor any positions suspected of being at a greater temperature than indicated by fixed position thermocouples</p>
<b>Furnace Pressure</b>	After the first 5 minutes of the test, the furnace pressure was maintained at 17.1±5Pa and after 10 minutes was maintained at 17.1±3Pa with respect to atmosphere, equating to 15Pa at mid height of the vertical construction and 23.6Pa 100mm below the lowest part of the horizontal construction.

# Test Specimen Drawings

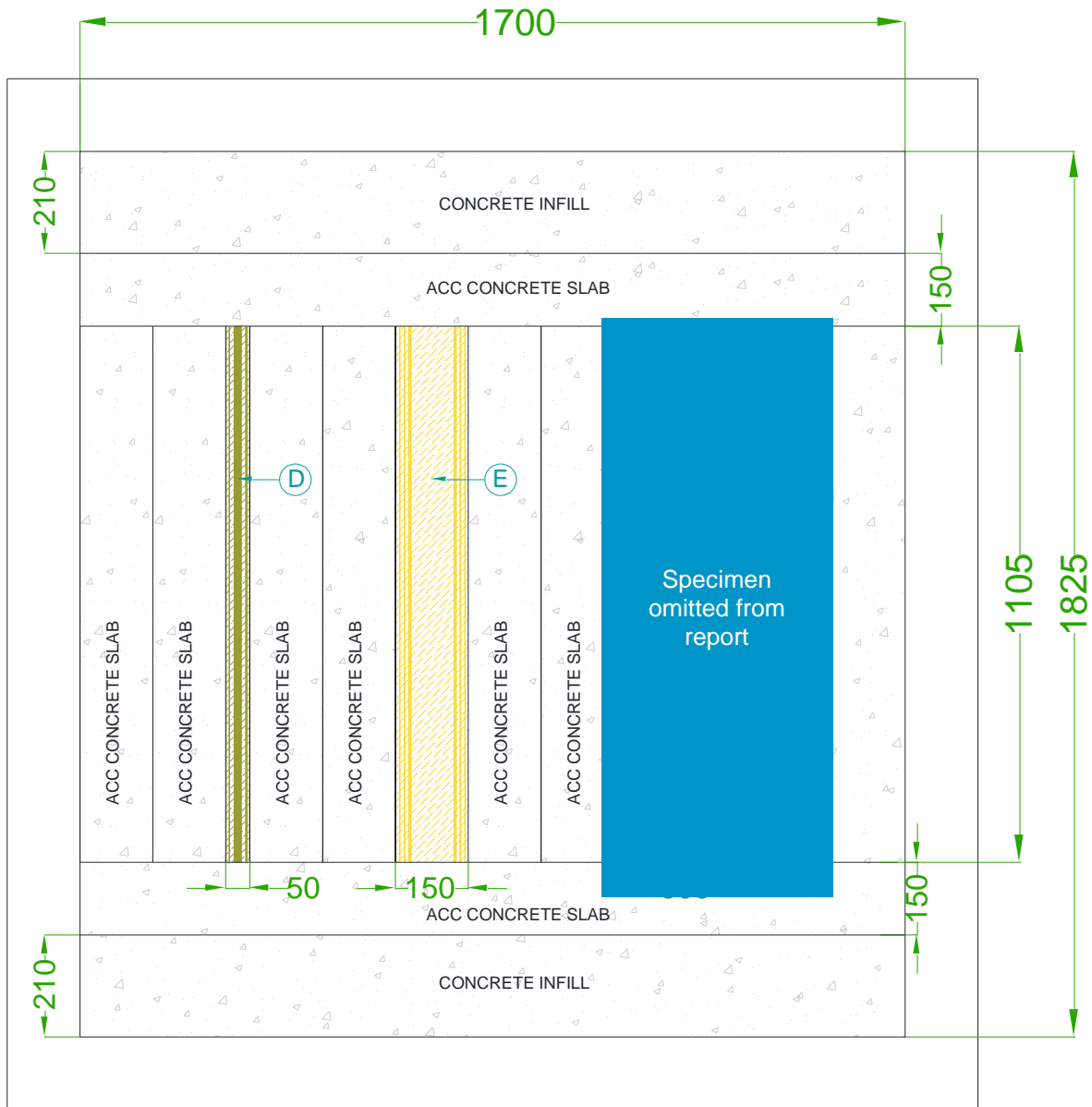
Figure 1 – General elevation of the test construction with dimensions – Specimens A, B, C



Do not scale. All dimensions are in mm

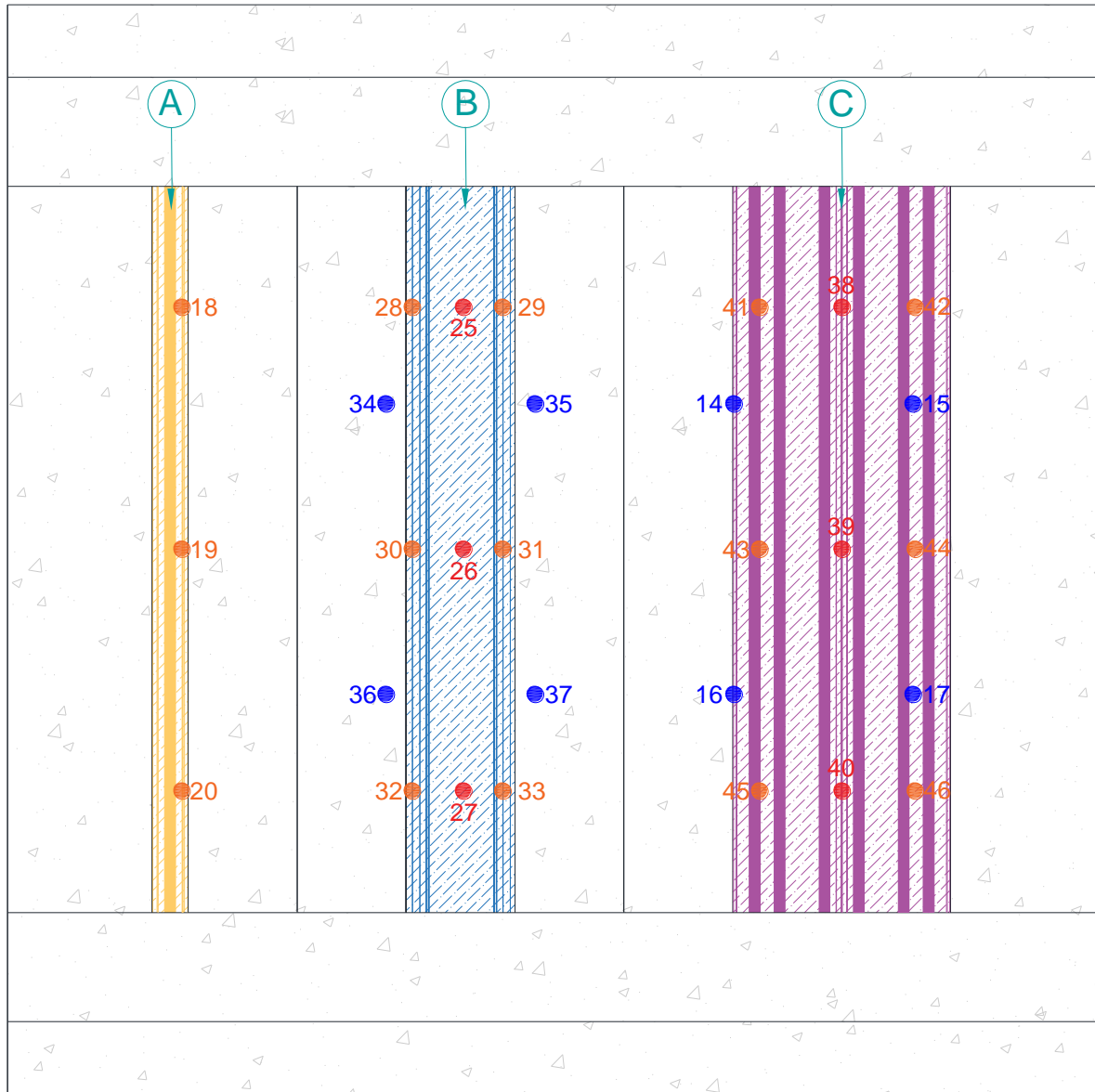
Figure 2 – General elevation of the test construction with dimensions – Specimens D and E





Do not scale. All dimensions are in mm

Figure 3 – Thermocouple Locations – Specimens A, B, C

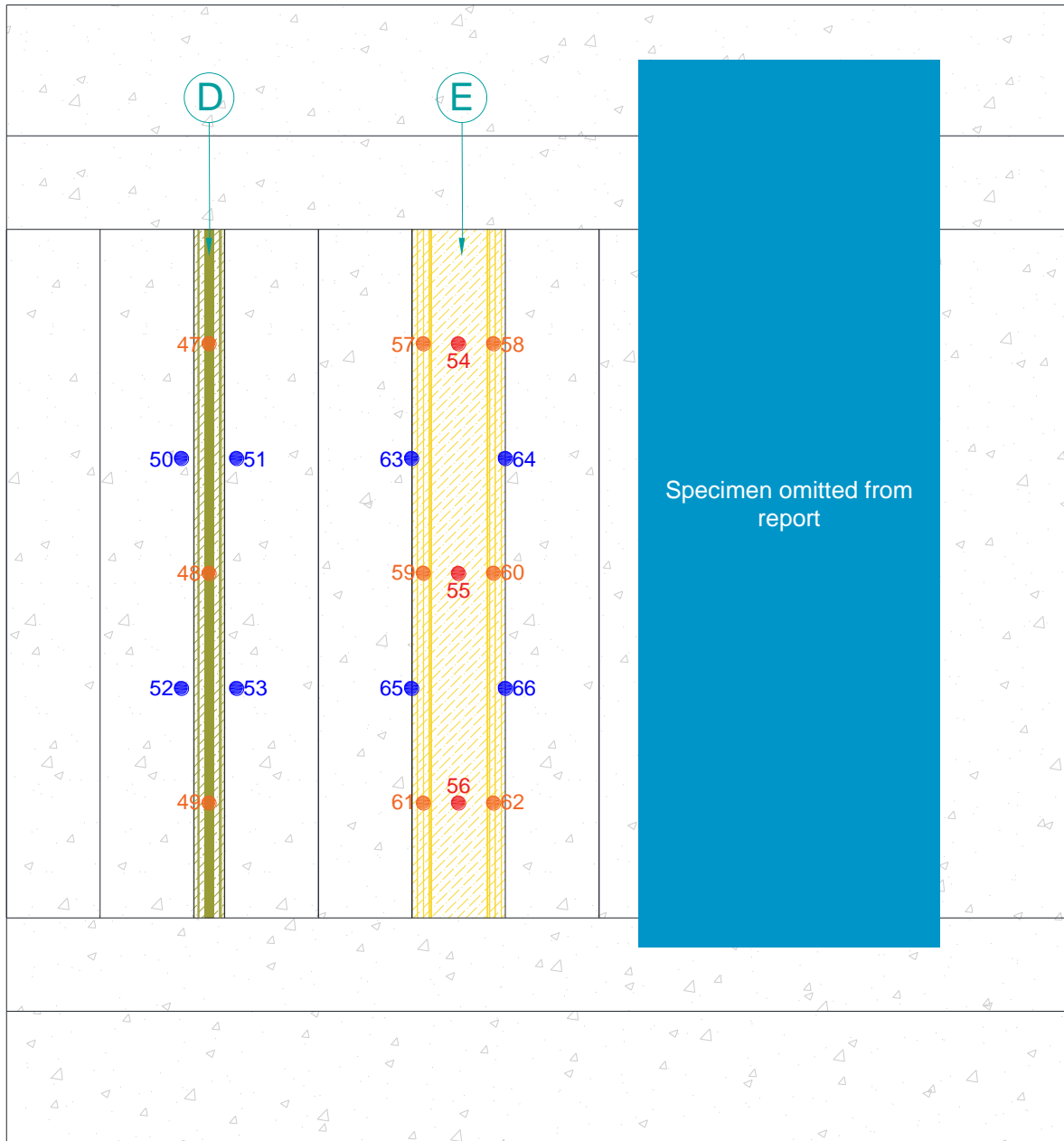


- : Thermocouples on PVC
- : Thermocouples on Joint Seal
- : Thermocouples on Supporting Construction

Viewed From Unexposed Face

Do not scale. All dimensions are in mm

Figure 4 – Thermocouple Locations – Specimens D and E

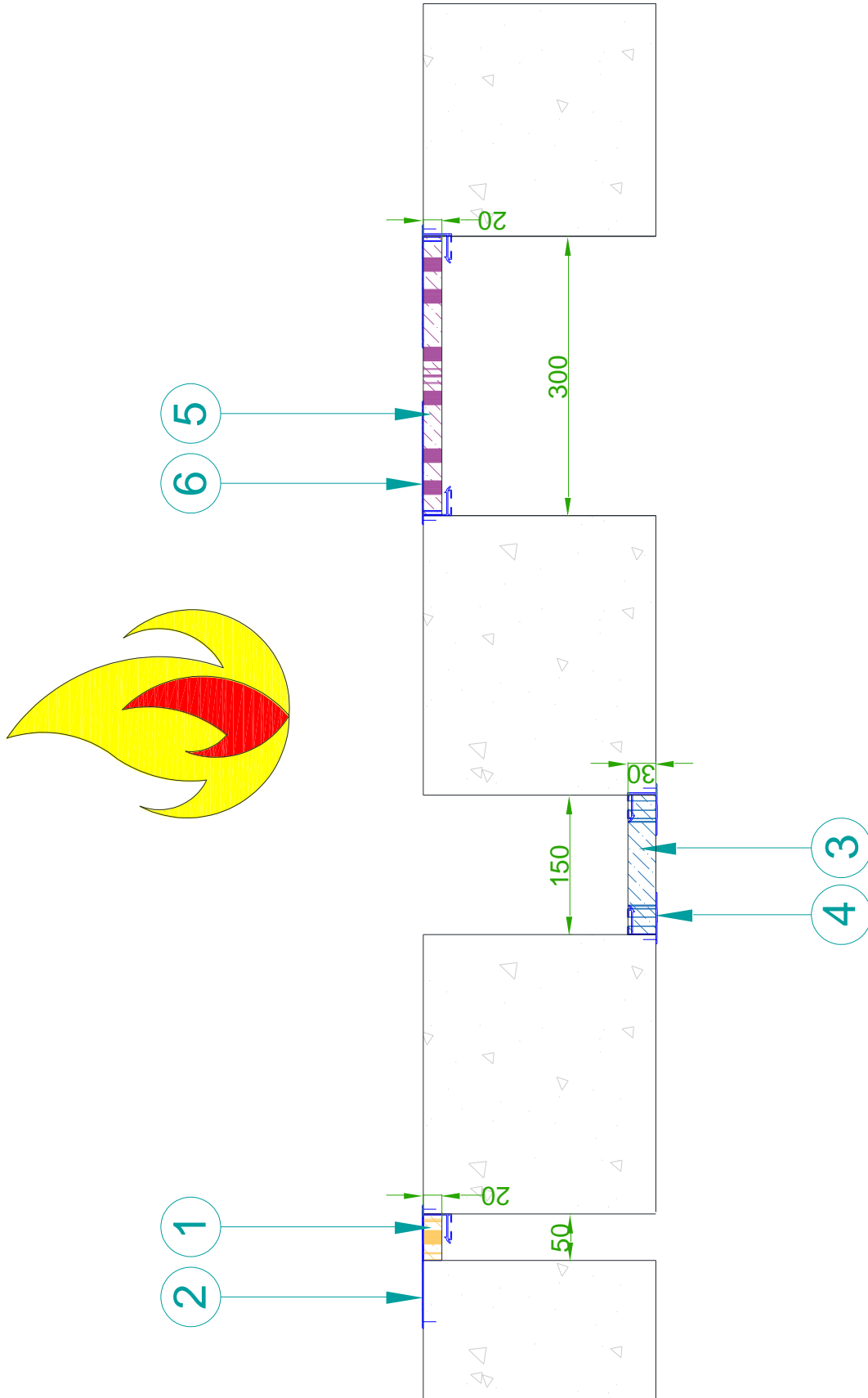


- : Thermocouples on PVC
- : Thermocouples on Joint Seal
- : Thermocouples on Supporting Construction

Viewed From Unexposed Face

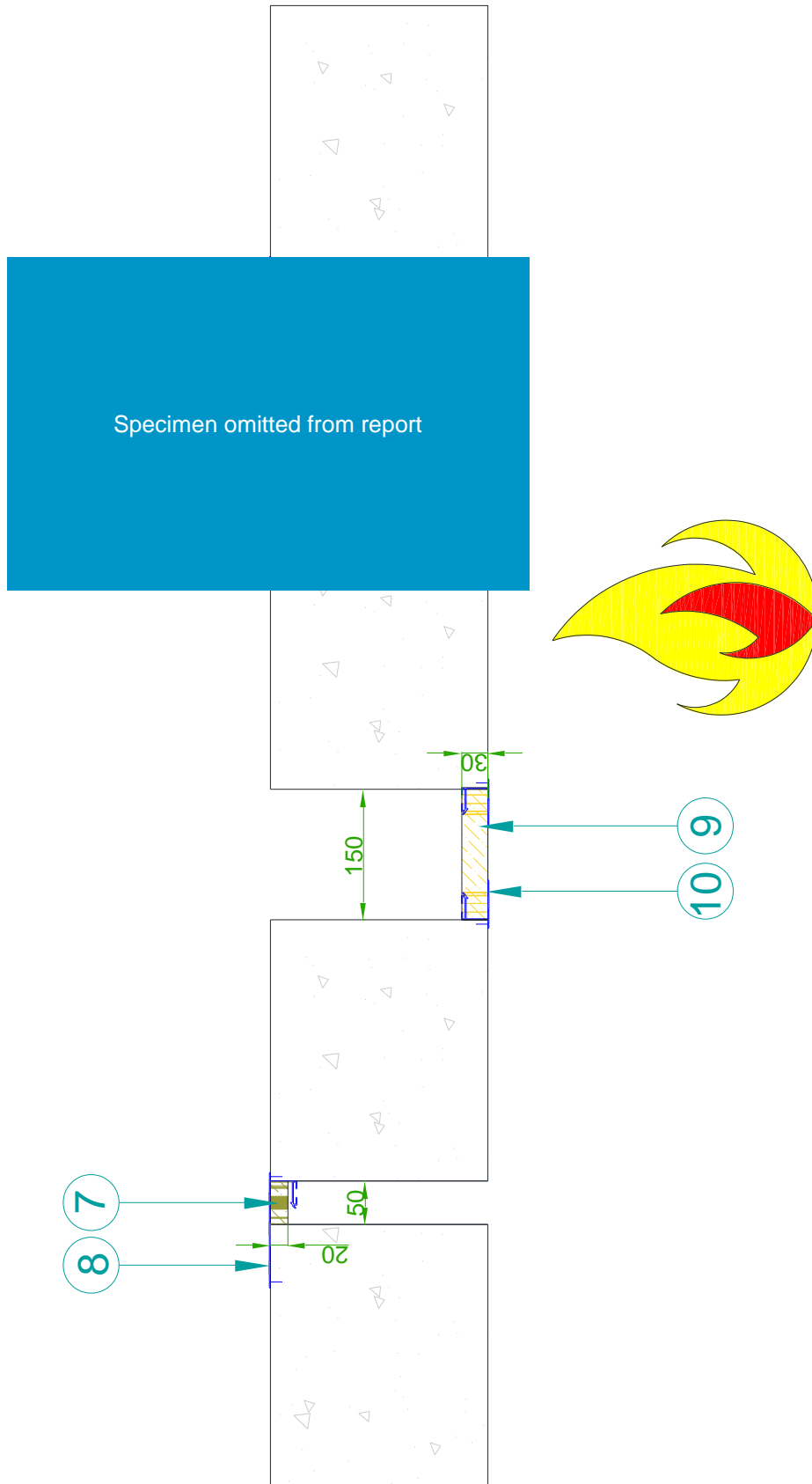
Do not scale. All dimensions are in mm

Figure 5 – Typical cross-section of vertical construction – Specimens A, B, C



Do not scale. All dimensions are in mm

Figure 6 – Typical cross-section of horizontal construction – Specimens D, E, F



Do not scale. All dimensions are in mm

# Schedule of Components

(Refer to Figures 1 to 6)  
(All values are nominal unless stated otherwise)  
\* Stated by sponsor, not verified by laboratory

## Supporting Construction

Vertical construction	Detail		
Supporting construction type	Autoclaved Aerated Concrete Slabs		
Overall nominal dimensions	Width	1500mm	
	Height	1500mm	
	Depth	250mm	
Aperture dimensions		Width	Height
	Specimen A	50 mm	1000 mm
	Specimen B	150mm	1000 mm
	Specimen C	300 mm	1000 mm

Horizontal construction	Detail		
Supporting construction type	Autoclaved Aerated Concrete Slabs		
Overall nominal dimensions	Width	1825mm	
	Length	1825mm	
	Depth	250mm	
Aperture dimensions		Width	Length
	Specimen D	50 mm	1000 mm
	Specimen E	150mm	1000 mm

## Specimen A

1. Cavity barrier		Description
Manufacturer	:	Timloc Building Products*
Reference	:	CC2.4FR/50 FR30 Cavity Closer 30min 50mm Cavity*
Material		
Body	:	Knauf RS140 - Mineral wool insulation*
Film	:	Polythene sleeve- 35 micron thickness*
Batch Reference / Number	:	SAMPLE*
Density	:	140kg/m <sup>3</sup> *
Overall section size		
Width	:	50mm (no compression)*
Thickness	:	20mm
Fixing method to supporting construction	:	PVC extrusion
2. PVC Extrusion		Description
Manufacturer	:	PAL extrusions*
Reference	:	3313*
Material	:	PVC*
Quantity	:	1 no.
Overall section size	:	130mm wide x 35mm deep x 1.5mm thick with a 35mm wide x 20mm deep flange to house the cavity barrier
Details of fixings to supporting construction		
Manufacturer	:	EASYFIX*
Reference	:	Masonry Nails 3x50mm*
Type & material	:	Masonry Nails - Carbon Steel BZP*
Overall size	:	3mm x 50mm*
Locations	:	Through PVC extrusion into masonry, both sides of cavity at 240mm centres and 5mm in from each edge

## Specimen B

3. Cavity barrier		Description
Manufacturer	:	Timloc Building Products*
Reference	:	CC2.4FR/150 FR30 Cavity Closer 30min 150mm Cavity*
Material		
Body	:	Knauf RS140 - Mineral wool insulation*
Film	:	Polythene sleeve- 35 micron thickness*
Batch Reference / Number	:	SAMPLE*
Density	:	140kg/m <sup>3</sup> *
Overall section size		
Width	:	150mm (no compression)*
Thickness	:	30mm
Fixing method to supporting construction	:	PVC extrusion
4. PVC Extrusion		Description
Manufacturer	:	PAL Extrusions*
Reference	:	3315*
Material	:	PVC*
Quantity	:	2 no.
Location	:	Both sides of cavity barrier
Overall section size	:	56mm wide x 35mm deep x 1.5mm thick with a 35mm wide x 30mm deep flange to house the linear joint seal
Details of fixings to supporting construction		
Manufacturer	:	EASYFIX*
Reference	:	Masonry Nails 3x50mm*
Type & material	:	Masonry Nails - Carbon Steel BZP*
Overall size	:	3mm x 50mm*
Locations	:	Through PVC extrusion into masonry, both sides of cavity at 240mm centres and 5mm in from each edge



## Specimen C

5. Cavity barrier C		Description
Manufacturer	:	Timloc Building Products*
Reference	:	CC2.4FR/300 FR30 Cavity Closer 30min 300mm Cavity*
Material		
Body	:	Knauf RS140 - Mineral wool insulation*
Film	:	Polythene sleeve- 35 micron thickness*
Batch Reference / Number	:	SAMPLE*
Density	:	140kg/m <sup>3</sup> *
Overall section size		
Width	:	300mm (no compression)*
Thickness	:	20mm
Fixing method to supporting construction	:	PVC extrusion
6. PVC Extrusion		Description
Manufacturer	:	PAL Extrusions*
Reference	:	3313*
Material	:	PVC*
Quantity	:	2 no.
Location	:	Both sides of cavity barrier
Overall section size	:	130mm wide x 35mm deep x 1.5mm thick with a 35mm wide x 20mm deep flange to house the cavity barrier
Details of fixings to supporting construction		
Manufacturer	:	EASYFIX*
Reference	:	Masonry Nails 3x50mm*
Type & material	:	Masonry Nails - Carbon Steel BZP*
Overall size	:	3mm x 50mm*
Locations	:	Through PVC extrusion into masonry, both sides of cavity at 240mm centres and 5mm in from each edge

## Specimen D

7. Cavity barrier D		Description
Manufacturer	:	Timloc Building Products*
Reference	:	CC2.4FR/50 FR30 Cavity Closer 30min 50mm Cavity*
Material		
Body	:	Knauf RS140 - Mineral wool insulation*
Film	:	Polythene sleeve- 35 micron thickness*
Batch Reference / Number	:	SAMPLE*
Density	:	140kg/m <sup>3</sup> *
Overall section size		
Width	:	50mm (no compression)*
Thickness	:	20mm
Fixing method to supporting construction	:	PVC extrusion
8. PVC Extrusion		Description
Manufacturer	:	PAL Extrusions*
Reference	:	3313*
Material	:	PVC*
Overall section size	:	130mm wide x 35mm deep x 1.5mm thick with a 35mm wide x 20mm deep flange to house the cavity barrier
Details of fixings to supporting construction		
Manufacturer	:	EASYFIX*
Reference	:	Masonry Nails 3x50mm*
Type & material	:	Masonry Nails - Carbon Steel BZP*
Overall size	:	3mm x 50mm*
Locations	:	Through PVC extrusion into masonry, both sides of cavity at 240mm centres and 5mm in from each edge

## Specimen E

9. Cavity barrier E		Description
Manufacturer	:	Timloc Building Products*
Reference	:	CC2.4FR/150 FR30 Cavity Closer 30min 150mm Cavity*
Material		
Body	:	Knauf RS140 - Mineral wool insulation*
Film	:	Polythene sleeve- 35 micron thickness*
Batch Reference / Number	:	SAMPLE*
Density	:	140kg/m <sup>3</sup> *
Overall section size		
Width (compressed)	:	150mm (no compression)*
Thickness	:	30mm
Fixing method to supporting construction	:	PVC extrusion
10. PVC Extrusion		Description
Manufacturer	:	PAL Extrusions*
Reference	:	3315*
Material	:	PVC*
Overall section size	:	56mm wide x 35mm deep x 1.5mm thick with a 35mm wide x 30mm deep flange to house the cavity barrier
Details of fixings to supporting construction		
Manufacturer	:	EASYFIX*
Reference	:	Masonry Nails 3x50mm*
Type & material	:	Masonry Nails - Carbon Steel BZP*
Overall size	:	3mm x 50mm*
Locations	:	Through PVC extrusion into masonry, both sides of cavity at 240mm centres and 5mm in from each edge

# Photographs of Components

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Specimens A and D



Specimens B and E



Specimens C



# Test Observations

Time		All observations are from the unexposed face unless noted otherwise. Observations on the horizontal test construction have references to 'near side' and 'far side', where nearside is the side closest to the front of the furnace, with the specimens reading in order of D, E and F, left to right.
Mins	secs	
00	00	The test has started.
00	29	Specimens A and B. There is smoke issuing at the top.
00	31	Specimen E. There is smoke issuing near side right corner.
01	29	Specimen A. There is an increase in smoke issuing at the top.
02	27	Specimen E. There is smoke issuing at the near side right corner.
04	02	Specimen C. The plastic film is ballooning.
04	02	Specimen B. The plastic film is warping.
05	30	Specimen B. There is discolouration at the supporting construction.
05	52	Specimen E. The plastic film is melting at the far side.
06	37	Specimen B. There is an increase in melting of the plastic film.
06	55	Specimen C. The plastic film is melting.
07	48	Specimen B. There is an increase in smoke issuing and plastic melting.
08	40	Specimen E. The plastic film is melting.
09	13	Specimen B. The plastic fittings are falling away.
14	00	Specimens A, B and C. There is no change visible.
14	46	Specimen D. There is smoke issuing at the far side right corner.
17	20	D. There is an increase in smoke issuing at the back side
17	58	D. There is smoke issuing at the front right corner
19	11	Specimen A. There is a glow visible at the top of the seal. <i>Unable to subsequently perform a cotton pad test due to the narrow width of aperture.</i>
22	15	Specimen E. There is discolouration at the far side.

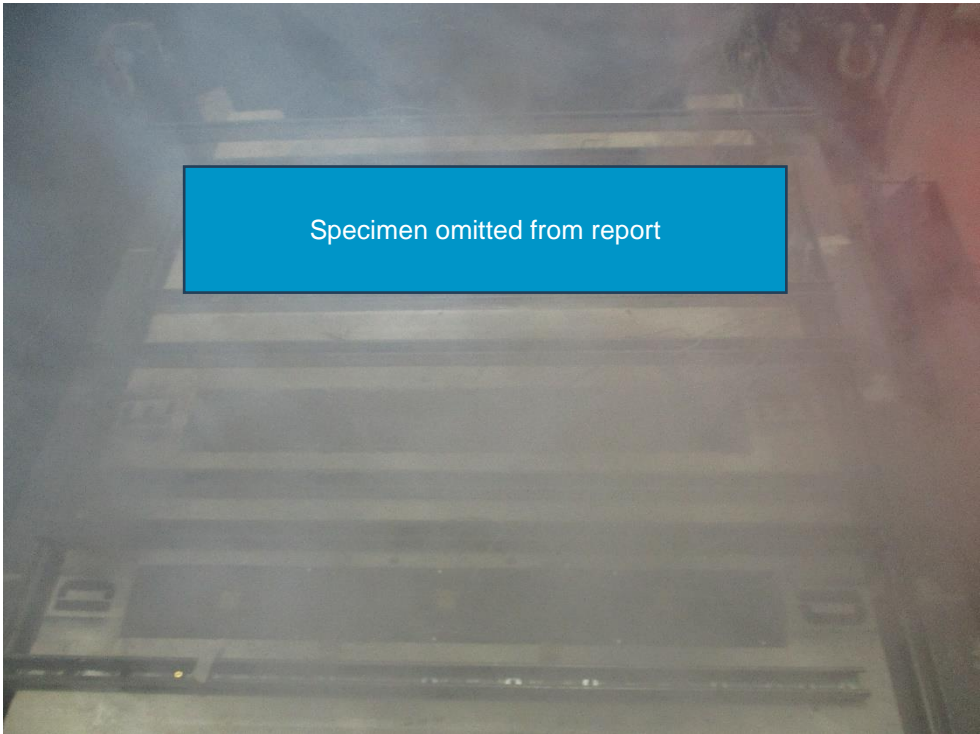


Time		All observations are from the unexposed face unless noted otherwise. Observations on the horizontal test construction have references to 'near side' and 'far side', where nearside is the side closest to the front of the furnace, with the specimens reading in order of D, E and F, left to right.
Mins	secs	
22	53	Specimen B. There is an increase in discolouration.
23	20	Specimen E. There is a gap visible at the back side.
26	24	Specimen B. There is a glow visible at the top of the seal.
28	34	Specimen B. A cotton pad test was performed at the top which did not result in the ignition of the cotton pad. No failure
<b>30</b>	<b>20</b>	<b>Specimen E has fallen out thereby constituting integrity failure by virtue of visual gap gauge.</b>
30	30	The conditions are too dangerous to continue. Test terminated.



# Test Photographs

The unexposed face after a test duration of 10 minutes 1 second



The unexposed face after a test duration of 20 minutes



The unexposed face after a test duration of 30 minutes 18 seconds





# Temperature Data

Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In BS  
EN 1363-1: 2020

Time (min)	Mean Furnace (°C)	ISO834 (°C)
0	20	20
1	158	349
2	259	445
3	511	502
4	589	544
5	620	576
6	649	603
7	662	626
8	669	645
9	676	663
10	694	678
11	709	693
12	719	705
13	727	717
14	737	728
15	744	739
16	751	748
17	759	757
18	766	766
19	772	774
20	779	781
21	785	789
22	791	796
23	796	802
24	802	809
25	807	815
26	813	820
27	816	826
28	828	831
29	842	837
30	848	842

**Individual Temperatures Recorded On The Unexposed Face Of Specimen A**

<b>Time (min)</b>	<b>Chan 18 °C</b>	<b>Chan 19 °C</b>	<b>Chan 20 °C</b>
0	12	11	11
1	11	10	10
2	12	10	11
3	58	20	16
4	60	34	27
5	63	47	40
6	65	51	49
7	66	52	52
8	68	53	54
9	70	56	56
10	72	58	58
11	75	58	62
12	77	58	65
13	80	58	66
14	85	59	69
15	90	61	72
16	95	64	76
17	99	66	80
18	103	69	83
19	108	73	87
20	114	77	92
21	124	81	96
22	132	85	98
23	137	89	99
24	140	93	100
25	140	97	101
26	137	99	102
27	131	100	104
28	123	102	105
29	117	101	108
30	113	102	111

## Individual Temperatures Recorded On The Unexposed Face Of Specimen B

Time (min)	Ch 25 °C	Ch 26 °C	Ch 27 °C	Ch 28 °C	Ch 29 °C	Ch 30 °C	Ch 31 °C	Ch 32 °C	Ch 33 °C	Ch 34 °C	Ch 35 °C	Ch 36 °C	Ch 37 °C
0	12	13	12	13	11	12	12	12	13	12	12	12	11
1	12	12	11	13	11	12	12	12	12	12	12	12	11
2	25	16	32	13	13	13	13	12	12	12	13	12	11
3	46	29	52	22	17	25	20	12	15	12	13	12	11
4	56	41	48	38	28	38	33	14	20	12	13	12	11
5	69	55	63	47	40	46	48	22	32	13	14	13	12
6	78	64	69	54	41	54	58	34	41	14	17	13	13
7	89	70	69	60	39	61	64	41	47	14	19	13	13
8	99	69	71	65	41	72	73	48	52	16	20	14	13
9	108	71	76	71	40	82	81	53	57	17	21	15	15
10	93	74	78	80	42	93	92	58	61	20	23	16	16
11	72	73	75	86	49	101	99	62	65	22	27	17	19
12	66	69	71	90	47	108	103	65	69	25	30	18	22
13	62	66	66	95	49	116	107	68	73	29	32	19	25
14	62	64	63	99	44	125	111	71	78	33	34	21	28
15	61	63	62	103	50	133	115	73	82	37	38	23	32
16	58	62	62	105	59	141	116	75	85	40	41	31	35
17	58	62	63	106	54	148	118	76	89	43	45	61	39
18	61	63	64	106	64	154	120	77	92	46	48	91	42
19	70	65	64	107	90	156	121	77	96	49	50	100	44
20	73	67	65	109	71	155	122	78	99	52	52	158	47
21	74	66	67	115	108	123	122	80	102	54	54	140	50
22	78	65	68	124	97	91	121	82	105	55	56	124	52
23	79	65	69	134	92	76	121	84	108	56	57	99	54
24	70	65	71	152	87	62	120	87	111	57	59	83	56
25	65	66	74	176	80	42	120	90	114	58	60	66	57
26	60	67	77	203	70	32	120	93	118	59	61	52	58
27	57	68	77	224	68	28	119	96	121	60	61	49	60
28	52	69	77	219	62	25	118	99	124	61	62	50	60
29	51	70	77	221	60	24	117	102	92	63	63	52	61
30	48	71	80	305	58	25	116	106	78	65	65	53	62

### Individual Temperatures Recorded On The Unexposed Face Of Specimen C

Time (min)	Ch 14 °C	Ch 15 °C	Ch 16 °C	Ch 17 °C	Ch 38 °C	Ch 39 °C	Ch 40 °C	Ch 41 °C	Ch 42 °C	Ch 43 °C	Ch 44 °C	Ch 45 °C	Ch 46 °C
0	13	12	12	11	13	12	11	15	13	13	12	14	12
1	13	12	12	11	13	12	10	15	13	12	12	14	12
2	13	12	12	11	18	16	21	15	13	12	12	14	12
3	14	13	13	11	37	31	42	18	16	13	13	15	13
4	16	14	14	12	50	47	54	24	22	15	17	19	17
5	17	16	15	13	60	58	62	31	27	18	21	25	22
6	20	18	17	14	71	69	73	39	33	21	26	31	28
7	23	20	19	16	77	74	68	48	39	20	31	38	33
8	26	24	19	16	66	69	67	56	46	18	37	42	37
9	30	28	20	18	62	77	70	64	57	17	43	47	41
10	35	31	23	20	67	90	73	75	71	17	51	54	47
11	38	34	25	22	69	100	76	86	85	17	59	61	53
12	42	37	27	23	69	101	82	95	98	17	68	69	60
13	46	40	29	25	70	105	87	104	109	18	77	80	69
14	50	43	31	27	72	111	94	110	118	19	87	90	79
15	54	47	32	27	73	113	90	112	126	18	94	101	88
16	58	51	34	28	73	115	92	115	134	19	99	111	98
17	63	56	35	28	73	112	94	117	142	19	100	118	108
18	68	61	36	29	72	107	94	126	155	19	101	124	117
19	70	64	37	29	72	99	92	131	166	18	103	127	126
20	73	68	38	30	72	92	93	136	172	18	107	129	139
21	76	69	39	31	72	88	93	136	172	18	109	131	162
22	79	71	40	31	72	85	93	140	167	18	110	136	162
23	81	73	42	32	71	83	94	141	160	19	111	144	163
24	83	75	44	33	72	91	101	142	155	19	113	152	164
25	84	77	46	34	73	98	105	139	156	20	115	159	164
26	85	78	48	35	75	105	108	130	158	20	117	162	164
27	86	79	49	36	76	107	110	115	161	21	118	163	162
28	85	86	51	37	77	110	112	111	169	21	118	163	162
29	90	98	53	37	78	109	115	110	164	21	113	163	164
30	89	104	55	38	79	107	123	110	149	21	107	162	164

**Individual Temperatures Recorded On The Unexposed Face Of Specimen D**

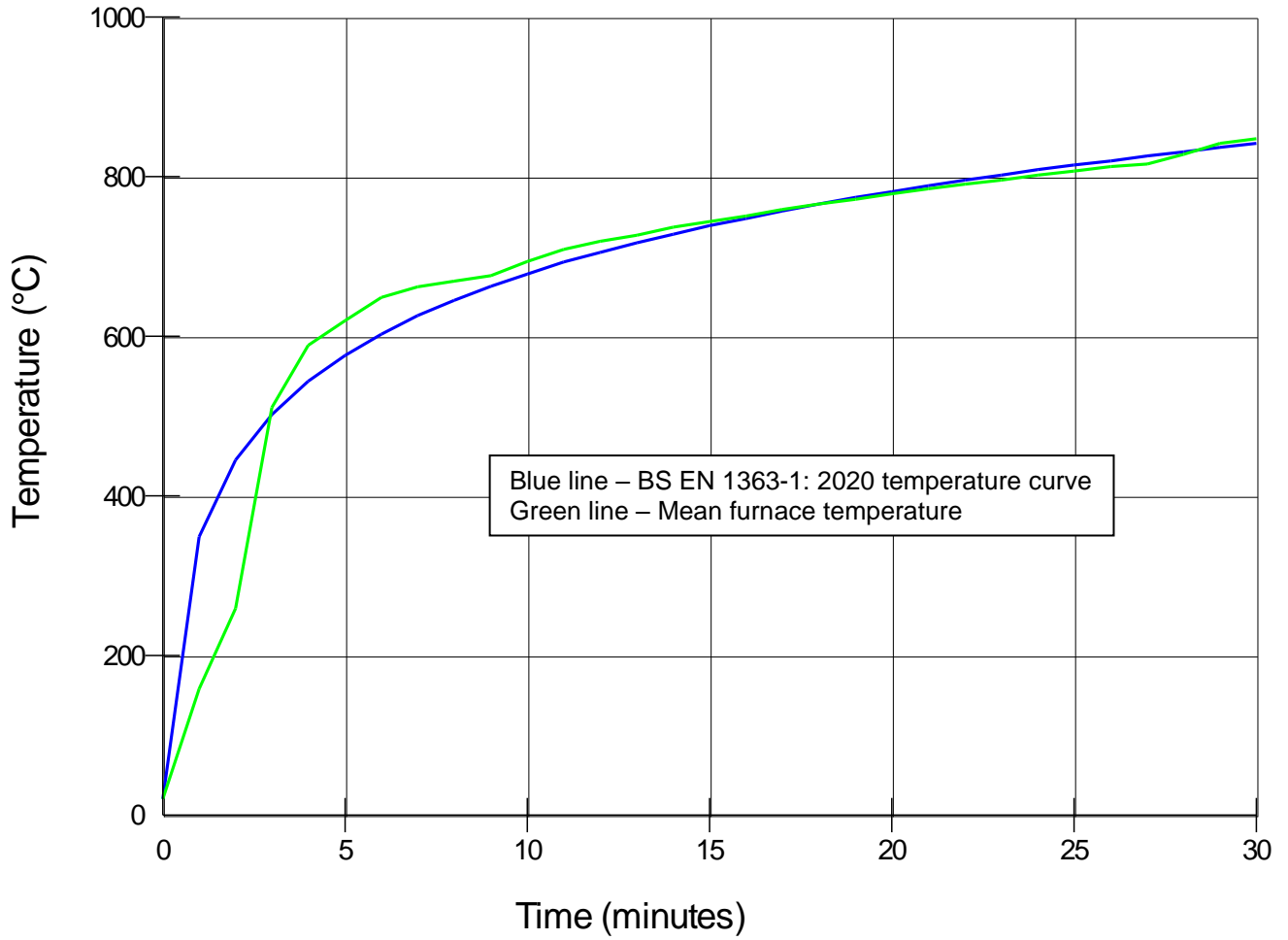
Time (min)	Chan 47 °C	Chan 48 °C	Chan 49 °C	Chan 50 °C	Chan 51 °C	Chan 52 °C	Chan 53 °C
0	12	12	12	11	11	11	11
1	12	12	12	11	11	11	11
2	12	12	12	11	11	11	10
3	12	13	13	11	11	11	11
4	13	14	14	11	11	12	11
5	14	15	16	12	11	12	11
6	16	17	18	12	11	13	11
7	18	20	21	12	11	14	11
8	20	22	23	13	11	15	11
9	23	25	26	13	11	17	11
10	26	27	28	14	11	18	11
11	29	29	30	15	11	20	11
12	31	31	32	16	11	22	11
13	34	33	34	17	11	25	11
14	37	36	36	18	11	27	11
15	39	38	38	19	12	30	11
16	41	39	40	20	12	32	11
17	43	41	43	21	12	34	12
18	45	43	44	22	12	35	12
19	46	44	46	23	12	37	12
20	47	46	48	25	12	39	12
21	49	48	50	26	12	40	12
22	49	49	52	27	12	41	12
23	51	51	53	29	12	42	12
24	52	52	55	30	12	43	12
25	53	53	56	31	12	44	12
26	53	55	58	32	13	45	13
27	54	56	59	33	13	46	13
28	55	58	61	35	13	47	13
29	57	60	63	37	14	49	14
30	58	60	64	39	14	50	14



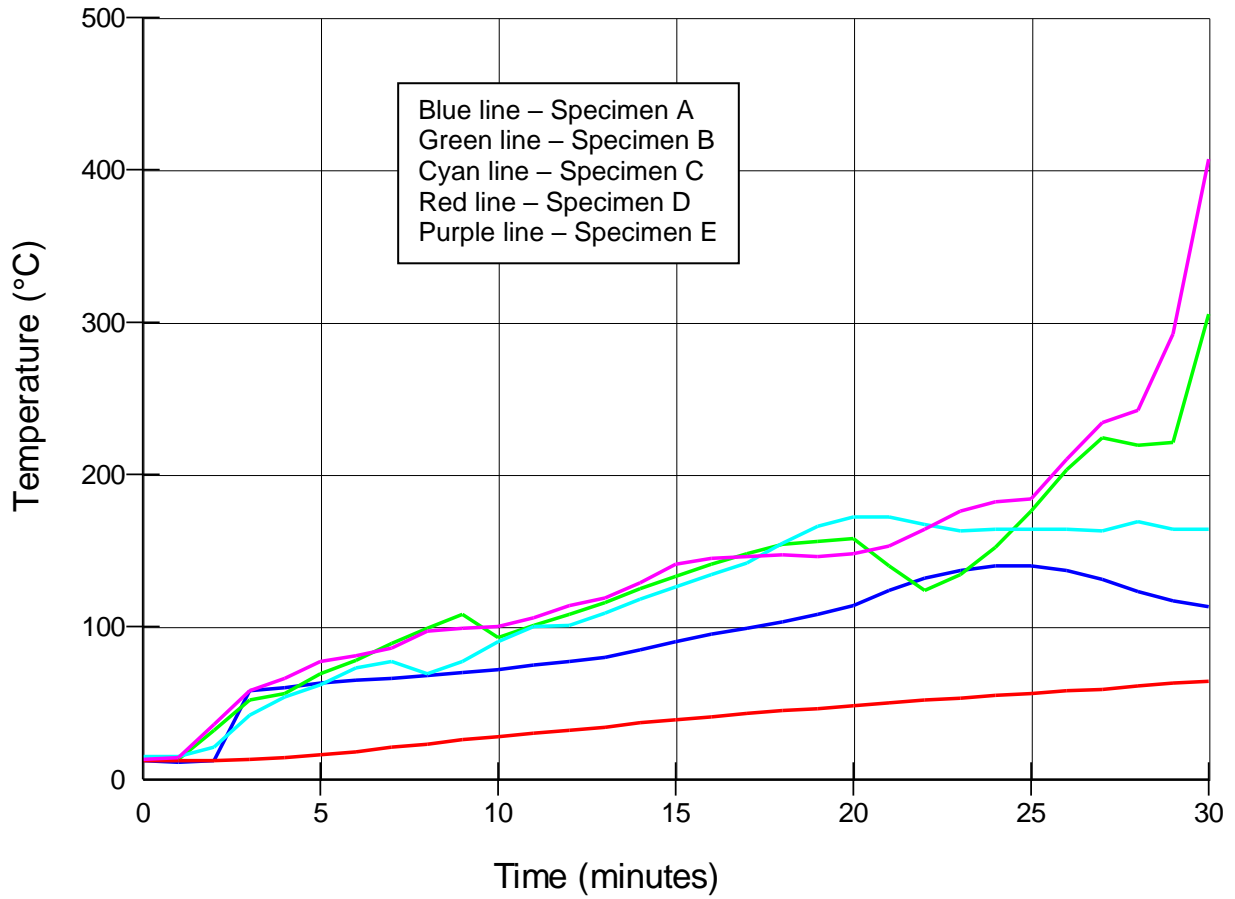
## Individual Temperatures Recorded On The Unexposed Face Of Specimen E

Time (min)	Ch 54 °C	Ch 55 °C	Ch 56 °C	Ch 57 °C	Ch 58 °C	Ch 59 °C	Ch 60 °C	Ch 62 °C	Ch 63 °C	Ch 64 °C	Ch 65 °C	Ch 66 °C
0	11	11	12	12	12	12	12	12	11	12	13	11
1	13	13	14	12	12	12	12	13	11	12	14	12
2	26	16	36	14	15	14	14	18	12	12	27	13
3	43	17	58	22	23	24	21	26	13	14	51	14
4	56	19	65	29	30	33	30	31	14	16	66	14
5	70	22	77	35	37	41	41	38	16	19	75	17
6	78	26	81	44	45	50	58	48	18	23	76	28
7	83	30	86	58	53	61	67	60	21	26	67	27
8	86	35	97	75	64	73	74	69	24	29	61	29
9	93	39	99	91	75	84	81	76	27	33	58	34
10	99	41	100	100	81	95	85	82	30	36	58	35
11	99	44	100	103	75	106	93	89	33	39	57	39
12	100	48	101	112	78	114	100	94	36	43	59	44
13	100	51	102	117	82	119	108	98	40	46	61	44
14	100	55	103	120	81	129	115	109	42	49	62	46
15	101	56	104	124	88	141	123	114	45	53	65	47
16	103	59	105	128	88	145	127	118	48	55	68	51
17	105	61	107	131	89	146	133	122	50	57	71	49
18	108	64	111	139	92	147	137	125	52	60	74	53
19	112	67	119	145	98	146	139	128	54	62	76	58
20	118	69	130	148	97	144	139	129	55	65	79	56
21	124	71	141	153	100	142	148	129	56	70	82	58
22	131	73	150	159	105	140	164	129	58	73	85	62
23	138	77	158	161	106	144	176	135	58	74	89	64
24	145	80	163	168	114	151	182	139	60	75	91	70
25	151	84	168	173	120	174	184	143	61	75	93	72
26	156	100	173	179	124	210	186	148	63	76	96	81
27	160	133	177	186	127	234	189	147	64	76	98	89
28	166	159	181	188	120	242	196	156	64	78	99	106
29	169	215	186	200	110	292	215	177	76	78	98	163
30	200	333	208	210	104	407	227	127	-16	78	99	211

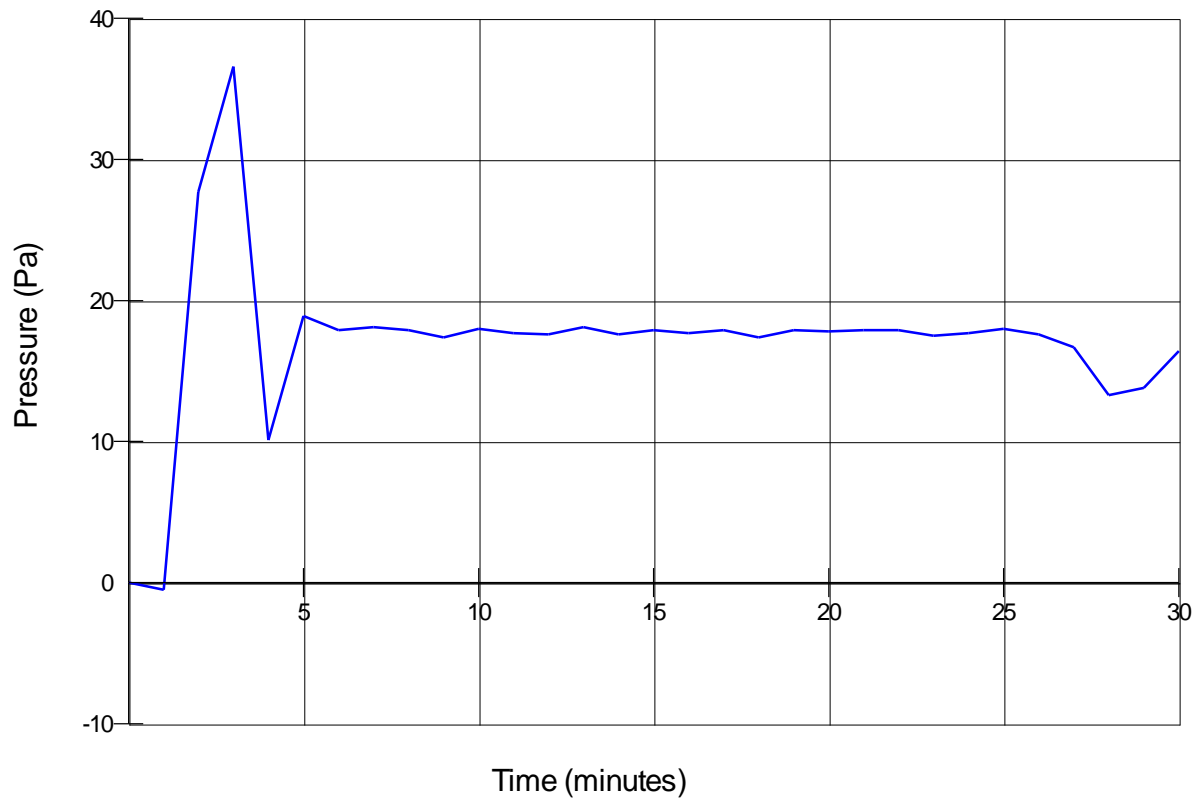
Graph Showing Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In BS EN 1363-1: 2020



Graph Showing Maximum Temperatures Recorded On The Unexposed Surface Of Both Test Constructions



Graph Showing Recorded Furnace Pressure At 1.0 m From The Furnace Floor



## On-going Implications

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**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 procedures outlined in BS EN 1363-1, using the test method stated in BS EN 1366-4: 2021, Fire resistance test for service installations – Part 4: Linear joint seals.

Any significant deviation with respect to size, construction 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.

The results only relate to the behaviour of the element of construction under the particular conditions of test; they are not intended to be the sole criteria for assessing the potential fire performance of the element in use nor do they reflect the actual behaviour in fires.

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over 5 years old should be considered by the user. Warringtonfire will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result. This test was not conducted under the requirements of UKAS accreditation.

**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.

## Field of Direct Application

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BS EN 1363-1:2020, Fire resistance tests - Part 1: General requirements, states within Section 12.1, Clause v) that “The field of direct application of the results taken from the appropriate standard (or the test method) for the specimen being evaluated, either in the form of the full text from the appropriate standard or only those clauses which are relevant for the specimen tested” shall be included within the test report. The full text of the field of direct application for the results of the specimen being evaluated herein, can be found within the appropriate test standard, which is referenced on the front cover of this report.