

Title:

The Fire Resistance
Performance of Non-
Load Bearing, Partition
Wall Assembly with 14
sockets, Tested in
Accordance with BS
EN 1364-1: 2015

Date of Test:

7th December 2022

Issue 2

17th February 2023

WF Report No.

525297/R



Prepared for:

Vexbox Ltd

21 Curlew Close,
Coalville,
Leicestershire,
LE67 4BD.



0249

This report
supersedes report
referenced 525297/R
Issued 16th February
2023.

Test Specimen

Summary of Tested Specimen

The specimen partition had overall nominal dimensions of 3000 mm high by 3000 mm wide by 120 mm thick. Generally, the partition consisted of 70 mm galvanised steel studs friction fitted into 72 mm head and base track. Each side of the studs were lined with two layers of 12.5 mm thick plasterboard referenced 'Gyproc FireLine'. The specimen was installed with two vertical free edges.

The partition incorporated fourteen sockets labelled A-N, with A-L installed on the unexposed face and M and N installed on the exposed face.

Specimen	Aperture size and back box depth	Specimen Details
A	132 mm long x 72 mm wide x 47 mm deep x 1.0 mm thickness	Back box installed flush with the UXF. Fitted with 2x 2 mm thick 'VexPLATE', and with 1 x twin and earth cable penetrating through the back.
B		
C	132 mm long x 72 mm wide x 35 mm deep x 0.8 mm thickness	Back box installed flush with the UXF. Fitted with 1x 2 mm thick 'VexPLATE' and 1x 2 mm thick 'VexBOX' with 1 x twin and earth cable penetrating through the back.
D		
E	132 mm long x 72 mm wide x 47 mm deep x 1.0 mm thickness	Back box installed recessed 25 mm from the UXF. Fitted with 2x 2 mm thick 'VexPLATE' and 1x 2 mm thick 'VexBOX' with 1 x twin and earth cable penetrating through the base.
F		
G	132 mm long x 72 mm wide x 35 mm deep x 0.8 mm thickness	Back box installed recessed 25 mm from the UXF. Fitted with 1x 2 mm thick 'VexPLATE' and 1x 2 mm thick 'VexBOX' with 1 x twin and earth cable penetrating through the base.
H		
I	132 mm long x 72 mm wide x 47 mm deep x 1.0 mm thickness	Back box installed recessed 35 mm from the UXF. Fitted with 2x 2 mm thick 'VexPLATE' and 1x 2 mm thick 'VexBOX' with 1 x twin and earth cable penetrating through the base, and through a 20 mm diameter plastic conduit with 1.5 mm wall thickness. The 'VexBOX' template was wrapped in class H glass cloth tape.
J		

Specimen	Aperture size and back box depth	Specimen Details
K	132 mm long x 72 mm wide x 35 mm deep x 0.8 mm thickness	Back box installed recessed 35 mm from the UXF. Fitted with 1x 2 mm thick 'VexPLATE' and 1x 2 mm thick 'VexBOX' with 1 x twin and earth cable penetrating through the base, and through a 20 mm diameter plastic conduit with 1.5 mm wall thickness. The 'Vexbox' template was wrapped in class H glass cloth tape.
L		
M	132 mm long x 72 mm wide x 47 mm deep x 1.0 mm thickness	Back box installed flush with the EXF. Fitted with 2x 2 mm 'VexPLATE'.
N	132 mm long x 72 mm wide x 35 mm deep x 0.8 mm thickness	Back box installed flush with the EXF. Fitted with 1x 2 mm 'VexPLATE'.

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

Performance Criteria and Test Results

Integrity	It is required that the specimen retains its separating function, without: <ul style="list-style-type: none">causing ignition of a cotton pad when appliedpermitting the penetration of a gap gauge as specified in BS EN 1363-1: 2020sustained flaming on the unexposed surface <p>These requirements were satisfied for the periods shown below:</p>		
Sustained flaming	135 minutes		
Gap gauge	136 minutes	Area blanked off	
Cotton pad	135 minutes		
Insulation	It is required that the mean temperature rise of the unexposed surface shall not be greater than 140°C and that the maximum temperature rise shall not be greater than 180°C. Insulation failure also occurs simultaneously with integrity failure. <p>These requirements were satisfied for the period shown below:</p>		
Specimen	98 minutes	Exceeded maximum temperature criteria	TC19
*Test was discontinued after a period of 150 minutes.			

Date of Test 7th December 2022

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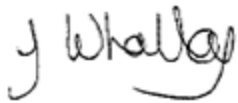
If the integrity and insulation results of each specimen were to be reported individually, then the following results below would be applicable:

Specimen	Integrity Performance			Insulation Performance
	Cotton Pad	Sustained Flaming	Gap Gauge	
A	144	144	150*	107
B	142	142	150*	112
C	150*	150*	150*	98
D	150*	150*	150*	110
E	147	147	150*	137
F	145	145	150*	132
G	145	145	150*	111
H	150*	150*	150*	127
I	144	144	150*	141
J	135	135	136#	135
K	137	137	137#	132
L	137	137	137#	133
M	150*	150*	150*	146
N	150*	150*	150*	146

*Test was discontinued after a period of 150 minutes.

#Specimen blanked off.

Signatories



Responsible Officer
J. Whalley*
Technical Officer



Approved
S. Gilfedder*
Report Co-Ordinator

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

Report Issued: 17th February 2023

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Revision History

Issue No: 2	Re-issue Date: 17th February 2023
Revised By: J Whalley	Approved By: S Gilfedder
Reason for Revision: Test standard amended from BS EN 1366-3:2021 to BS EN 1364-1:2015 throughout report.	

Issue No:	Re-issue Date:
Revised By:	Approved By:
Reason for Revision:	

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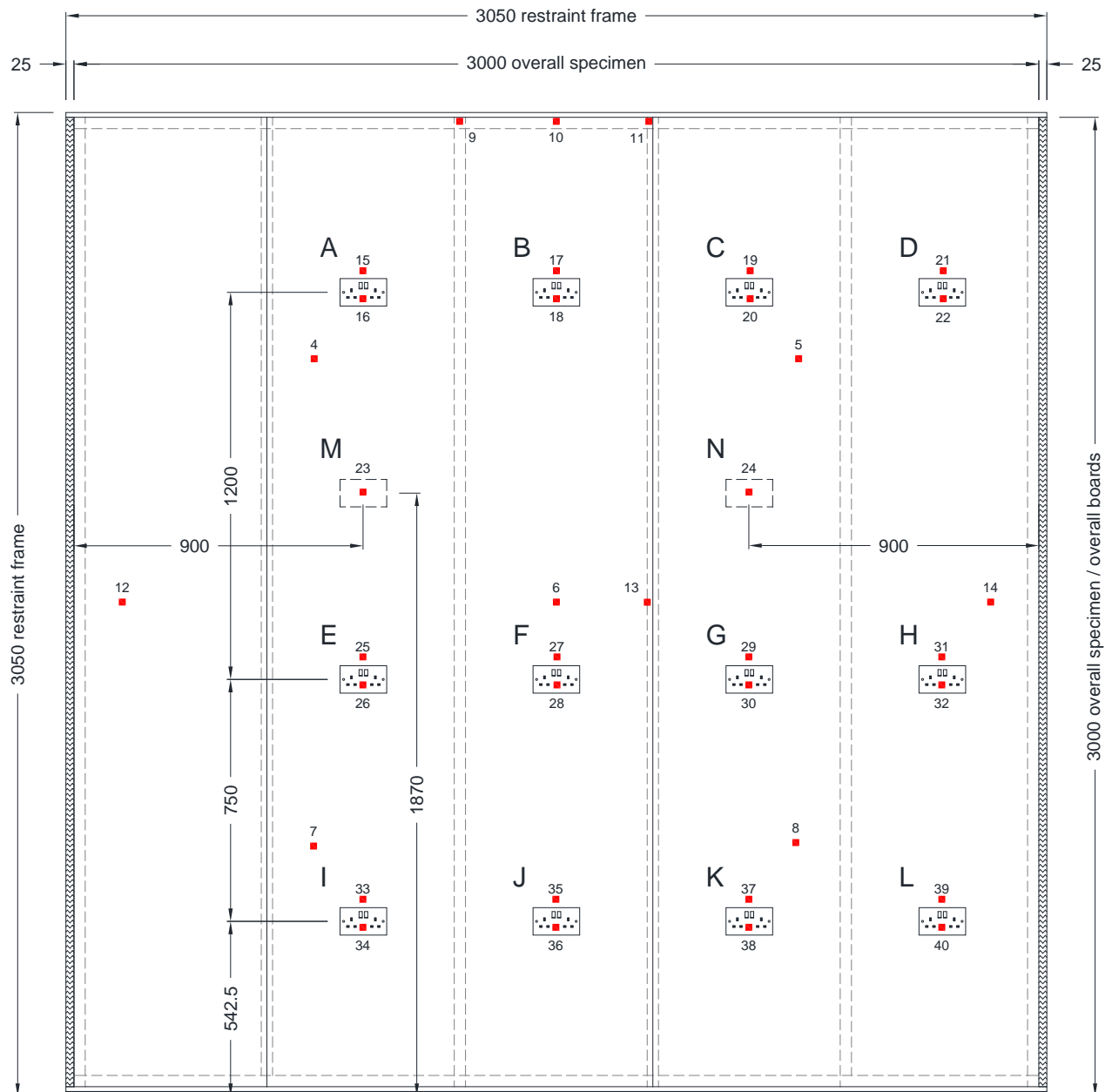
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Test Conditions

Standard	BS EN 1364-1:2015 Fire resistance tests for non-loadbearing elements - Part 1: Walls, with additional guidelines from BS EN 1366-3:2021 - Fire resistance tests for for service installations – Part 3: Penetration seals.
Sampling	<p>Warringtonfire was not involved in the sampling or selection of the tested specimen or any of the components.</p> <p>The results obtained during the test only apply to the test samples as received and tested by Warringtonfire.</p>
Installation	<p>The drywall assembly was constructed by representatives of Warringtonfire between the 25th November and 1st December 2022.</p> <p>The specimens were supplied and installed by representatives of the sponsor between the 29th November 2022.</p>
Conditioning	The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of 17 days. Throughout this period of time both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 10.5°C to 25°C and 42% to 75% respectively.
Instruction to Test	<p>The test was conducted on the 7th December 2022 at the request of Vexbox Ltd, the test sponsor.</p> <p>Paul Coy a representative of the test sponsor witnessed the test.</p>
Ambient Temperature	The ambient air temperature in the vicinity of the test construction was 14°C at the start of the test with a maximum variation of -8°C during the test.
Furnace	The furnace was controlled so that its mean temperature complied with the requirements of BS EN 1363-1: 2020 Clause 5.1 using nine plate thermometers, distributed over a plane 100 mm from the surface of the test construction.
Thermocouples	Thermocouples were provided to monitor the unexposed surface of the specimen. 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.
Furnace Pressure	After the first five minutes of testing and for the remainder of the test, the furnace atmospheric pressure was controlled so that it complied with the requirements of BS EN 1363-1: 2020, clause 5.2.1 The calculated pressure differential relative to the laboratory atmosphere at the top of the specimen was 20 (± 5) Pa between 5 and 10 minutes and 20 (± 3) Pa thereafter.

Test Specimen Drawings

Figure 1 – General elevation of unexposed face showing thermocouple positions

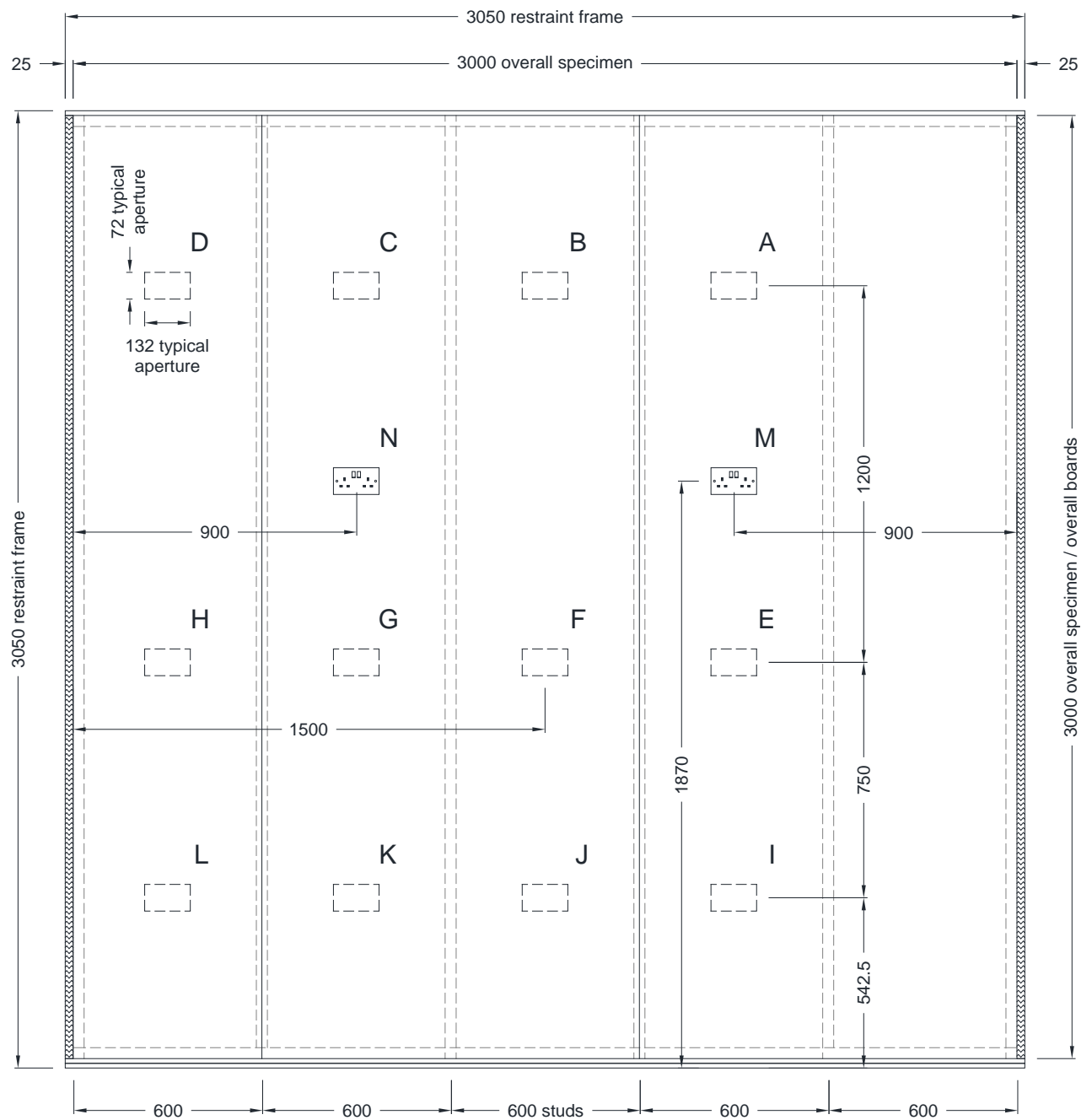


■ Positions of thermocouples

GENERAL ELEVATION OF UNEXPOSED FACE
SHOWING THERMOCOUPLE POSITIONS

Do not scale. All dimensions are in mm

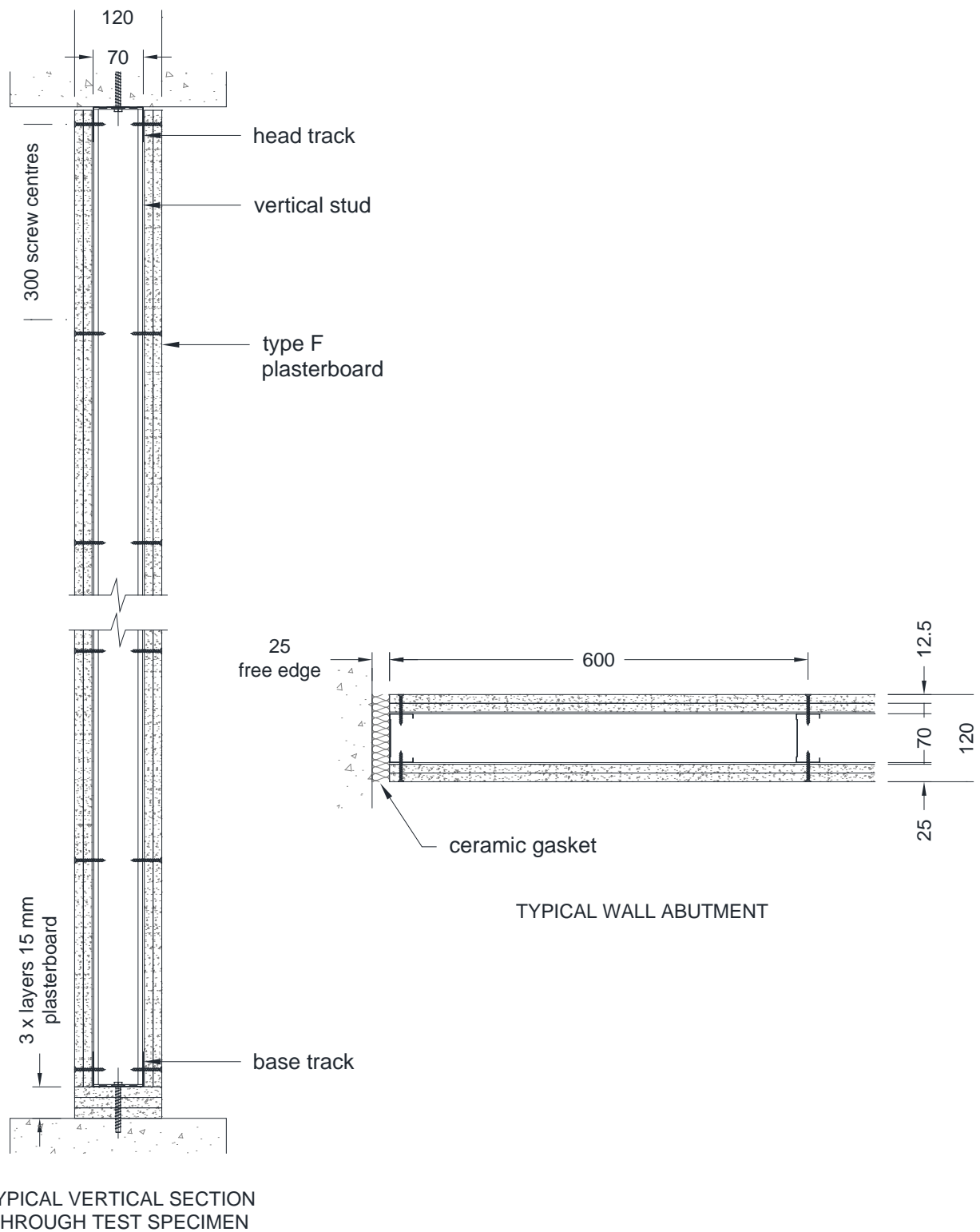
Figure 2 – General elevation of exposed face



GENERAL ELEVATION OF EXPOSED FACE

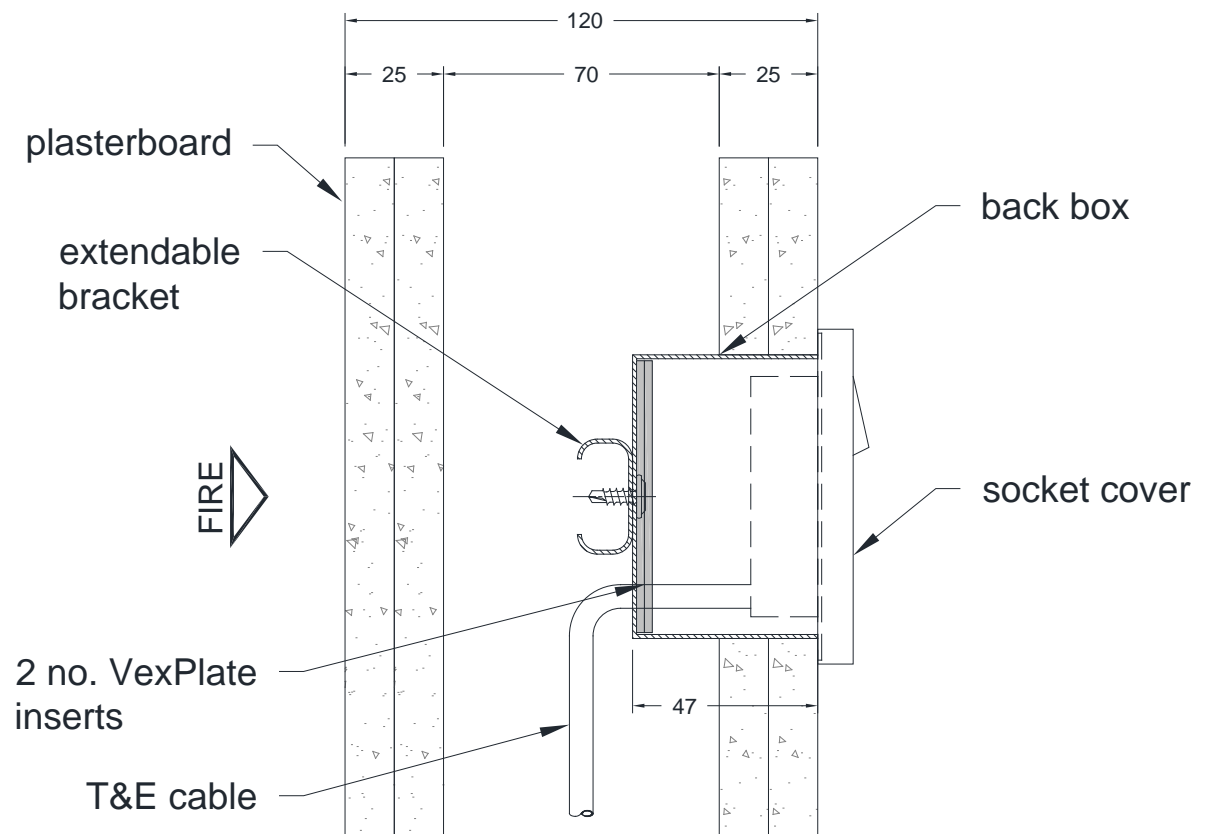
Do not scale. All dimensions are in mm

Figure 3 – Typical sections through partition



Do not scale. All dimensions are in mm

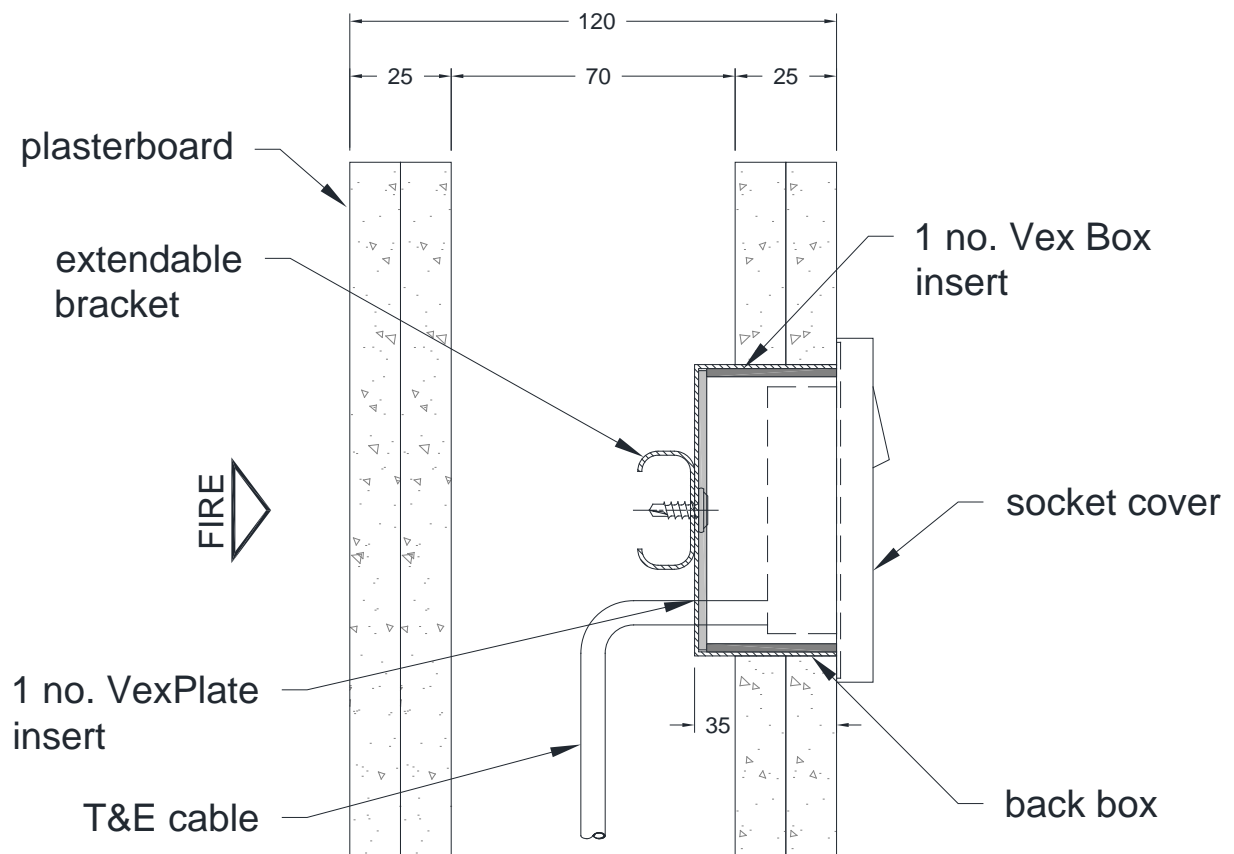
Figure 4 – Typical vertical section through specimens A and B



**TYPICAL VERTICAL SECTION
THROUGH SPECIMENS A, B**

Do not scale. All dimensions are in mm

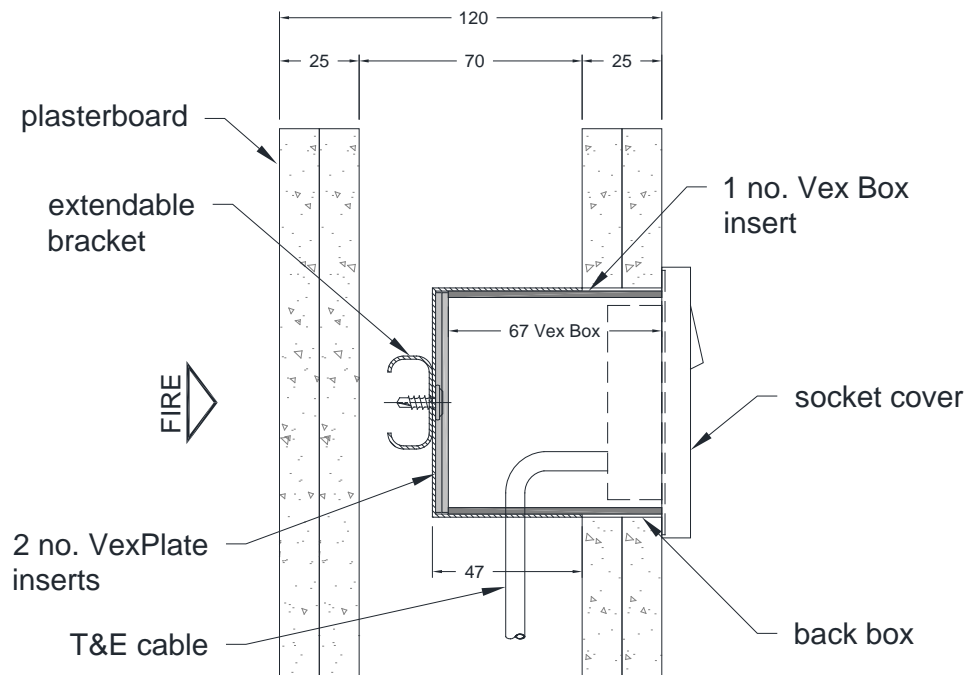
Figure 5 – Typical vertical section through specimens C and D



**TYPICAL VERTICAL SECTION
THROUGH SPECIMENS C, D**

Do not scale. All dimensions are in mm

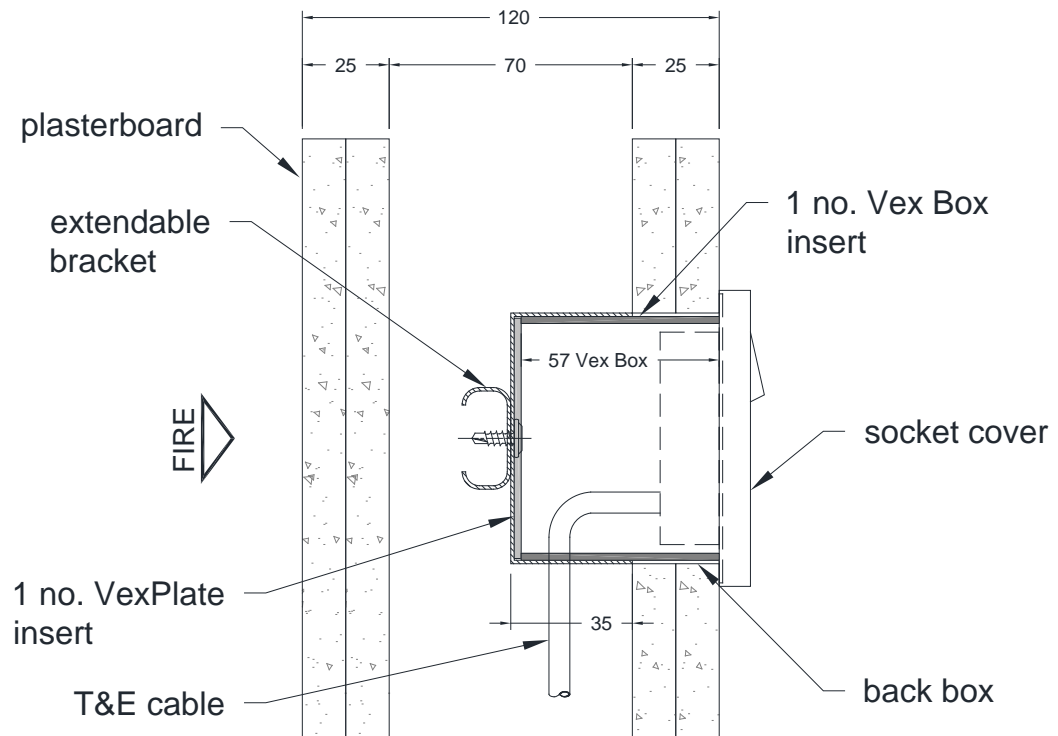
Figure 6 – Typical vertical section through specimens E and F



TYPICAL VERTICAL SECTION
THROUGH SPECIMENS E, F

Do not scale. All dimensions are in mm

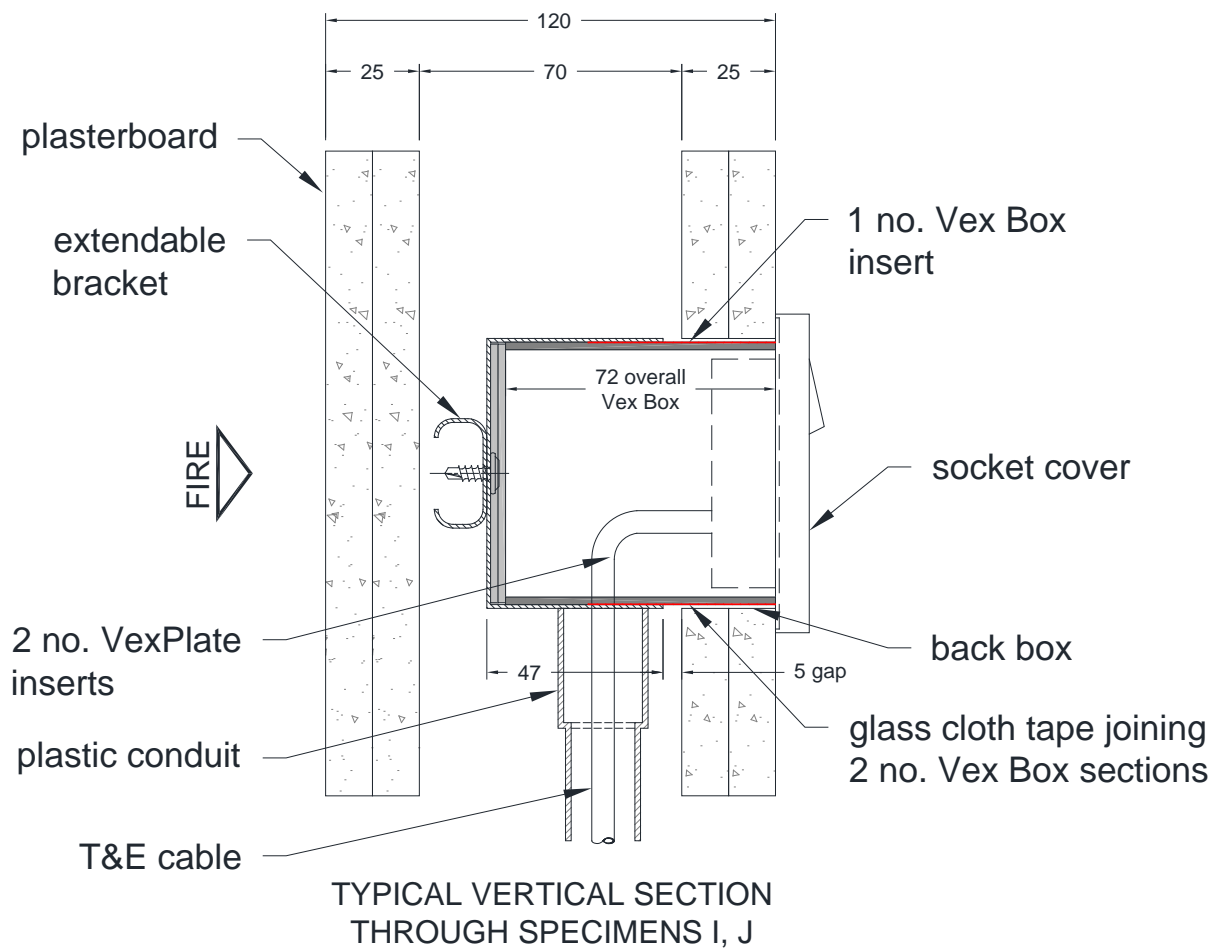
Figure 7 – Typical vertical section through specimens G and H



**TYPICAL VERTICAL SECTION
THROUGH SPECIMENS G, H**

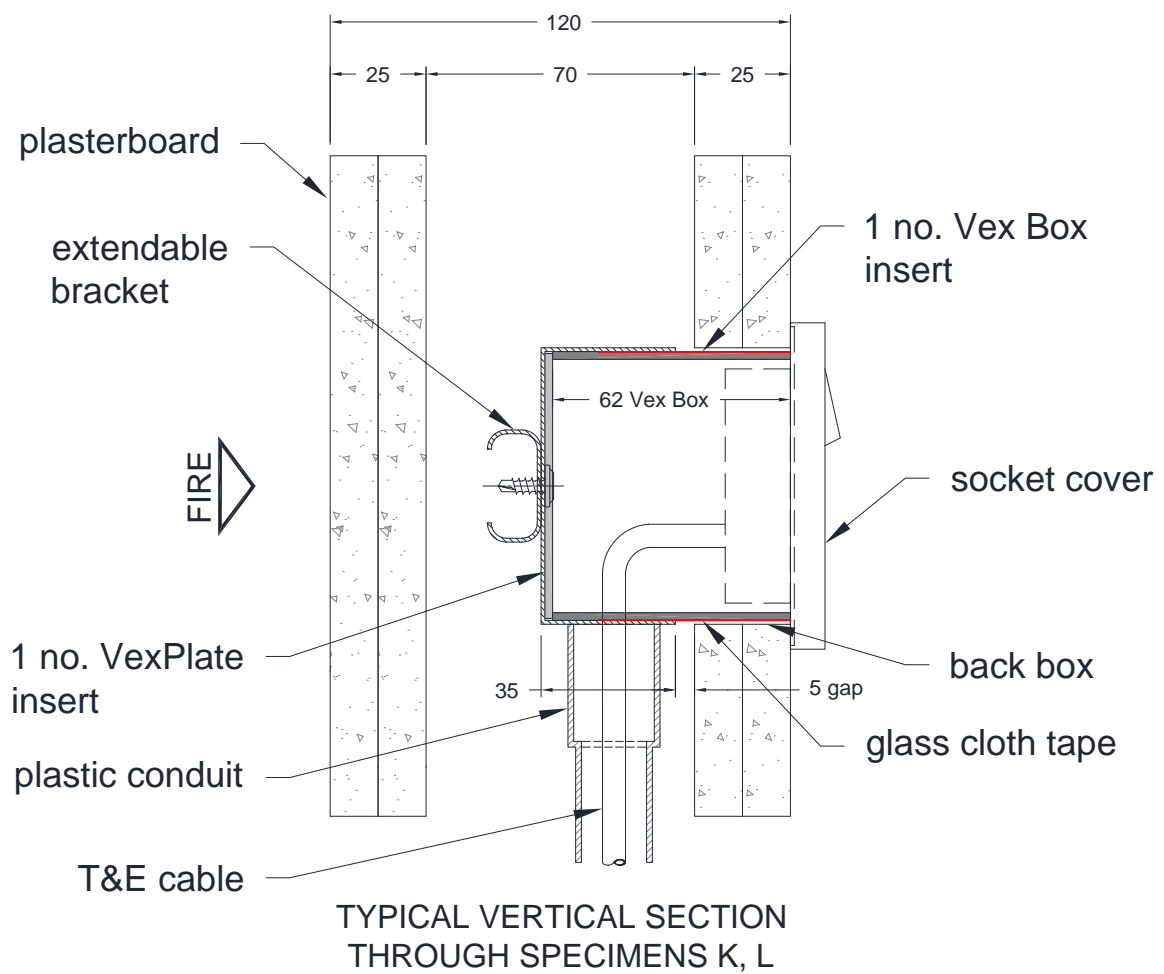
Do not scale. All dimensions are in mm

Figure 8 – Typical vertical section through specimens I and J



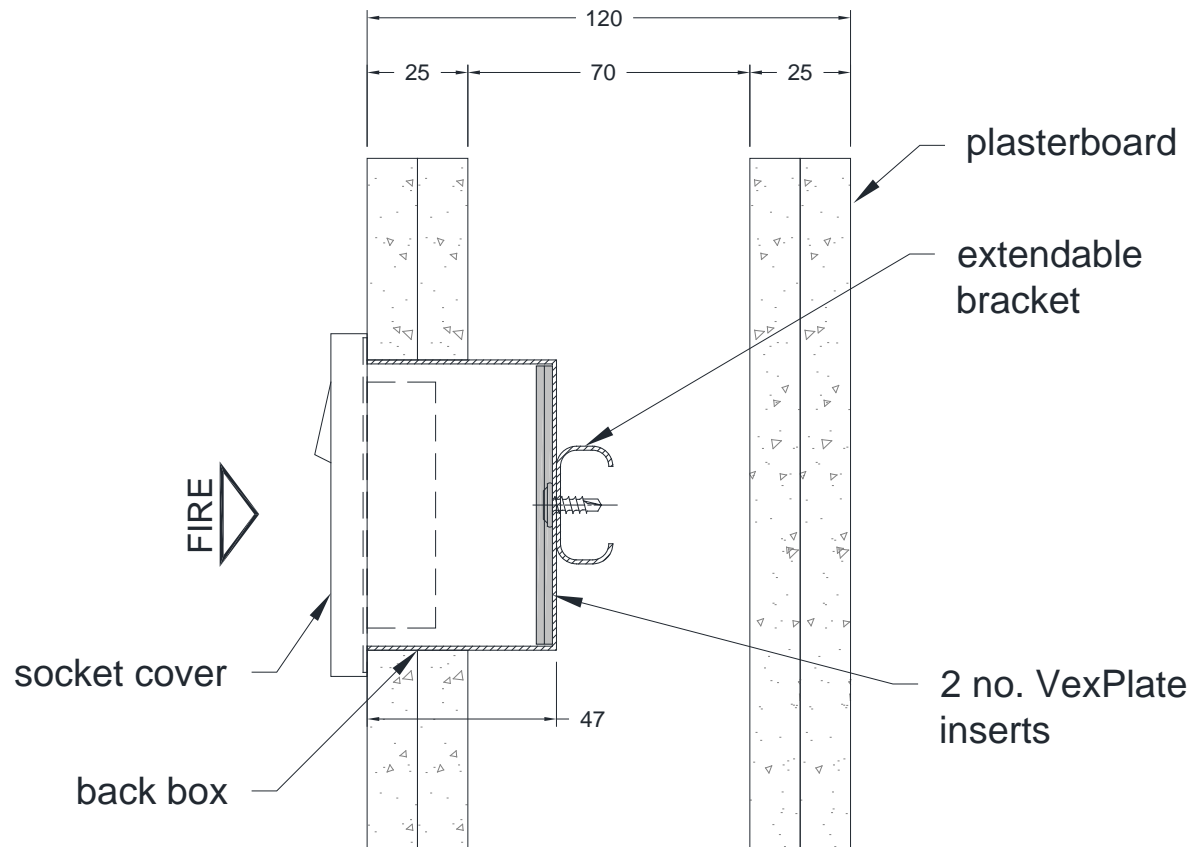
Do not scale. All dimensions are in mm

Figure 9 – Typical vertical section through specimens K and L



Do not scale. All dimensions are in mm

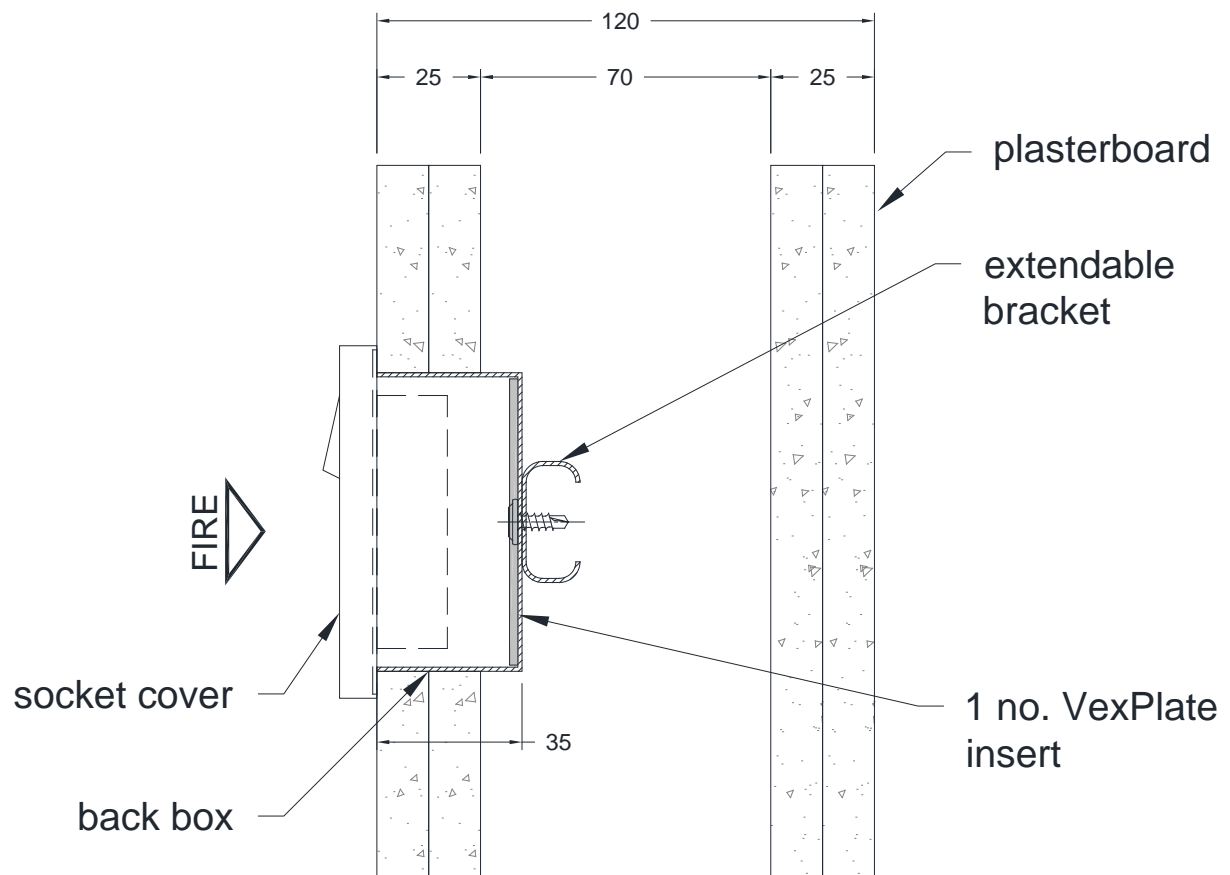
Figure 10 – Typical vertical section through specimen M



**TYPICAL VERTICAL SECTION
THROUGH SPECIMEN M**

Do not scale. All dimensions are in mm

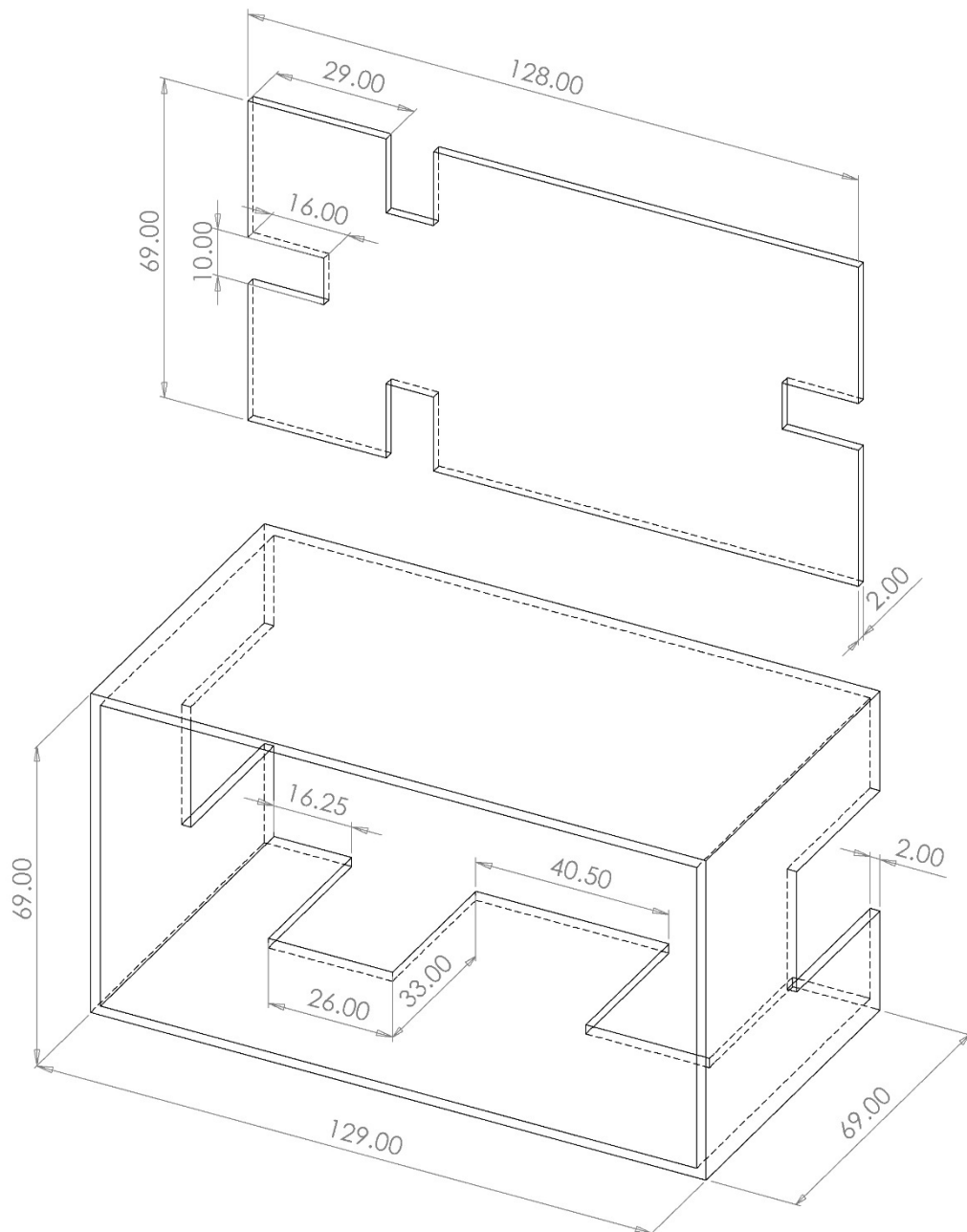
Figure 11 – Typical vertical section through specimen N



**TYPICAL VERTICAL SECTION
THROUGH SPECIMEN N**

Do not scale. All dimensions are in mm

Figure 8 – Details of VexPlate and Vex Box inserts



Do not scale. All dimensions are in mm

Schedule of Components

(Refer to Figures 1 to 8)
(All values are nominal unless stated otherwise)
(All other details are as stated by the sponsor)

<u>Item</u>	<u>Description</u>
120 mm flexible partition (comprising items 1 – 4)	
1. Head and base track	
Manufacturer	: British Gypsum
Reference	: Gypframe 72 FEC 50
Material	: Galvanised steel
Thickness	: 0.5 mm
Section size	: 72 mm wide x 29 mm deep
Fixing method	: Through fixed to restraint frame via plasterboard packer with screws and washers.
Fixings (head and base)	
i. manufacturer	: ADI
ii. reference	: Multi-purpose anchor
iii. type	: Zinc-plated steel screws
iv. size	: 120 mm long x 7.5 mm diameter
v. centres	: 600 mm
2. Stud	
Manufacturer	: British Gypsum
Reference	: Gypframe 70 S 50
Material	: Galvanised steel
Thickness	: 0.5 mm
Section size	: 39 / 37 mm wide x 70 mm deep
Fixing method	: Screwed to head and base track. Studs were spaced at 600 mm centres
Fixings	
i. manufacturer	: British Gypsum
ii. reference	: Wafer Head Screws
iii. type	: Zinc coated steel screws
iv. size	: 13 mm long x 4.1 mm diameter
3. Plasterboard facings	
Manufacturer	: British Gypsum
Reference	: Gyproc FireLine
Material	: Gypsum plasterboard with glass fibre and additional additives
Thickness	: 25 mm (2 layers of 12.5 mm)
Density	: 787 kg/m ³ (measured)
Fixing method	: Through fixed to internal framework with screws. Board joints were taped and filled
Fixings (inner layer)	
i. type	: Black phosphate coated steel screws
ii. size	: 32 mm long x 3.5 mm diameter
iii. centres	: 300 mm (edge), 300 mm (field)

<u>Item</u>	<u>Description</u>
3. Plasterboard facings	
Fixings (outer layer)	
i. type	: Zinc coated steel screws
ii. size	: 42 mm long x 3.5 mm diameter
iii. centres	: 300 mm (edge), 300 mm (field)
Tape	
i. manufacturer	: Siniat
ii. reference	: GTEC Joint Tape
Filler	
i. manufacturer	: British Gypsum
ii. reference	: Gyproc Ready Mix Joint Cement
4. Extendable bracket	
Manufacturer	: Walraven
Reference	: Britclips RSWB
Material	: Galvanised steel
Thickness	: 0.6 mm
Overall size	: 355 mm long x 29.2 mm wide x 14 mm deep (bracket), 82 mm long x 57 mm wide x 0.6 mm thick (fixing plate)
Fixing method	: Through fixed to studs with two screws per joint
Fixings	
i. type	: Wafer head screws
ii. size	: 13 mm long x 4.1 mm diameter
5. Back box	
Material	: Galvanised steel
Thickness	
a. 47 mm back box (specimens A, B, E, F, I, J, M)	: 1.0 mm
b. 35 mm back box (specimens C, D, G, H, K, L, N)	: 0.8 mm
Overall size	
a. 47 mm (specimens A, B, E, F, I, J, M)	: 132 mm long x 72 mm wide x 47 mm deep
b. 35 mm (specimens C, D, G, H, K, L, N)	: 132 mm long x 72 mm wide x 35 mm deep
Fixing method	: Through fixed to extendable bracket with three screws per box
Fixings	
i. type	: Wafer head screws
ii. size	: 13 mm long x 4.1 mm diameter
6. Socket cover	
Manufacturer	: Honeywell
Reference	: MK Logic Plus 13A 2-Gang DP Switched Plug Socket
Material	: Plastic cover, metal electrical connectors
Overall size	: 141 mm long x 85 mm wide x 27 mm deep
Fixing method	: Through fixed to back box with screws
Fixings (47 mm back box)	
i. manufacturer	: Olympic Fixings
ii. reference	: Raised CSK Slotted Head Steel Nickel Plated
iii. type	: Fine thread electrical screws
iv. size	: 75 mm long x 3.5 mm diameter

<u>Item</u>	<u>Description</u>
6. Socket cover (continued)	
Fixings (35 mm back box)	
i. manufacturer	: Olympic Fixings
ii. reference	: Raised CSK Slotted Head Steel Nickel Plated
iii. type	: Fine thread electrical screws
iv. size	: 75 mm long x 3.5 mm diameter (manually cut to length on site to suit installation)
7. VexPlate	
Manufacturer	: Vex Box
Reference	: VexPlate
Material	: Graphite-based intumescent material
Thickness	: 2 mm
Overall size	: 128 mm long x 69 mm wide
Fixing method	: Placed at the rear of the back box
8. Vex Box insert	
Manufacturer	: Vex Box
Reference	: Vex Box
Material	: Graphite-based intumescent material
Thickness	: 2 mm
Overall size	: 400 mm long (supplied flat) x 69 mm wide (width cut to suit depth of back box)
Fixing method	: Folded into shape and friction-fitted around inner perimeter of back box
9. Glass cloth tape	
Manufacturer	: Advance Tapes, Leicester
Reference	: Class H Glass Cloth Tape
Material	: Glass cloth tape with high temperature silicone adhesive
Thickness	: 0.165 mm (stated)
Overall size	: 38 mm wide
Fixing method	: Wrapped around outer perimeter of Vex Box insert (specimens I, J, K, L)
10. Electrical cable	
Type	: Twin and earth cable
Size	: 9.2 mm wide x 4.9 mm thick (2.5 mm ²)
Fixing method	: Fastened into terminals in socket cover
11. Cable conduit and connector	
Type	: Plastic
Size conduit	: 20 mm diameter x 148 mm long x 1.5 mm wall thickness
Size connector	: 24 mm diameter x 32 mm long x 1.5 mm wall thickness
Fixing method	: Push-fitted into back box

Test Observations

Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	
00	00	The test commences.
04	00	Steam/Smoke release from sockets A and B.
06	00	Steam/Smoke release from sockets D, E, F, G and H.
09	42	Steam/Smoke release from bottom edge of partition.
10	00	When viewed from the exposed face, flaming of the exposed sockets M and N. The exposed face plates of M and N have started to melt and have partially detached and broken.
13	00	Partition beginning to darken due to moisture release from the intumescent around the sockets, socket B especially.
16	00	Moisture release causing darkened areas around socket G.
20	00	Tape and filling compound on joints of partition on the exposed face, detached in areas exposing the joints to the heating conditions. Exposed joints beginning to widen, intumescent visible.
25	00	Steam/Smoke release volume increased in sockets E, F, G and H.
25	30	Steam/Smoke colour changing around sockets A, B, C and D, now darkening.
37	00	Steam/Smoke release from sockets I, J, K and L. Moisture release around socket I.
52	00	Gaps in joints of plasterboards on exposed face beginning to widen approximately 5 mm to 10 mm.
55	00	Areas where moisture had released around sockets B, C and G, have darkened.
59	00	Sockets B, C and G beginning to push away from partition where discoloured.
67	00	Sockets D, H darkening around and becoming discoloured.
68	00	The face plates of sockets A, B, C, D, E, F and G are now discoloured.
70	00	No significant visual change observed from exposed face.
71	00	No significant visual change seen on sockets I, J, K and L.
72	00	Volume of steam/smoke release has increased around sockets A, B, C, D, E, F, G and H.
76	00	Partition starting to deflect towards the heating conditions. .

Time		
mins	secs	
89	00	Intumescent falling from around socket D as the socket is deflecting away from the wall.
95	00	When viewed from exposed face, the gap in the right-hand vertical joint has widened to now approximately 25 mm to 30 mm.
103	00	Socket A has pushed away from the wall.
107	00	Intumescent falling from around sockets A, B and D.
113	00	The face plate of socket G has detached.
115	00	When viewed from the exposed face, cracks are forming in the plasterboard around sockets M and N where face plates previously detached. Cracks also forming in the centre and the left and right-hand joints. With the gap in the left hand joint now approximately 10 mm to 20 mm where the fixings have detached.
119	00	Face plate of socket A detached. Plasterboard around sockets E and F discolouring.
123	00	The face plate of socket D has detached.
123	30	When viewed from the exposed face, the first layer of plasterboard has detached. Exposing second layer to heating conditions.
124	00	When viewed from the exposed face, gap formed in the joints of the second layer of plasterboard approximately 5 mm to 10 mm.
126	00	The face plate of socket H has detached.
128	30	Flickers of flame from left earth pin of socket B.
131	00	Glowing around the partition of socket G.
132	00	Cotton pad applied to socket L, pad did not ignite.
133	20	Glowing near B, F and G. Face plates of sockets F and G have detached.
133	30	Flicker of flame on socket K.
133	50	Cotton pad applied to socket B, pad did not ignite.
134	00	The face plate of socket E is partially detached.
135	00	Sustained flaming of socket J, integrity failure deemed to have occurred.
135	30	Cotton pad applied to socket B, pad did not ignite.
136	10	The face plate of socket J is now detached.

Time		
mins	secs	
136	17	Specimen J blanked off to allow the test to continue.
137	20	Sustained flaming observed Specimens K and L. Integrity failure deemed to occur.
137	37	Specimen K blanked off to allow the test to continue.
137	30	Fixings now visible from behind the filling compound on the unexposed face.
137	40	The face plate of socket E has detached.
137	45	Specimen L blanked off to allow the test to continue.
138	00	Glowing increasing around sockets B and G. Glowing observed around sockets A, D and through the face plate of C.
140	00	Cotton pad applied on socket B, pad did not ignite.
142	00	Sustained flaming of socket B. Integrity failure deemed to occur.
143	00	The face plate of socket C has detached, glowing present. Plasterboard darkening in stud locations. Flicker of flame on socket G and I. Glowing observed around socket D.
144	00	Cotton pad applied on socket C, pad did not ignite.
144	30	Sustained flaming of socket I. Integrity failure deemed to occur.
144	47	Sustained flaming of socket A. Integrity failure deemed to occur.
145	00	Sustained flaming of socket G. Integrity failure deemed to occur.
145	15	Sustained flaming of socket F. Integrity failure deemed to occur.
146	00	Specimen starting to vibrate and the plasterboards are beginning to darken at the top and the middle.
147	00	Sustained flaming of socket E. Integrity failure deemed to occur.
148	00	Glowing around TC10, the paper facing has started to char.
149	00	Paper glowing where charred.
150	00	Test discontinued at sponsors request.

Test Photographs

The exposed face of the specimen prior to testing



The unexposed face of the specimen prior to testing



The unexposed face of the specimen after a test duration of 30 minutes



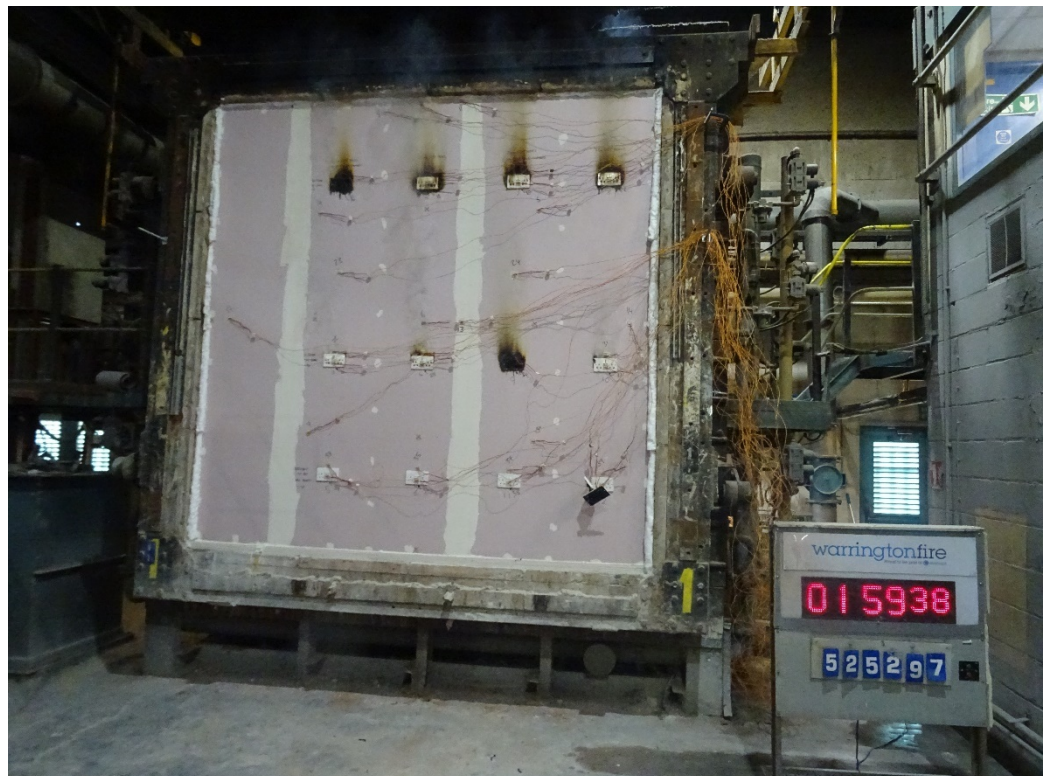
The unexposed face of the specimen after a test duration of 60 minutes



The unexposed
face of the
specimen after a
test duration of
90 minutes



The unexposed
face of the
specimen after a
test duration of
119 minutes



The unexposed face of the specimen after a test duration of 150 minutes



The exposed face of the specimen immediately after the test



Temperature and Deflection Data

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

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	19
5	576	570
10	678	677
15	739	742
20	781	779
25	815	814
30	842	841
35	865	865
40	885	885
45	902	904
50	918	919
55	932	934
60	945	947
65	957	959
70	968	969
75	979	979
80	988	987
85	998	996
90	1006	1004
95	1014	1015
100	1022	1027
105	1029	1032
110	1036	1040
115	1043	1047
120	1049	1054
125	1055	1060
130	1061	1056
135	1067	1066
140	1072	1072
145	1077	1075
150	1082	1088

Individual Temperatures And Mean Recorded On The Unexposed Surface Of The Specimen

Time Mins	T/C Number 4 Deg. C	T/C Number 5 Deg. C	T/C Number 6 Deg. C	T/C Number 7 Deg. C	T/C Number 8 Deg. C	Mean Temp Deg. C
0	11	11	11	11	10	11
5	11	11	11	11	10	11
10	12	12	12	11	11	12
15	18	18	15	15	13	16
20	29	28	24	22	19	24
25	40	38	34	32	27	34
30	49	46	43	40	35	43
35	55	53	51	48	43	50
40	25	56	56	55	49	48
45	*	58	58	58	54	57
50	*	60	59	60	57	59
55	*	64	64	63	62	63
60	*	68	67	68	65	67
65	69	70	68	70	67	69
70	70	71	68	71	69	70
75	70	71	68	71	70	70
80	70	70	69	71	70	70
85	71	71	69	70	70	70
90	72	72	71	71	70	71
95	73	77	72	72	70	73
100	79	79	77	74	75	77
105	80	82	78	78	78	79
110	82	84	79	80	80	81
115	84	85	81	82	82	83
120	85	87	87	84	84	85
125	87	88	88	85	85	87
130	90	92	97	87	89	91
135	101	103	106	89	99	100
140	107	108	113	94	106	106
145	115	119	151	102	113	120
146	118	123	166	103	115	125
147	123	135	197	105	117	135
150	162	179	265	112	145	173

*Thermocouple malfunction

Individual Temperatures Recorded On The Unexposed Surface Of The Specimen

Time Mins	T/C Number 9 Deg. C	T/C Number 10 Deg. C	T/C Number 11 Deg. C	T/C Number 12 Deg. C	T/C Number 13 Deg. C	T/C Number 14 Deg. C
0	12	13	12	12	11	12
5	12	13	12	12	11	12
10	14	14	13	12	12	12
15	22	23	19	16	16	16
20	34	35	30	23	24	24
25	44	45	42	32	34	34
30	52	53	51	41	43	44
35	58	59	59	48	50	52
40	62	62	63	53	55	57
45	63	62	64	56	58	60
50	63	61	64	58	62	60
55	64	65	65	60	66	62
60	67	70	69	64	69	66
65	68	72	71	65	70	69
70	69	73	71	66	71	69
75	69	73	71	63	67	70
80	72	71	70	66	69	69
85	74	71	70	67	75	69
90	75	72	72	67	75	70
95	74	74	74	66	76	71
100	75	75	75	65	79	73
105	81	78	77	67	80	77
110	83	81	80	71	84	79
115	85	83	82	75	86	81
120	86	85	84	80	87	83
125	88	87	85	83	89	84
130	88	88	87	85	91	85
135	89	92	90	86	94	86
140	93	103	91	90	98	89
145	132	116	93	100	124	101
146	162	118	93	102	133	103
147	198	121	96	104	154	105
150	281	145	113	107	217	110

Individual Temperatures Recorded On Specimen A

Time Mins	T/C Number 15 Deg. C	T/C Number 16 Deg. C
0	12	12
5	12	12
10	15	19
15	29	53
20	42	65
25	52	69
30	58	69
35	62	73
40	64	71
45	64	72
50	64	69
55	66	71
60	69	75
65	72	81
70	78	98
75	80	113
80	80	120
85	83	137
90	102	143
95	142	143
100	163	147
105	182	155
107	190	159
108	194	160
110	200	164
115	226	174
120	238	*
125	235	*
130	242	*
135	264	*
140	290	*
145	320	*
150	394	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen B

Time Mins	T/C Number 17 Deg. C	T/C Number 18 Deg. C
0	12	13
5	12	13
10	16	23
15	40	58
20	54	68
25	65	75
30	70	77
35	74	79
40	75	79
45	75	79
50	75	79
55	73	81
60	75	85
65	76	92
70	77	109
75	79	125
80	76	137
85	76	136
90	79	139
95	101	148
100	134	149
105	157	153
110	182	159
112	191	163
113	195	165
115	200	169
120	222	174
125	253	190
130	286	208
135	288	*
140	308	*
145	375	*
150	436	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen C

Time Mins	T/C Number 19 Deg. C	T/C Number 20 Deg. C
0	13	13
5	13	13
10	20	22
15	44	54
20	56	66
25	60	72
30	64	75
35	67	77
40	71	77
45	70	77
50	70	76
55	71	78
60	77	82
65	86	92
70	97	104
75	116	110
80	135	119
85	149	129
90	164	137
95	181	142
98	191	146
99	194	148
100	197	148
105	218	158
110	249	169
115	290	178
120	319	188
125	323	196
130	328	206
135	336	216
140	361	240
145	378	*
150	417	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen D

Time Mins	T/C Number 21 Deg. C	T/C Number 22 Deg. C
0	10	7
5	*	7
10	*	10
15	*	40
20	*	57
25	*	64
30	*	68
35	*	70
40	*	71
45	*	69
50	*	69
55	*	66
60	*	69
65	*	71
70	76	76
75	77	93
80	93	103
85	111	121
90	143	131
95	165	134
100	179	139
105	149	149
110	188	160
111	198	163
115	236	170
120	279	179
125	261	*
130	214	*
135	207	*
140	216	*
145	236	*
150	259	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen E

Time Mins	T/C Number 25 Deg. C	T/C Number 26 Deg. C
0	7	8
5	7	8
10	8	8
15	12	13
20	22	34
25	37	57
30	48	65
35	56	71
40	60	73
45	62	74
50	64	74
55	65	73
60	67	74
65	68	75
70	69	74
75	70	81
80	71	90
85	72	94
90	72	111
95	73	113
100	76	120
105	78	124
110	78	129
115	77	126
120	83	128
125	85	135
130	111	149
135	140	159
137	153	163
138	159	*
140	153	*
145	182	*
150	283	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen F

Time Mins	T/C Number 27 Deg. C	T/C Number 28 Deg. C
0	8	8
5	8	8
10	8	8
15	12	13
20	23	34
25	35	58
30	46	61
35	55	67
40	60	69
45	62	66
50	63	63
55	65	61
60	66	65
65	66	69
70	67	71
75	68	78
80	68	84
85	69	91
90	70	98
95	73	110
100	77	117
105	81	122
110	81	128
115	83	131
120	96	137
125	126	144
130	160	153
132	185	156
133	178	*
135	173	*
140	207	*
145	260	*
150	454	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen G

Time Mins	T/C Number 29 Deg. C	T/C Number 30 Deg. C
0	12	12
5	12	12
10	13	13
15	17	22
20	37	46
25	52	66
30	60	71
35	66	75
40	70	78
45	73	79
50	72	77
55	75	76
60	77	79
65	77	79
70	80	85
75	86	95
80	100	111
85	122	132
90	145	132
95	155	133
100	168	135
105	177	139
110	188	146
111	191	147
112	196	148
115	173	137
120	171	*
125	180	*
130	195	*
135	214	*
140	232	*
145	257	*
150	317	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen H

Time Mins	T/C Number 31 Deg. C	T/C Number 32 Deg. C
0	12	12
5	12	12
10	13	13
15	16	17
20	27	39
25	39	63
30	49	68
35	56	72
40	60	73
45	64	73
50	67	71
55	67	71
60	69	74
65	70	76
70	70	79
75	73	87
80	74	95
85	75	100
90	74	105
95	75	114
100	76	124
105	80	131
110	81	137
115	82	143
120	85	149
125	104	156
127	120	153
128	123	*
130	126	*
135	132	*
140	170	*
145	228	*
150	266	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen I

Time Mins	T/C Number 33 Deg. C	T/C Number 34 Deg. C
0	12	12
5	12	12
10	13	12
15	15	13
20	20	14
25	27	17
30	34	21
35	46	41
40	61	75
45	69	76
50	69	74
55	67	65
60	71	76
65	73	78
70	72	76
75	72	71
80	72	71
85	71	65
90	71	64
95	71	67
100	74	74
105	78	79
110	81	86
115	83	97
120	84	112
125	84	130
130	89	141
135	94	152
140	112	178
141	118	188
142	122	199
145	224	226
150	213	286

Individual Temperatures Recorded On Specimen J

Time Mins	T/C Number 35 Deg. C	T/C Number 36 Deg. C
0	12	10
5	12	11
10	13	11
15	15	11
20	21	13
25	29	17
30	37	21
35	46	39
40	56	69
45	61	72
50	63	71
55	63	64
60	67	71
65	68	73
70	68	72
75	69	68
80	70	71
85	69	69
90	68	73
95	69	76
100	72	82
105	77	89
110	80	101
115	81	118
120	82	132
125	84	142
130	86	153
135	110	172
136	118	179
137	97	*
140	109	*
145	125	*
150	187	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen K

Time Mins	T/C Number 37 Deg. C	T/C Number 38 Deg. C
0	11	11
5	11	11
10	11	11
15	13	11
20	17	14
25	24	18
30	31	23
35	40	40
40	51	73
45	60	76
50	63	73
55	63	61
60	64	70
65	67	70
70	69	70
75	69	67
80	70	70
85	69	69
90	69	76
95	68	82
100	72	90
105	78	95
110	81	106
115	83	126
120	85	143
125	87	154
130	91	176
132	92	191
133	93	200
135	94	219
140	113	*
145	130	*
150	192	*

*Thermocouple malfunction

Individual Temperatures Recorded On Specimen L

Time Mins	T/C Number 39 Deg. C	T/C Number 40 Deg. C
0	11	11
5	11	11
10	11	11
15	13	11
20	18	13
25	25	16
30	32	20
35	42	37
40	54	71
45	62	75
50	64	69
55	63	68
60	67	72
65	68	74
70	68	74
75	69	72
80	69	75
85	69	76
90	68	78
95	68	82
100	70	91
105	74	98
110	79	111
115	82	131
120	84	140
125	86	149
130	88	167
133	89	186
134	90	196
135	91	203
140	95	*
145	106	*
150	122	*

*Thermocouple malfunction

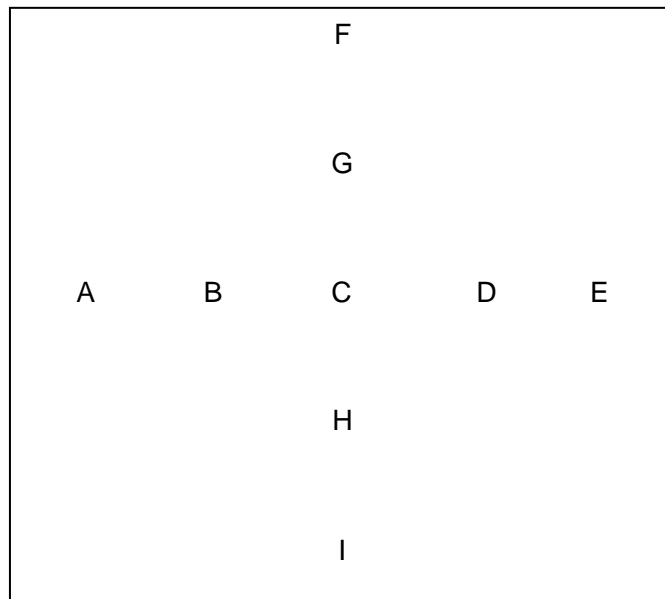
Individual Temperatures Recorded On The Unexposed Side of Specimen M

Time Mins	T/C Number 23 Deg. C
0	7
5	7
10	9
15	17
20	29
25	38
30	47
35	52
40	55
45	56
50	58
55	60
60	62
65	63
70	63
75	64
80	66
85	72
90	74
95	77
100	79
105	80
110	82
115	85
120	90
125	100
130	106
135	112
140	135
145	177
146	185
147	193
150	226

Individual Temperatures Recorded On The Unexposed Side of Specimen N

Time Mins	T/C Number 24 Deg. C
0	7
5	7
10	9
15	16
20	25
25	35
30	44
35	51
40	55
45	58
50	60
55	63
60	65
65	66
70	66
75	67
80	69
85	73
90	77
95	80
100	81
105	83
110	84
115	85
120	86
125	89
130	98
135	105
140	116
145	170
146	185
147	198
150	235

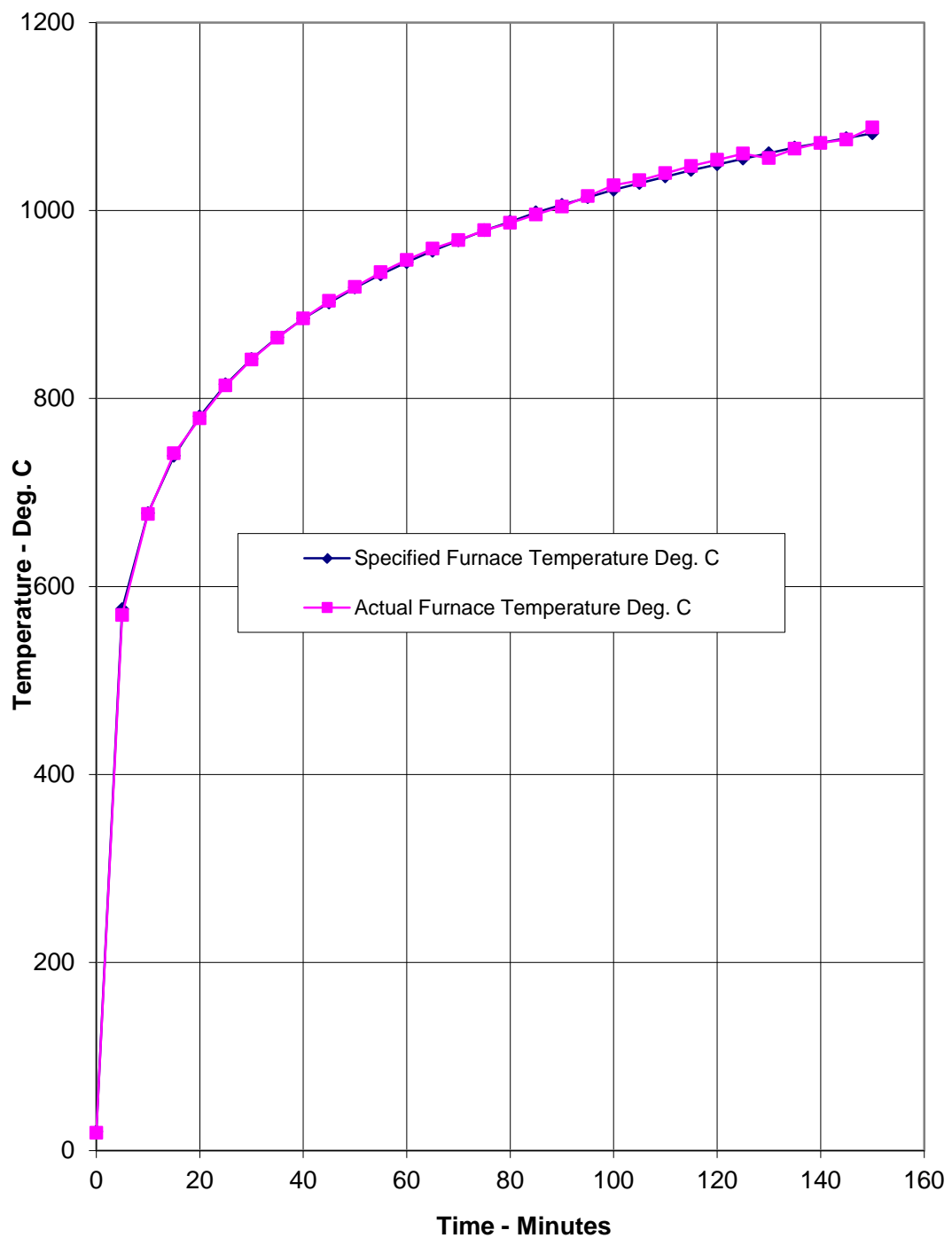
Deflection Of The Specimen During The Test



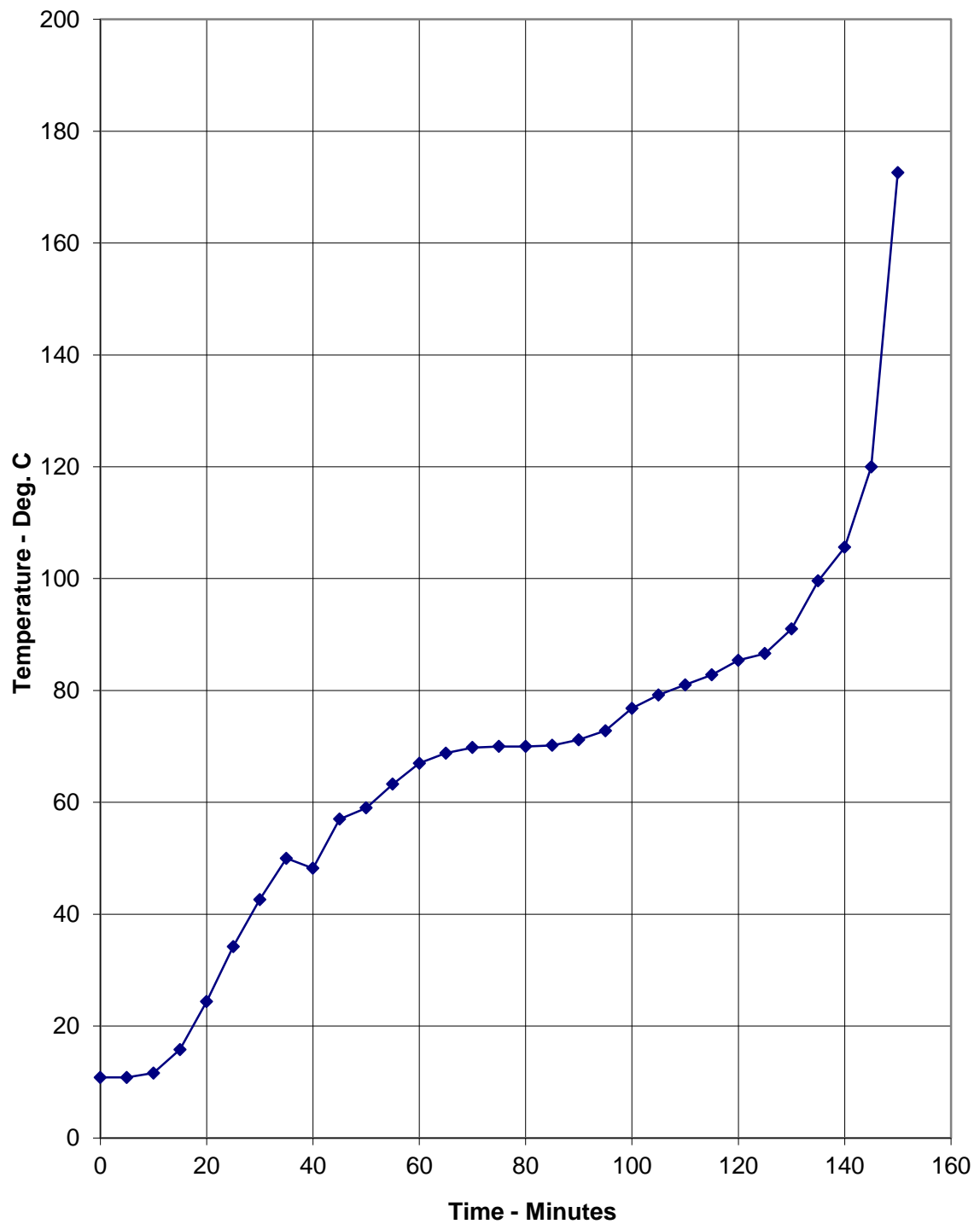
TIME mins	A	B	C	D	E	F	G	H	I
0	0	0	0	0	0	0	0	0	0
10	-6	0	-5	-3	-10	-9	10	10	0
20	0	6	1	3	-3	2	2	6	3
30	-4	-2	-8	-2	-10	1	6	6	5
40	-1	8	0	9	2	-15	14	-1	6
50	-5	15	7	11	-8	-7	22	18	8
60	19	35	25	27	-4	-3	22	25	9
70	22	38	23	27	-1	-8	22	26	8
80	25	35	32	30	-39	-6	25	23	1
90	28	29	21	22	0	-8	22	15	-10
100	7	30	29	26	-1	-6	25	21	-7
110	6	35	26	27	3	-15	24	26	-5
120	0	30	30	26	1	-15	29	29	-3
130	5	33	38	28	0	0	24	32	-6
140	16	27	16	29	4	-12	7	24	-9

Positive deflections indicate movement towards the furnace chamber

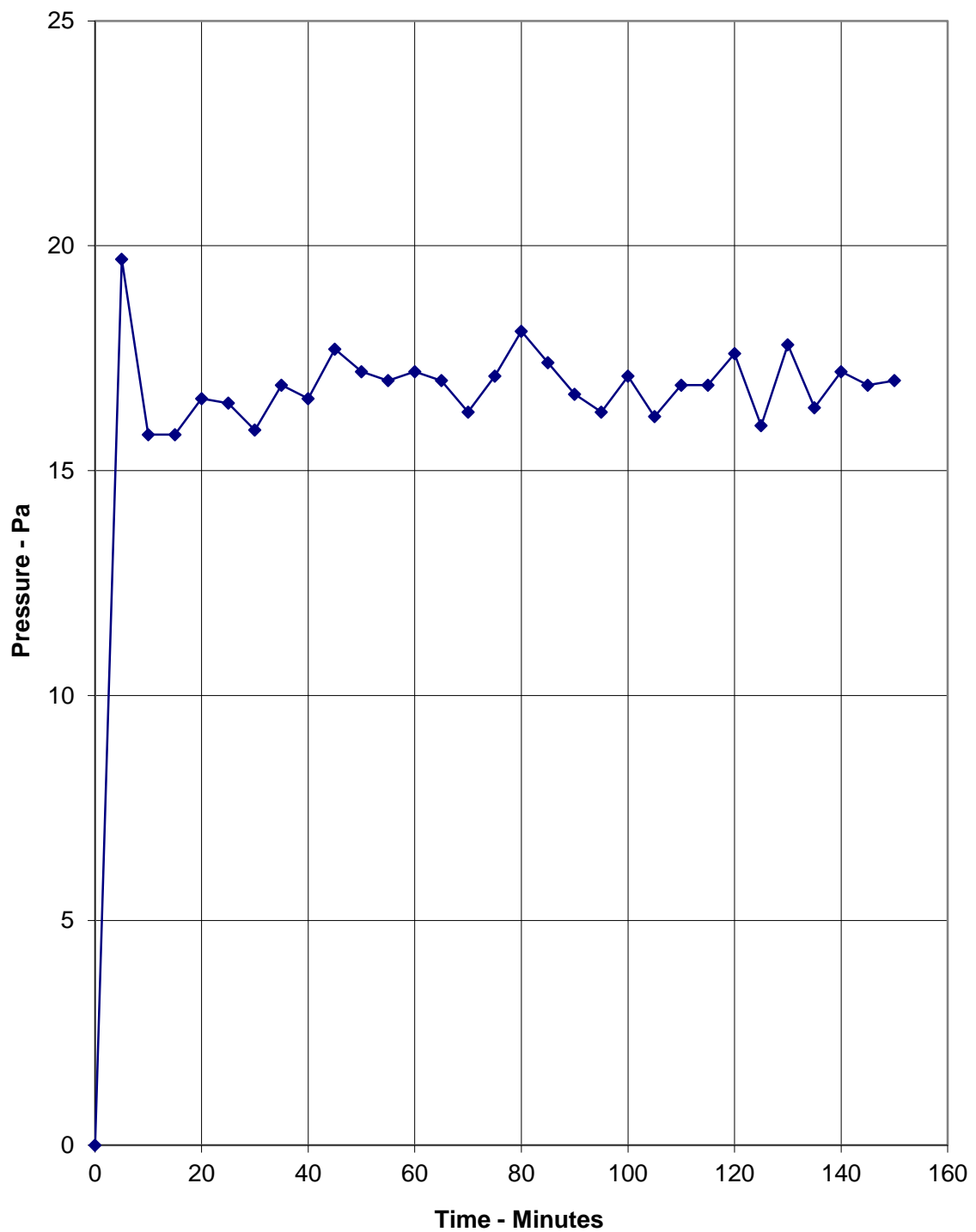
Graph Showing Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In The Standard BS EN 1363-1: 2020



Graph Showing Mean Temperature Recorded On The Unexposed Surface Of The Specimen



Graph Showing Recorded Furnace Pressure 300 mm Below The Head Of The Specimen



On-going Implications

Limitations

This report details the method of construction, the test conditions and the results obtained when the specific elements of construction described herein were tested following the procedure outlined in BS EN 1363-1: 2020, and where appropriate BS EN 1363-2: 1999. Any significant deviation with respect to size, constructional details, loads, stresses, edge or end conditions other than those allowed under the field of direct application in the relevant test method is not covered by this report. Annex A of BS EN 1363-1: 2020, provides guidance information on the application of fire resistance tests and the interpretation of test data.

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 report Supersedes report referenced 525297/R Issued 16th February 2023.

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.