

Title:

Fire Resistance Test
In Accordance With
BS EN 1365-2: 2014,
On A Loadbearing
Timber Floor
Construction Protected
By A Plasterboard
Ceiling Incorporating
Down Lighter Light
Fitting Assemblies

Date of Test:

11th February 2020

Issue 1:

18th March 2020

WF Report No.

424793



Prepared for:

Orlight Ltd

Victor Way
Radlett Road
Colney Street
St Albans
Hertfordshire
AL2 2FL



0249

Test Specimen

Summary of Tested Specimen

The timber floor had overall nominal dimensions of 4500 mm long by 2960 mm wide and comprised softwood, C16 timber joists at 600 mm centres. The upper surface of the floor comprised nominally 22 mm thick tongue and grooved chipboard flooring. The floor assembly was protected on its underside by a direct fixed ceiling, formed from one layer of 15 mm plasterboard referenced 'British Gypsum Wallboard'.

The floor supported a uniformly distributed load of 2.4 kN/m². This load was calculated to represent the maximum design load for the timber floor construction.

The ceiling incorporated seven down lighter light fittings referenced as follows:

Test Ref.	Model Ref.	Type
A	ORL1009	Fixed downlight wit anti-glare baffle and magnetic lamp change mechanism
B	ORL1019	Directional downlight with anti-glare baffle, magnetic lamp change and spring blade fitting mechanism
C	ORL009	Fixed downlight wit anti-glare baffle
D	ORLCL	Fixed IP54-rated downlight
E	AQUASPOT-FG	Fixed IP65-rated downlight
F	STEAMSPOT-FG	Fixed IP65-rated downlight
G	SHOWERSPOT	Fixed IP65-rated downlight

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

Loadbearing Capacity

The limiting deflection and the limiting rate of deflection for the specimen, as specified by the Standard, are calculated as:

(d) Depth of structural section, mm	197
(L) Length of clear span, mm	4250
Limiting deflection, mm	229.2
Limiting rate of deflection, mm/min	10.2

The allowable rate of deflection criteria is not applicable for the first 10 minutes of the test. This criterion was satisfied for 30 minutes after which time the test was discontinued for safety reasons.

Integrity

It is required that the specimen retains its separating function, without:

- causing ignition of a cotton pad when applied
- permitting the penetration of a gap gauge as specified in BS EN 1363-1: 2012
- sustained flaming on the unexposed surface
- subsequent failure of loadbearing capacity

These requirements were satisfied for the periods shown below:

Sustained flaming

30 minutes*

Gap gauge

30 minutes No failure*

Cotton pad

30 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.

These requirements were satisfied for the period shown below:

Specimen

30 minutes No failure*

*Test was discontinued after a period of 30 minutes.

Date of Test

11th February 2020

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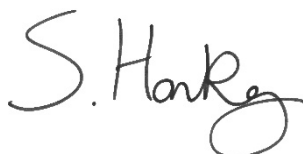
Signatories



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C. Sweeney*
Technical Officer



Approved
W. Drazkiewicz*
Technical Officer



Head of Department
S. Hankey*
Business Unit Head – Fire Resistance

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

Report Issued: 18th March 2020

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Revision History

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

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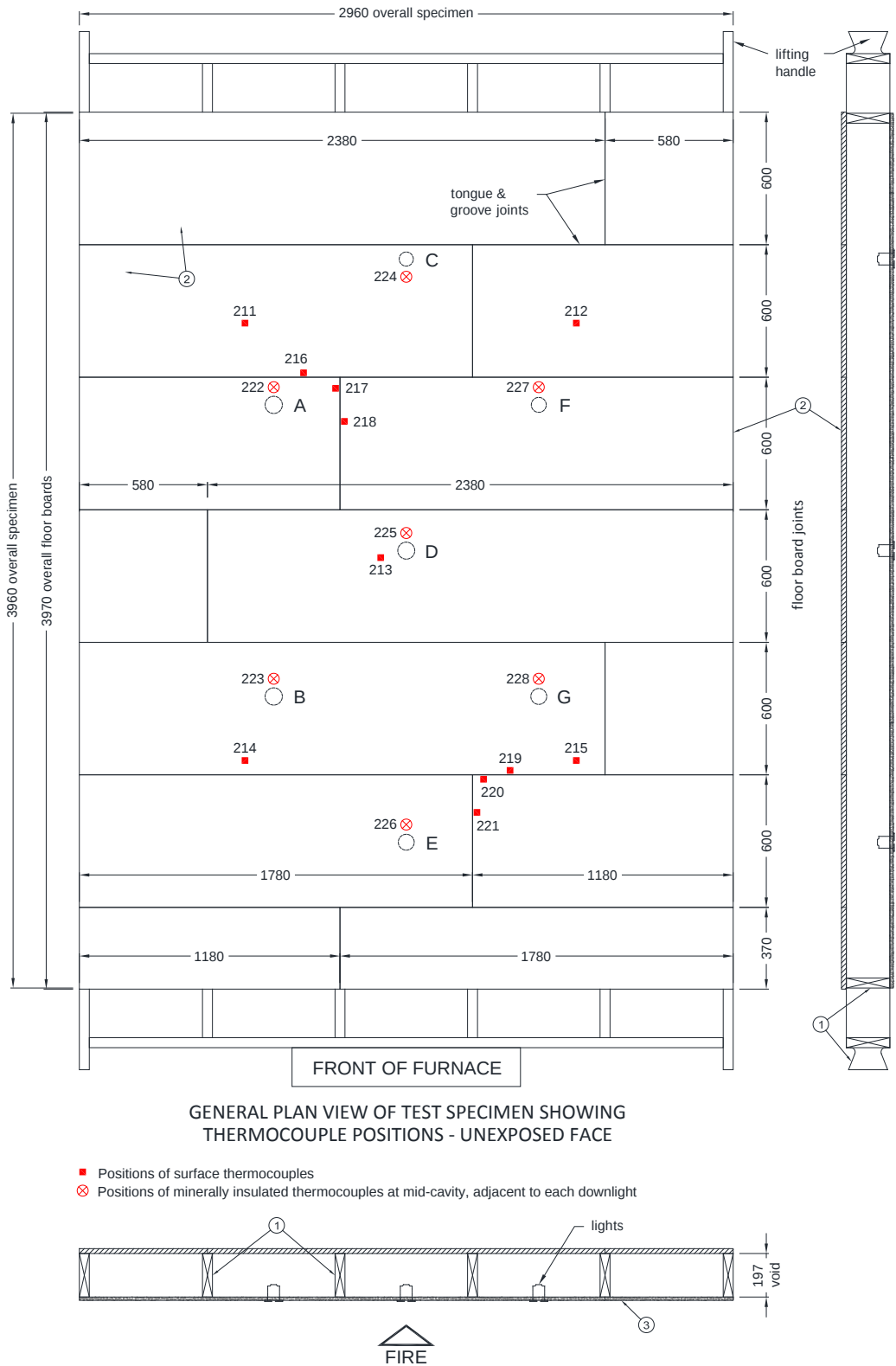
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Test Conditions

Standard	BS EN 1365-2: 2014, 'Fire resistance tests for loadbearing elements – Part 2: Floors and Roofs' The purpose of the test was to evaluate the performance of a timber floor construction protected by a ceiling of known fire resistance, when incorporating down lighter light fitting assemblies.
Sampling	Warringtonfire was not involved in the sampling or selection of the tested specimen or any of the components.
Installation	Representatives of Warringtonfire assembled the floor construction and installed the downlighters between the 6th and 10th February 2020.
Conditioning	The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of six days. Throughout this period of time both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 8.5°C to 19.5°C and 41.5% to 62.5% respectively.
Instruction to Test	The test was conducted on the 11 February 2020 at the request of Orlight Ltd, the test sponsor. Mr. P. Burke and Mr. C. Kanji, representatives of the test sponsor witnessed the test.
Ambient Temperature	The ambient air temperature in the vicinity of the test construction was 16°C at the start of the test with a maximum variation of -4°C during the test.
Furnace	The furnace was controlled so that its mean temperature exceeded the requirements of BS EN 1363-1: 2012 Clause 5.1 using eight plate thermometers, distributed over a plane 100 mm from the underside of test assembly. The temperature conditions achieved during the test were exceeding those specified in Clause 5.1 of BS EN 1363-1: 2012. As this represents more severe exposure to the test Specimen, the test results obtained remain valid as outlined in Clause 5.7 of BS EN 1363-1: 2012.
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.
Application of the load	The full test load was applied via dead load, uniformly distributed over the test specimen 60 minutes before the commencement of the test.
Loadbearing Capacity Criteria	A linear deflection transducer was provided at the approximate centre on the unexposed surface of the specimen to record its vertical deflection.
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: 2012, clause 5.2.1 The calculated pressure differential relative to the laboratory atmosphere 100 mm below the soffit of the specimen was 20 (± 5) Pa between 5 and 10 minutes and 20 (± 3) Pa thereafter.

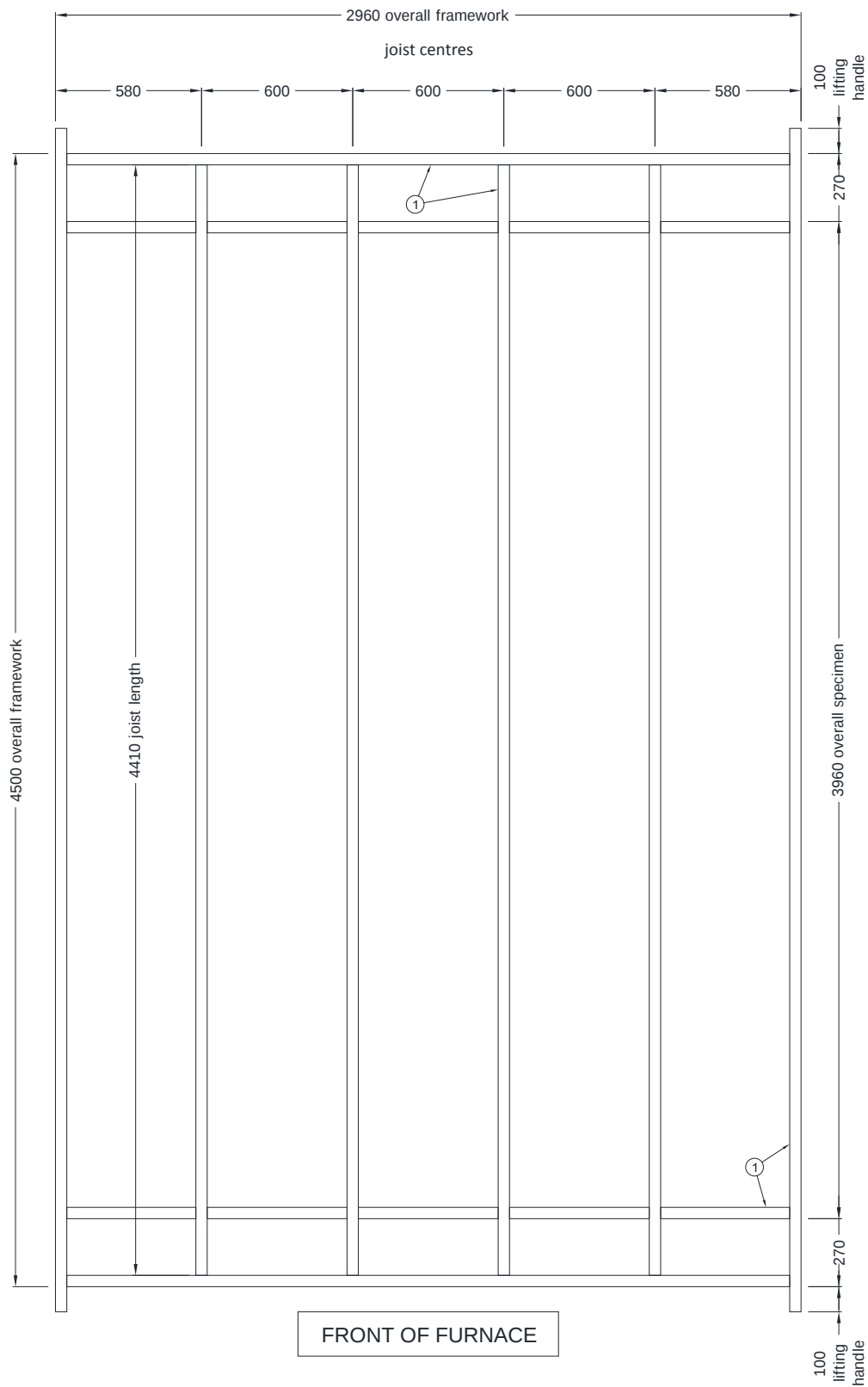
Test Specimen

Figure 1 - General plan view of test specimen showing thermocouple positions - Unexposed face



Do not scale. All dimensions are in mm

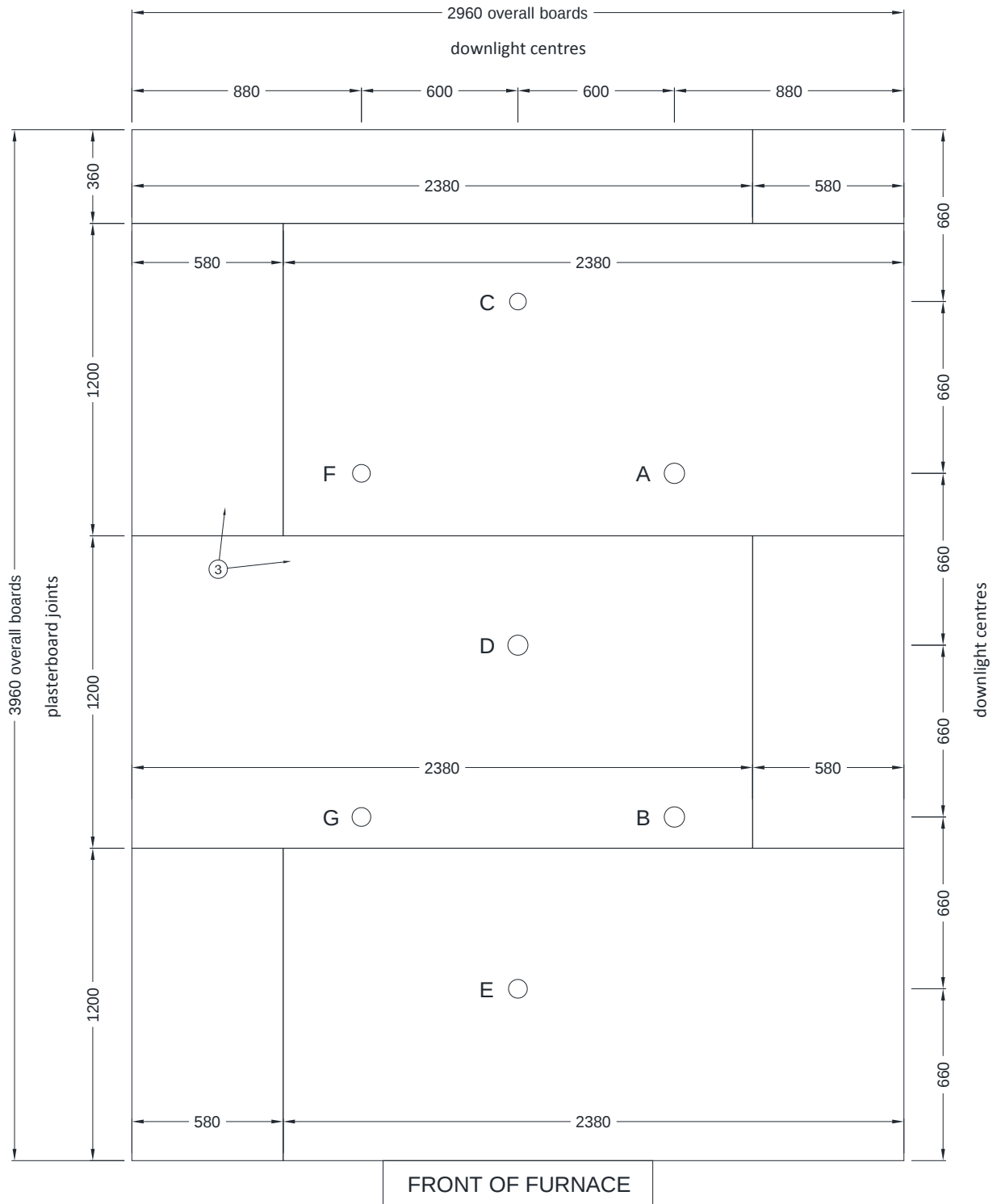
Figure 2 – General plan of internal framework construction - Unexposed face



GENERAL PLAN OF INTERNAL FRAMEWORK
CONSTRUCTION - UNEXPOSED FACE

Do not scale. All dimensions are in mm

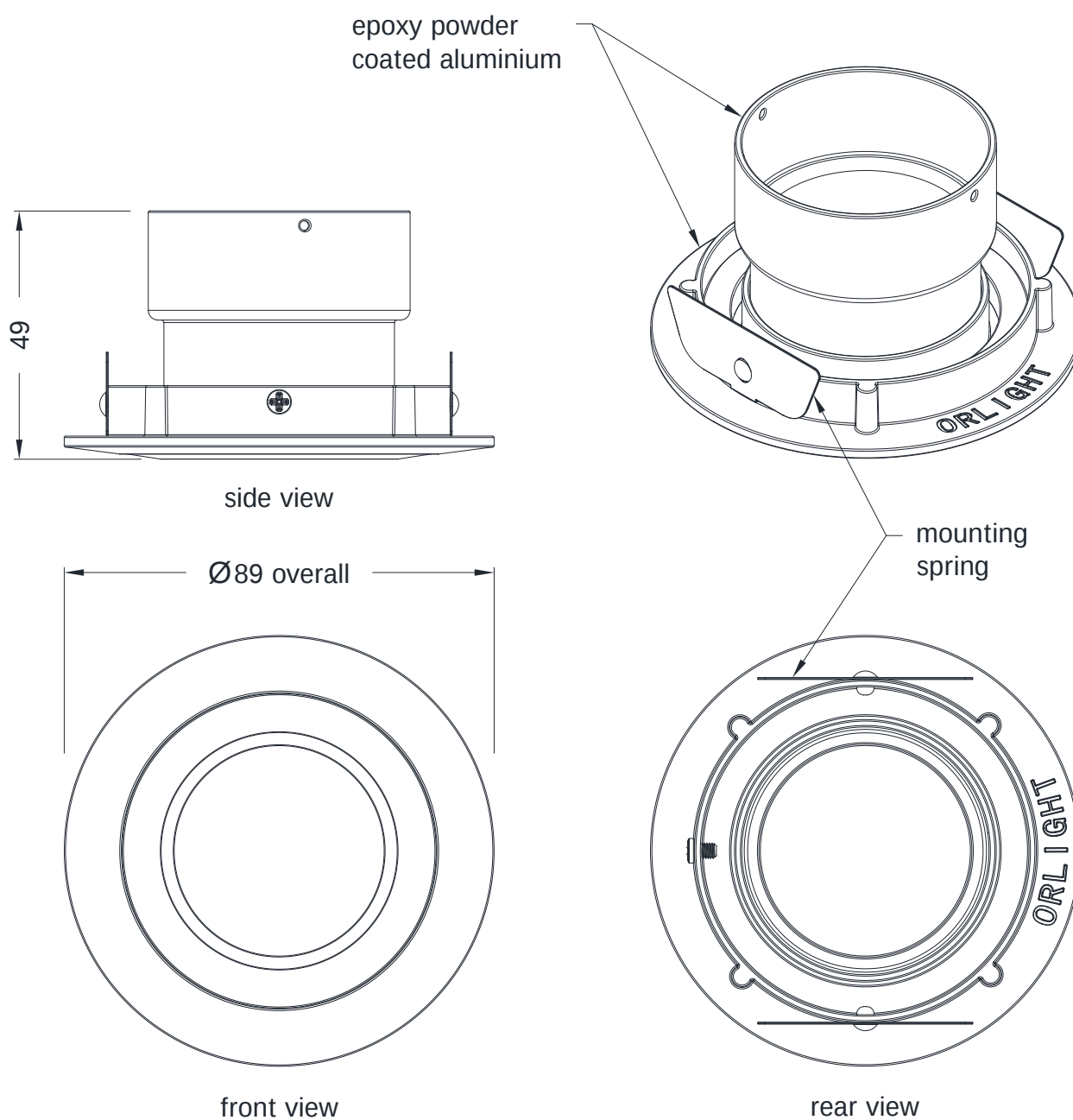
Figure 3 – General plan of plasterboard layout - Exposed face



**GENERAL PLAN OF PLASTERBOARD LAYOUT
- EXPOSED FACE**

Do not scale. All dimensions are in mm

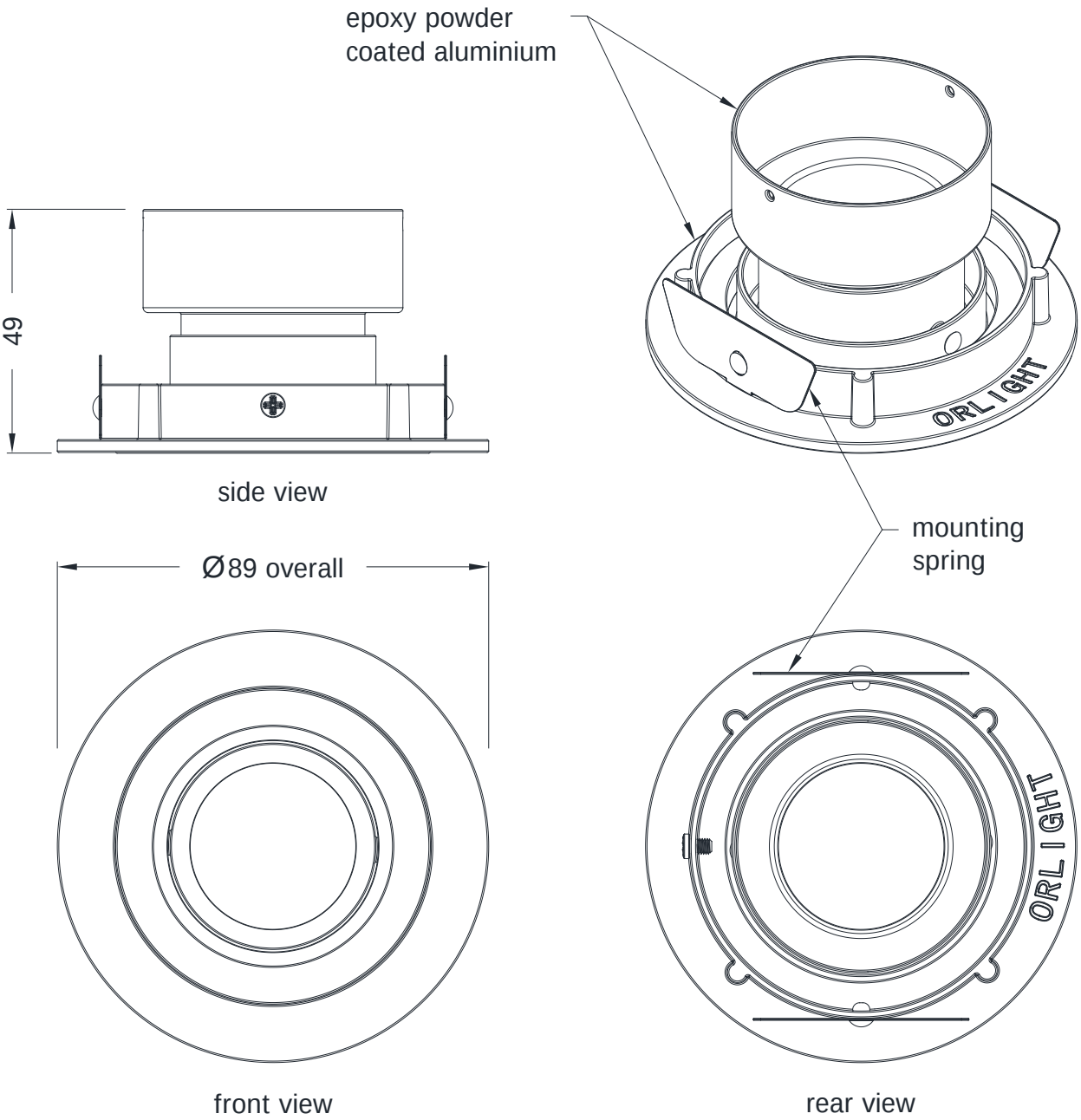
Figure 4 – Details of Specimen A - ORL1009



ORL1009

Do not scale. All dimensions are in mm

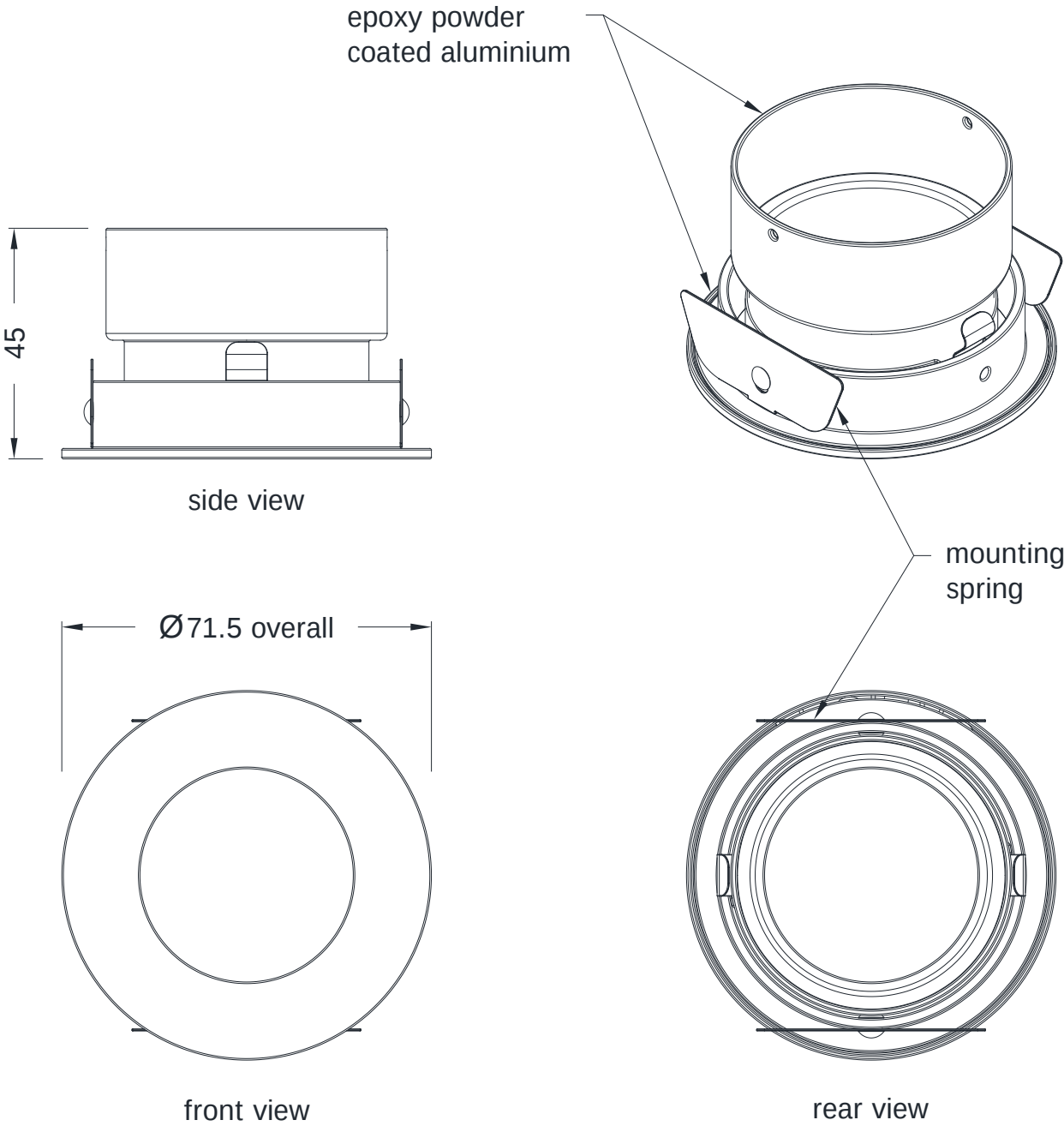
Figure 5 – Details of Specimen B - ORL1019



ORL1019

Do not scale. All dimensions are in mm

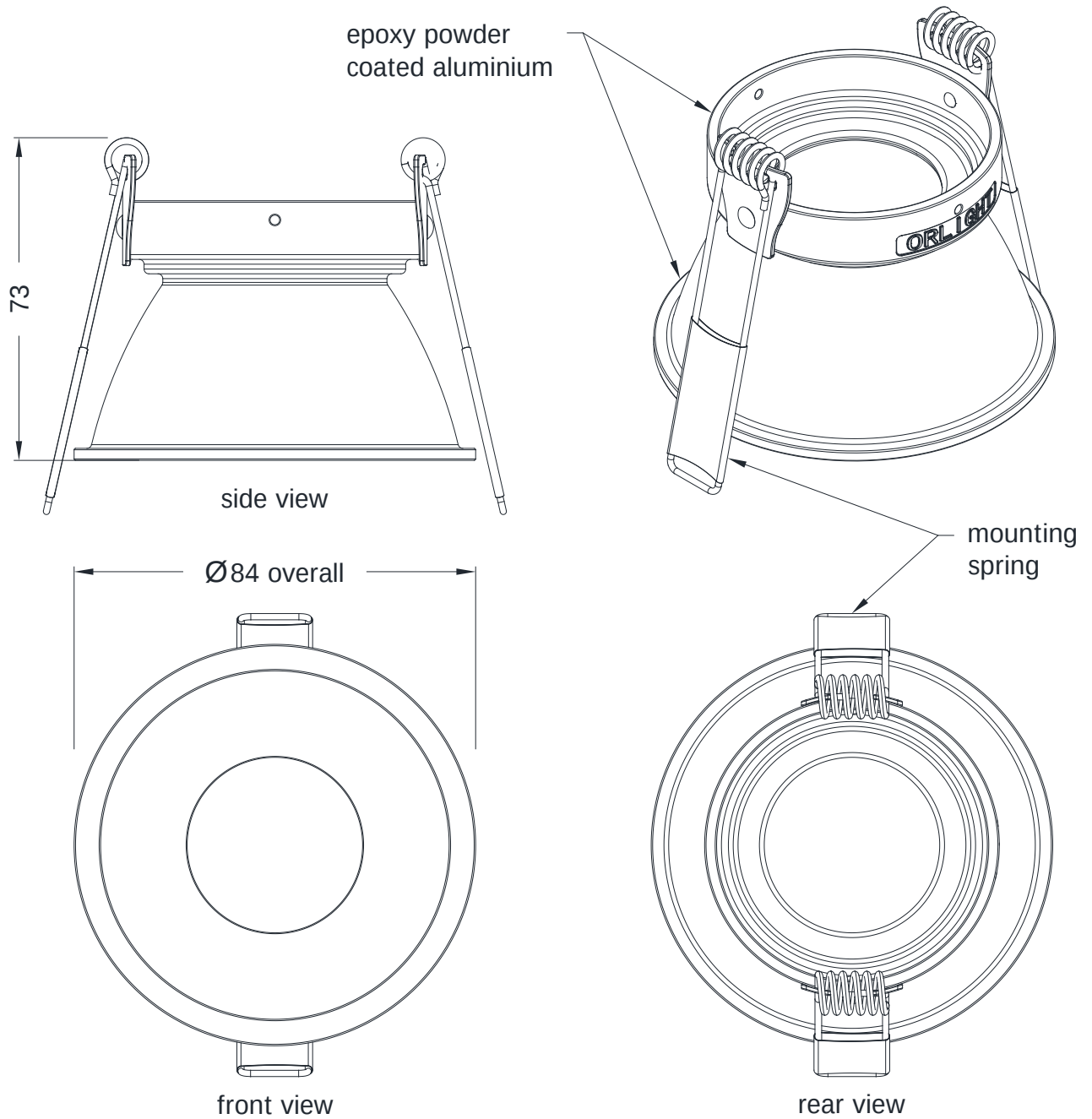
Figure 6 – Details of Specimen C - ORL009



ORL009

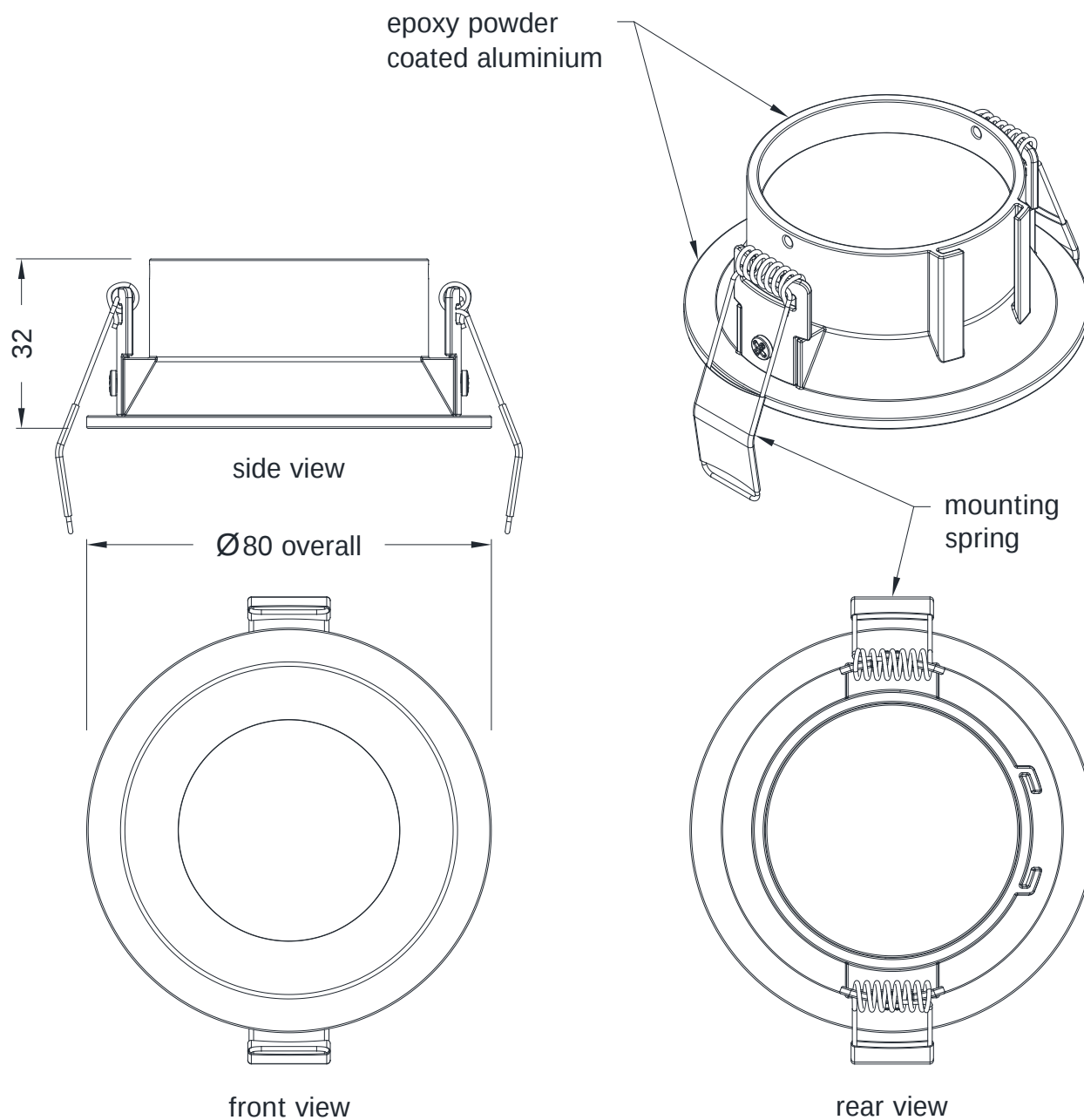
Do not scale. All dimensions are in mm

Figure 7 – Details of Specimen D - ORLCL-IP54

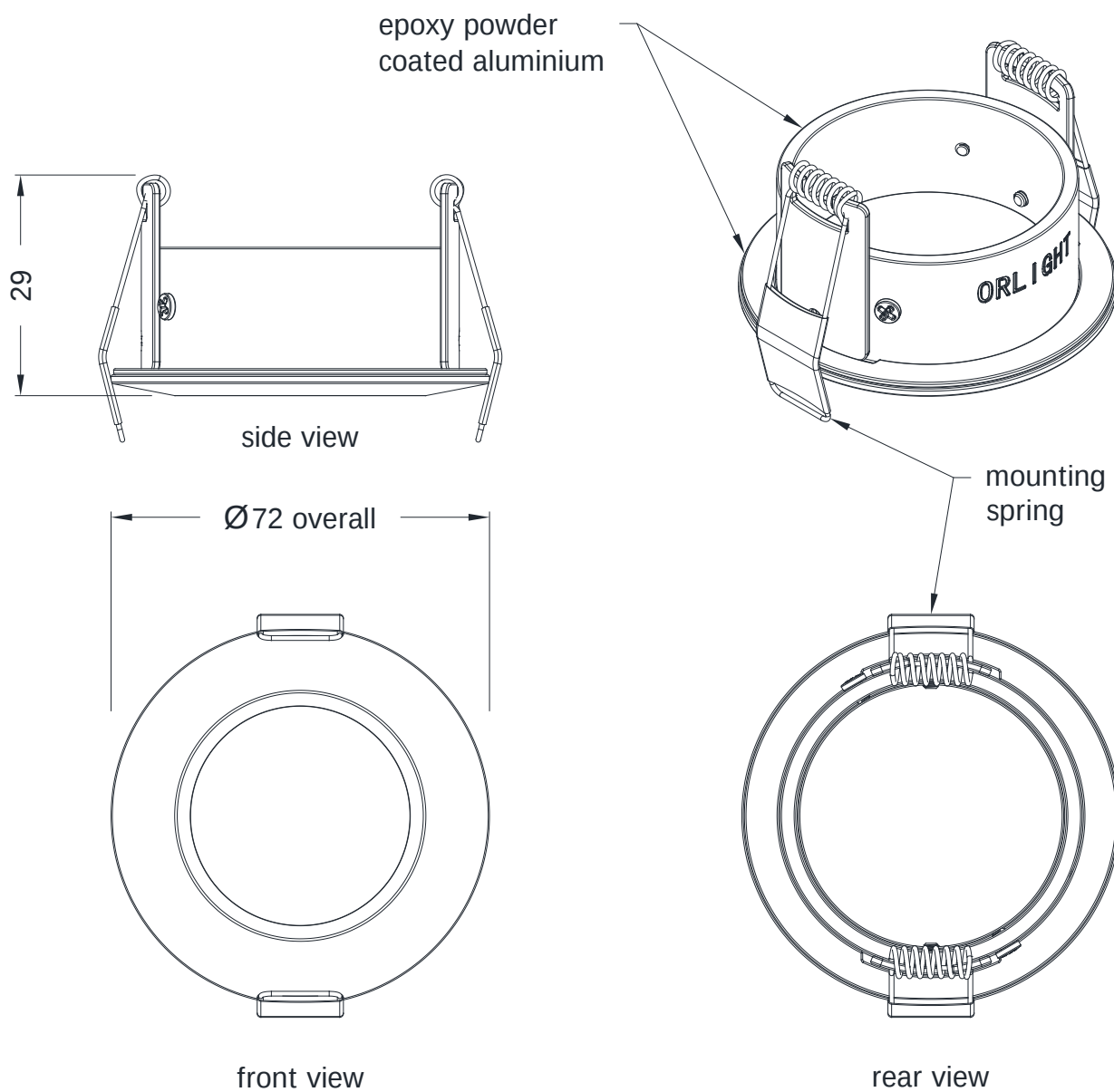


ORLCL-IP54

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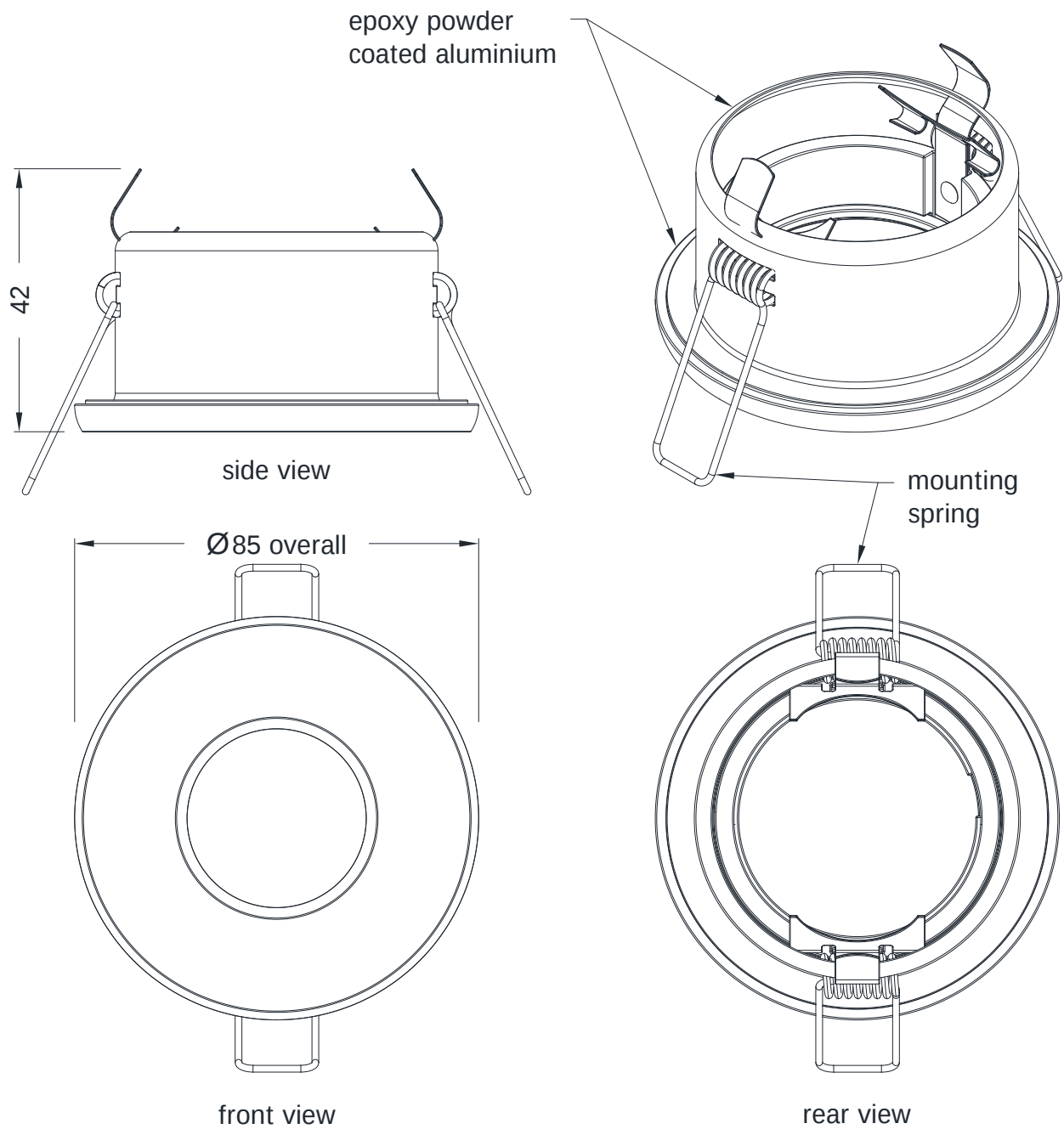
Figure 8 – Details of Specimen E - AQUASPOT**AQUASPOT**

Do not scale. All dimensions are in mm

Figure 9 – Details of Specimen F - STEAMSPOT**STEAMSPOT**

Do not scale. All dimensions are in mm

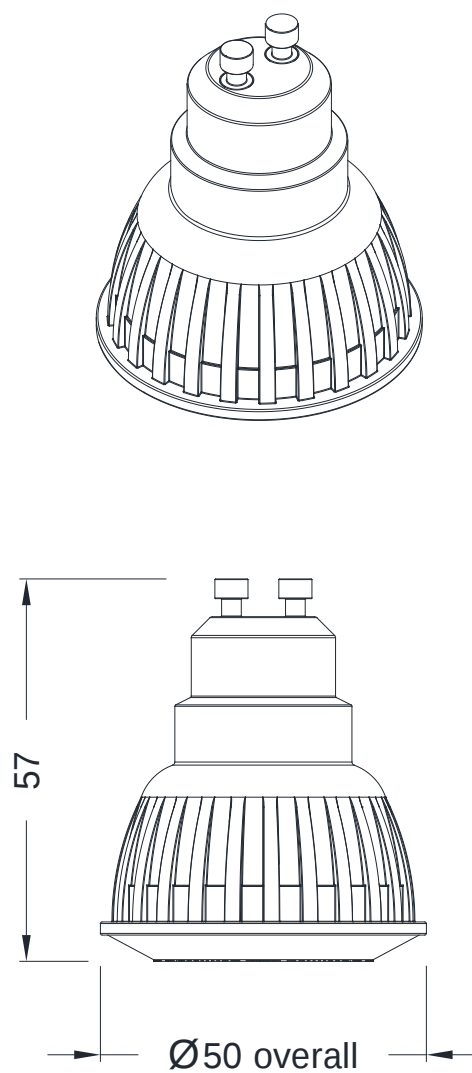
Figure 10 – Details of Specimen G - SHOWERSPOT



SHOWERSPOT

Do not scale. All dimensions are in mm

Figure 11 – Details of LUMENPLUS 3 lamp



LUMENPLUS 3

Do not scale. All dimensions are in mm

Schedule of Components

(Refer to Figures 1 to 11)

(All values are nominal unless stated otherwise)

(All other details are as stated by the sponsor)

<u>Item</u>	<u>Description</u>
1. Timber framework	
Material	: Softwood (Grade C16)
Section size	: 197 mm wide x 45 mm deep
Density	: 473 kg/m ³ (measured)
Fixing method	: Through fixed with 8 nails at each joint
Fixings	
i. type	: Twist shank nails
ii. size	: 100 mm long x 3.1 mm diameter
2. Floorboards	
Manufacturer	: Norbord
Reference	: Caberfloor
Material	: Chipboard (tongue & groove)
Thickness	: 22 mm
Density	: 655 kg/m ³ (measured)
Fixing method	: Through fixed to timber framework with screws. Tongue & groove faces were glued.
Fixings	
i. manufacturer	: 4TRADE
ii. reference	: Decking screws 4 x 65 mm
iii. size	: 64 mm long x 4.5 mm diameter
iv. centres	: 250 mm
Adhesive	
i. manufacturer	: Norbord
ii. reference	: Caberfix D4 polyurethane adhesive
3. Ceiling boards	
Manufacturer	: British Gypsum
Reference	: Wallboard
Material	: Aerated high-density gypsum core encased in strong paper liners
Thickness	: 15 mm
Density	: 717 kg/m ³ (measured)
Fixing method	: Through fixed to internal framework with screws
Fixings	
i. manufacturer	: 4TRADE
ii. reference	: Drywall screws
iii. type	: Black phosphate coated steel
iv. size	: 38 mm long x 3.5 mm diameter
v. centres	: 150 mm (edge), 150 mm (field)
Tape	:
i. type	: Siniat GTEC Finish paper tape
ii. width	: 50 mm
Filler	
i. manufacturer	: British Gypsum
ii. reference	: Gyproc Easyfill 60

<u>Item</u>	<u>Description</u>
4. Specimen A	
Manufacturer	: Orlight Limited
Reference	: ORL1009
Description	: Fixed downlight with anti-glare baffle and magnetic lamp change mechanism. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 11). (See Figure 4)
Material	: Aluminium
Finish	: Epoxy powder coat – white (WH)
Overall sizes	:
i. height (excluding lamp)	: 49 mm
ii. height (including lamp)	: 103 mm
iii. overall diameter	: 89 mm
iv. cut-out diameter	: 78 mm
5. Specimen B	
Manufacturer	: Orlight Limited
Reference	: ORL1019
Description	: Directional downlight with anti-glare baffle, magnetic lamp change and spring blade fitting mechanism. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 11). (See Figure 5)
Material	: Aluminium
Finish	: Epoxy powder coat – white (WH)
Overall sizes	:
i. height (excluding lamp)	: 49 mm
ii. height (including lamp)	: 117 mm
iii. overall diameter	: 89 mm
iv. cut-out diameter	: 78 mm
6. Specimen C	
Manufacturer	: Orlight Limited
Reference	: ORL009
Description	: Fixed downlight with anti-glare baffle. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 11). (See Figure 6)
Material	: Aluminium
Finish	: Epoxy powder coat – all white (AW)
Overall sizes	:
i. height (excluding lamp)	: 45 mm
ii. height (including lamp)	: 103 mm
iii. overall diameter	: 71.5 mm
iv. cut-out diameter	: 64 mm
7. Specimen D	
Manufacturer	: Orlight Limited
Reference	: ORLCL
Description	: Fixed IP54-rated downlight. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 11). (See Figure 7)
Material	: Aluminium
Finish	: Epoxy powder coat – white (WH)
Overall sizes	:
i. height (excluding lamp)	: 73 mm
ii. height (including lamp)	: 113 mm
iii. overall diameter	: 84 mm
iv. cut-out diameter	: 77 mm

Item**Description****8. Specimen E**

Manufacturer	:	Orlight Limited
Reference	:	AQUASPOT-FG
Description	:	Fixed IP65-rated downlight. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 11). (See Figure 8)
Material	:	Aluminium
Finish	:	Epoxy powder coat – white (WH)
Overall sizes	:	
i. height (excluding lamp)	:	32 mm
ii. height (including lamp)	:	95 mm
iii. overall diameter	:	80 mm
iv. cut-out diameter	:	72 mm

9. Specimen F

Manufacturer	:	Orlight Limited
Reference	:	STEAMSPOT-FG
Description	:	Fixed IP65-rated downlight. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 11). (See Figure 9)
Material	:	Aluminium
Finish	:	Epoxy powder coat – white (WH)
Overall sizes	:	
i. height (excluding lamp)	:	29 mm
ii. height (including lamp)	:	75 mm
iii. overall diameter	:	72 mm
iv. cut-out diameter	:	68 mm

10. Specimen G

Manufacturer	:	Orlight Limited
Reference	:	SHOWERSPOT
Description	:	Fixed IP65-rated downlight. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 11). (see Figure 10)
Material	:	Aluminium
Finish	:	Epoxy powder coat – white (WH)
Overall sizes	:	
i. height (excluding lamp)	:	42 mm
ii. height (including lamp)	:	78 mm
iii. overall diameter	:	85 mm
iv. cut-out diameter	:	72 mm

11. Lamp

Manufacturer	:	Orlight Limited
Reference	:	Lumenplus 3 (LP3) 7W LED lamp
Overall size	:	57 mm high x 50 mm diameter (See Figure 11)

Test Observations

Time		All observations are from the unexposed face unless noted otherwise.
00	00	The test commences.
04	00	Steam/smoke release from the supported edges of the floor.
08	21	When viewed from the exposed face the paper layer of plasterboard is burning away.
08	30	When viewed from the exposed face light fitting 'B' is hanging from the ceiling.
10	00	When viewed from the exposed face light fittings 'A' and 'G' are hanging from the ceiling.
10	30	When viewed from the exposed face light fitting 'C' is hanging from the ceiling.
12	00	When viewed from the exposed face the joint covering tape has burnt/fallen away.
17	00	When viewed from the exposed face the central piece of plasterboard is beginning to ripple at its edges.
19	00	When viewed from the exposed face the plasterboard joints are beginning to open up to around 3 mm maximum.
22	00	When viewed from the exposed face the plasterboard joints continue to open up to around 6 mm maximum. The plasterboard is beginning to sag in places.
23	00	When viewed from the exposed face a big gap has formed at one edge of the central piece of plasterboard.
24	00	When viewed from the exposed face a part of a piece of plasterboard located centrally at the end of the furnace away from the door has detached.
25	00	Intense flaming inside the furnace, steam/smoke release has increased in volume from the floor.
26	00	When viewed from the exposed face more boards have become detached.
27	00	Floor visibly sagging in its centre.
30	00	Test discontinued for safety reasons. The test specimen is satisfying the load bearing capacity, integrity and insulation criteria.

Test Photographs

The exposed face of the floor assembly prior to test



The unexposed face of the floor assembly prior to test



The unexposed face of the floor assembly after 10 minutes of testing



The unexposed face of the floor assembly after 20 minutes of testing



The unexposed
face of the floor
assembly after 30
minutes of testing



Temperature, Pressure and Deflection Data

Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In The
Standard BS EN 1363-1: 2012

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	31
1	349	326
2	445	525
3	502	523
4	544	593
5	576	644
6	603	682
7	626	707
8	646	729
9	663	761
10	678	776
11	693	789
12	706	798
13	717	813
14	728	825
15	739	843
16	748	860
17	757	873
18	766	881
19	774	889
20	781	898
21	789	907
22	796	914
23	802	942
24	809	951
25	815	938
26	820	946
27	826	954
28	832	959
29	837	964
30	842	971

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

Time Mins	T/C Number 211 Deg. C	T/C Number 212 Deg. C	T/C Number 213 Deg. C	T/C Number 214 Deg. C	T/C Number 215 Deg. C	Mean Temp Deg. C
0	11	11	11	11	13	11
1	11	11	11	11	13	11
2	11	11	11	11	13	11
3	11	11	11	11	13	11
4	11	11	11	11	13	11
5	11	11	11	11	13	11
6	11	11	11	11	13	11
7	11	11	11	11	13	11
8	11	11	11	12	14	12
9	12	12	12	12	14	12
10	12	12	12	13	15	13
11	13	13	13	14	15	14
12	14	14	14	15	16	15
13	15	15	15	16	17	16
14	16	16	16	17	18	17
15	17	17	17	18	19	18
16	19	18	18	19	20	19
17	20	19	19	20	22	20
18	21	20	20	21	23	21
19	22	21	21	22	25	22
20	23	22	22	23	26	23
21	25	23	23	24	28	25
22	26	24	24	26	30	26
23	27	25	25	27	32	27
24	29	26	27	28	35	29
25	31	35	30	30	38	33
26	35	59	35	32	43	41
27	42	76	54	42	48	52
28	60	83	70	65	55	67
29	73	88	76	83	63	77
30	78	90	79	89	70	81

Individual Temperatures Recorded On The Unexposed Surface Of The Specimen Adjacent to Joints

Time Mins	T/C Number 216 Deg. C	T/C Number 217 Deg. C	T/C Number 218 Deg. C	T/C Number 219 Deg. C	T/C Number 220 Deg. C	T/C Number 221 Deg. C
0	13	13	*	14	14	13
1	13	13	*	14	14	13
2	13	13	*	14	14	13
3	13	13	*	14	14	13
4	*	13	*	14	14	12
5	*	12	*	14	14	12
6	*	13	*	14	14	13
7	*	13	*	14	14	13
8	*	13	*	14	15	13
9	*	13	*	15	15	13
10	*	14	*	15	15	13
11	*	15	*	16	16	14
12	*	16	*	17	17	14
13	*	17	*	18	17	15
14	*	18	*	20	18	16
15	*	19	*	21	19	16
16	*	20	*	23	20	17
17	*	21	*	25	22	18
18	*	22	*	26	23	19
19	*	23	*	28	24	19
20	*	25	*	30	26	20
21	*	26	*	32	27	21
22	*	27	*	33	28	21
23	*	28	*	36	30	22
24	*	30	*	38	31	23
25	*	32	*	41	33	24
26	*	35	*	45	36	25
27	*	42	*	49	39	25
28	*	53	*	54	44	26
29	*	64	*	61	50	28
30	*	71	*	69	59	30

*Thermocouple malfunction

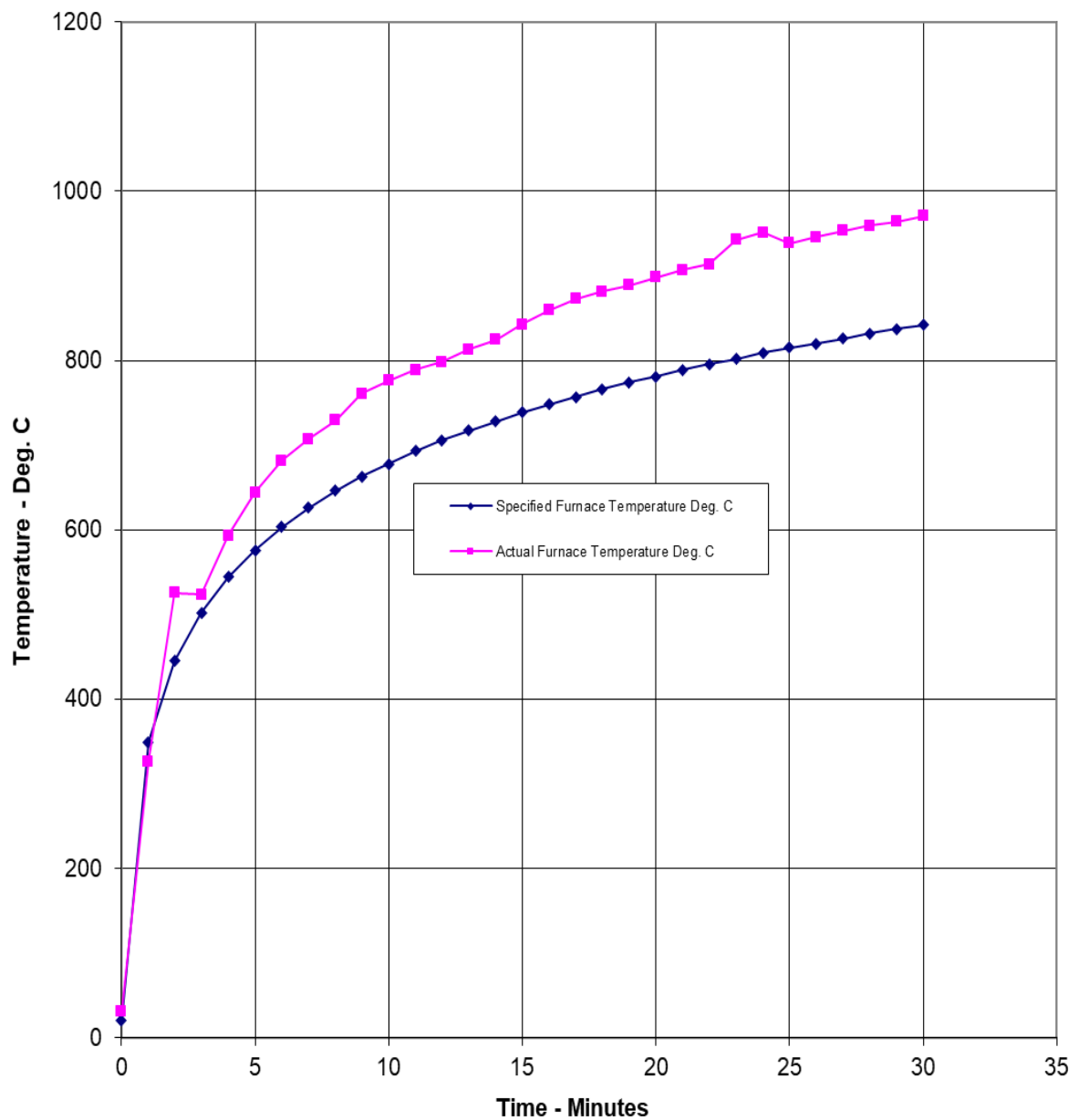
Individual Temperatures Recorded At Mid-Height Of The Cavity Coincidental With The Light Fittings

Time Mins	T/C Number 222 Deg. C	T/C Number 223 Deg. C	T/C Number 224 Deg. C	T/C Number 225 Deg. C	T/C Number 226 Deg. C	T/C Number 227 Deg. C	T/C Number 228 Deg. C
0	17	18	*	18	18	18	24
1	18	38	*	26	19	20	25
2	41	36	*	39	28	33	32
3	56	75	*	52	50	50	51
4	63	97	*	*	58	59	60
5	89	115	*	*	66	65	76
6	284	217	*	*	78	72	83
7	338	201	*	*	79	82	87
8	357	207	*	*	82	86	133
9	353	216	*	*	89	92	267
10	368	226	*	*	93	104	261
11	352	242	*	*	95	112	234
12	371	223	*	*	98	117	234
13	367	224	*	158	101	120	254
14	351	221	*	149	104	122	257
15	359	240	*	166	107	129	281
16	345	227	*	144	108	137	285
17	350	198	*	155	111	147	298
18	371	217	*	175	178	174	293
19	386	228	*	213	172	201	285
20	385	238	*	241	191	222	298
21	468	269	*	269	228	242	309
22	416	295	*	279	258	262	311
23	413	315	*	295	269	802	348
24	425	307	*	302	289	843	369
25	504	681	*	827	350	836	398
26	797	752	*	872	404	830	424
27	851	782	*	895	453	862	465
28	875	800	*	897	482	902	788
29	887	813	*	914	508	912	819
30	899	827	*	922	538	914	827

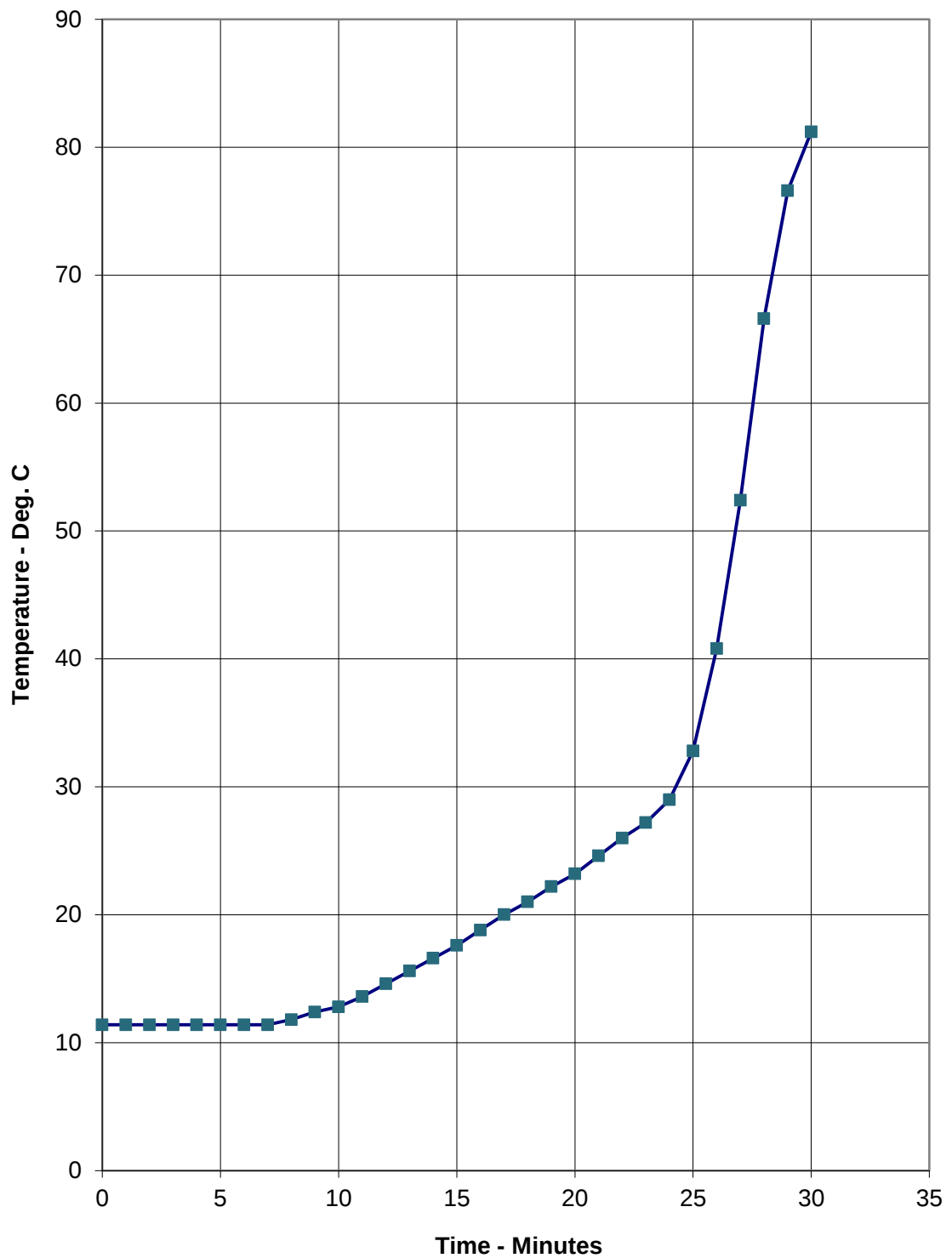
Central Vertical Deflection Of The Specimen

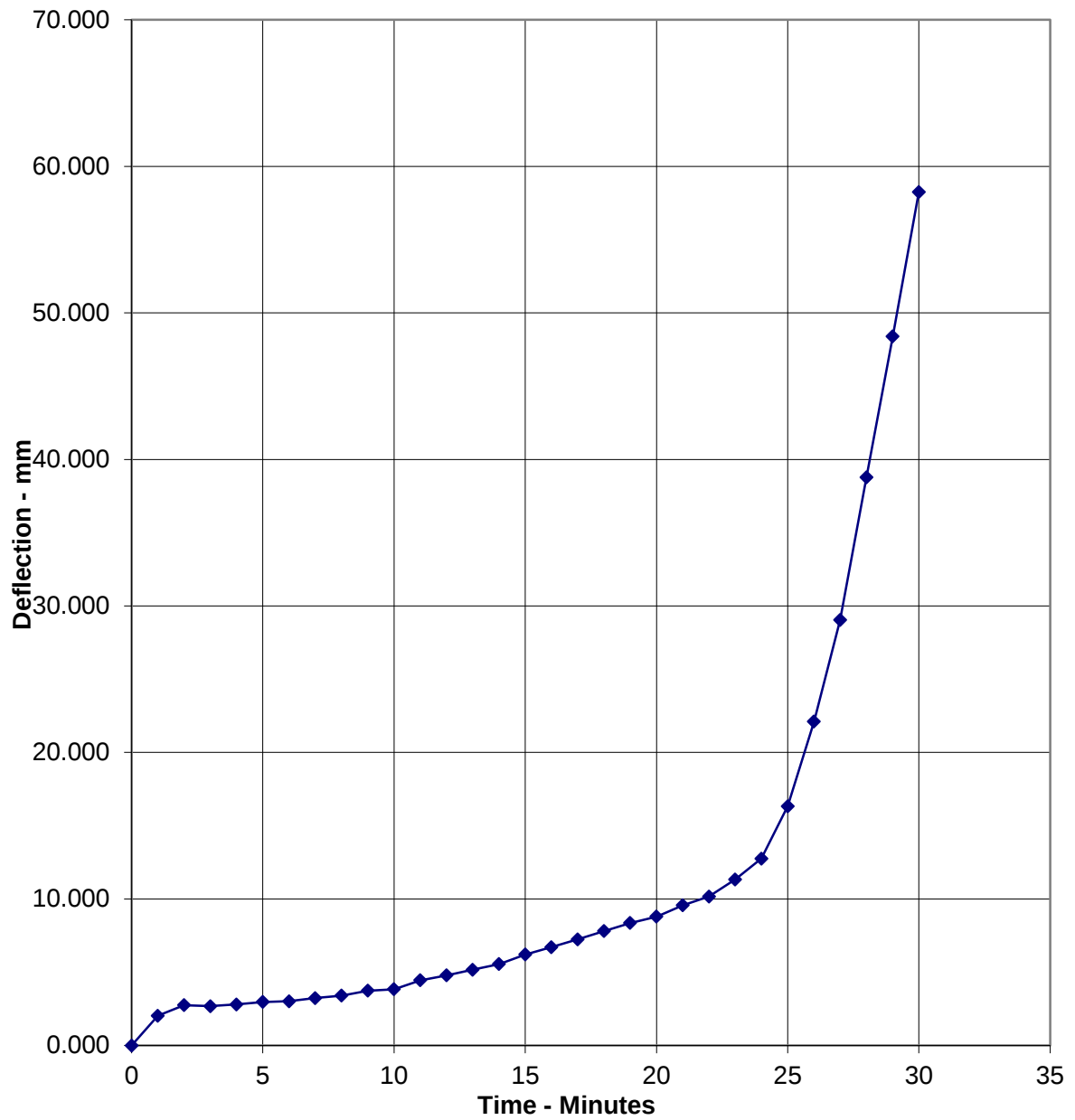
Time Minutes	Central Vertical Deflection mm	Rate of Deflection mm/min
0	0.0	0.0
1	2.0	2.0
2	2.8	0.7
3	2.7	-0.1
4	2.8	0.1
5	3.0	0.2
6	3.0	0.1
7	3.2	0.2
8	3.4	0.2
9	3.7	0.3
10	3.8	0.1
11	4.4	0.6
12	4.8	0.3
13	5.2	0.4
14	5.6	0.4
15	6.2	0.7
16	6.7	0.5
17	7.3	0.5
18	7.8	0.6
19	8.4	0.6
20	8.8	0.4
21	9.6	0.8
22	10.2	0.6
23	11.3	1.2
24	12.8	1.4
25	16.3	3.6
26	22.1	5.8
27	29.0	6.9
28	38.8	9.7
29	48.4	9.6
30	58.2	9.9

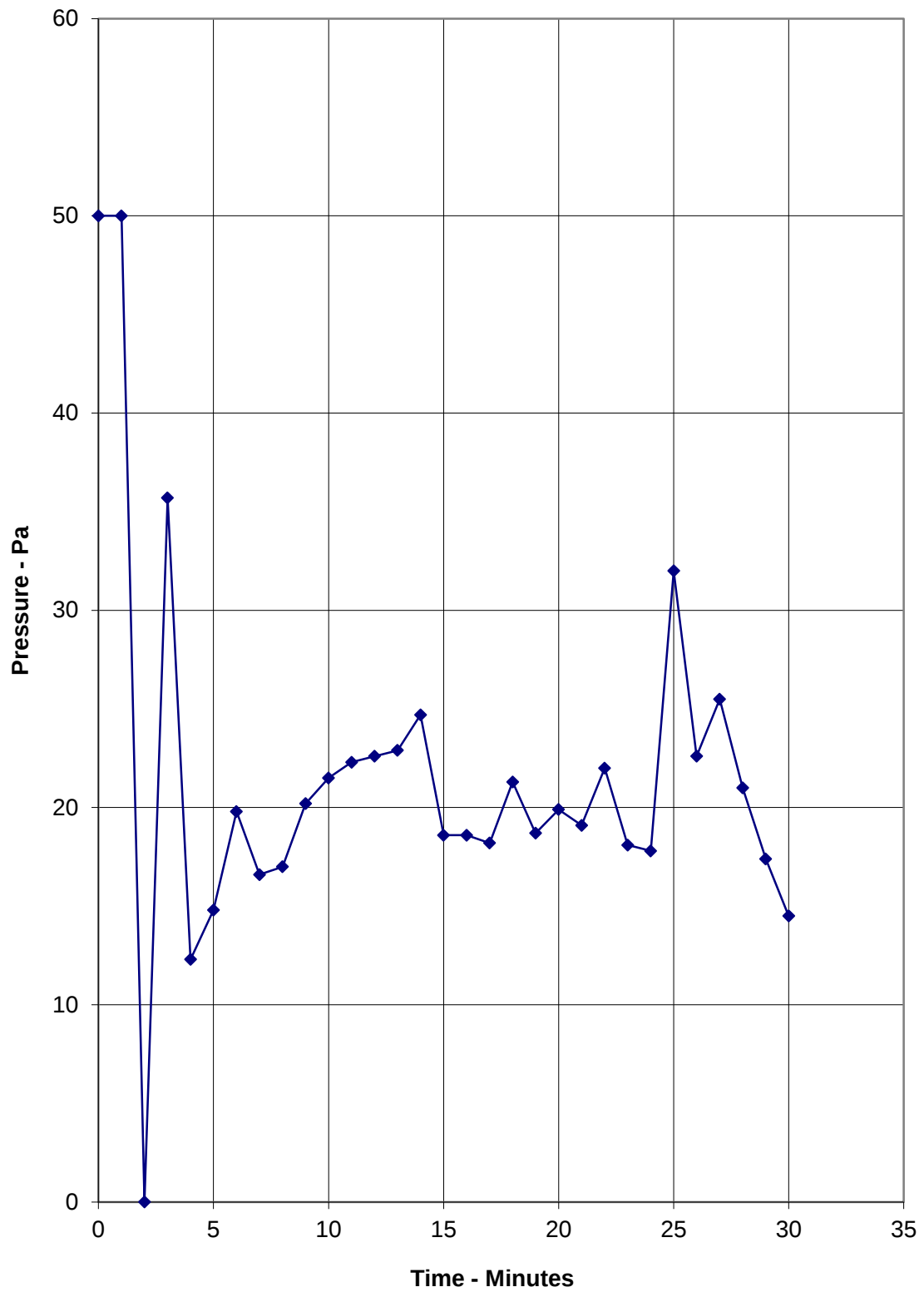
Graph Showing Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In The Standard



The temperature conditions achieved during the test were exceeding those specified in Clause 5.1 of BS EN 1363-1: 2012. As this represents more severe exposure to the test Specimen, the test results obtained remain valid as outlined in Clause 5.7 of BS EN 1363-1: 2012.

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

Graph Showing The Recorded Vertical Deflection Of The Specimen

Graph Showing Recorded Furnace Pressure 100 mm Below The Underside Of The Specimen

Load Calculations

Physical parameters of timber joists			
Depth :	197	mm	
Thickness :	45	mm	
Centres (M) :	600	mm	
Span (L) :	4250	mm	
Ceiling length	3960	mm	
Floor boards length	3970	mm	
Timber grade :	c16		
Parameters -BS 5268 - Part 2: 2002			
Basic dry stress in bending:	5.3	N/mm ²	TABLE 8
Modification factor for loading:	1.1	(Section 2.9 (a))	c16 c24
Therefore working stress (F):	5.83	N/mm ²	5.3 7.5
Nominal density:	535	kg/m ³	
Total loading required per joist			
moment of inertia (I) bd ³ /12:	28670148.75	mm ⁴	
Distance from neutral axis to base of joist (y):	98.5	mm	
Maximum bending stress w (F/y):	1696923.525	N/mm ²	
w = load per unit length			
maximum bending stress = w x L ² / 8			
therefore w = maximum bending stress x 8 / L ² :	0.751578585	N/mm	
	751.5785855	N/m	
Therefor total loading (w):	3194.208988	N	
Converted to kg (/ 9.80665)	325.7186693	kg	
Dead weight			
Density of joist:	472.8	kg/m ³	
Density of floor boarding	655	kg/m ³	Thickness: 22.0 mm
Density of ceiling (layer 1)	717	kg/m ³	Thickness: 15.0 mm
Density of ceiling (layer 2)	0	kg/m ³	Thickness: 0.0 mm
Density of ceiling (layer 3)	0	kg/m ³	Thickness: 0.0 mm
Effective width of floor supported per joist (m):	0.6	m	
weight of joist	17.813331	kg	
weight of floorboard	34.32462	kg	
weight of ceiling (layer 1)	25.55388	kg	
weight of ceiling (layer 2)	0	kg	
weight of ceiling (layer 3)	0	kg	
Total ceiling weight:	25.55388		
Totak dead weight per joist	77.691831	kg	
Imposed Load			
total load per joist - dead weight per joist:	248.0268383	kg	
Convert to kN ((x 9.80665)/1000)	2.432312394	kN	
Assusming even distribution of loading			
Maximim imposed load per meter square:	0.953847998	kN/m ²	
converted to kg (x101.9716005)	97	kg/m ²	
Deflection Criteria (EN)			
Using joist depth as (d)	197	mm	
Max deflection (L ² /400d)	229.2	mm	
Rate (L ² /9000d)	10.2	mm/min	
Calculated by:			
Date:	C. Sweeney		
Checked by:	10-Feb		
Date:	W. Drazkiewicz		
Job No:	10-Feb		
	424793		

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: 2012, 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: 2012, 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.

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

The results are directly applicable to a similar untested floor construction provided the following is true:

a) With respect to the structural building member:

The maximum moments and shear forces, which when calculated on the same basis as the test load, shall not be greater than those tested.

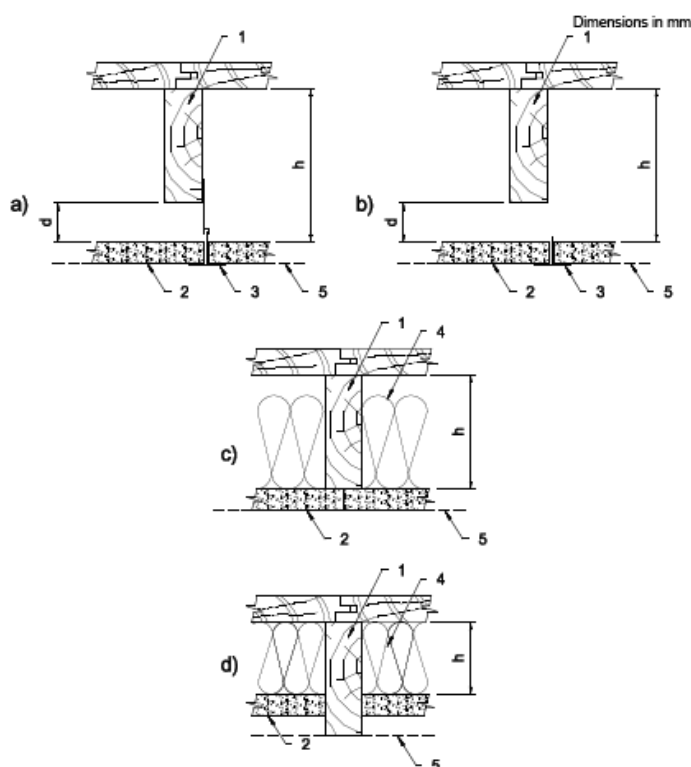
b) With respect to the ceiling system:

The size of panels of the ceiling lining may be increased by a maximum of 5 % but limited to a maximum of 50 mm. The length of the grid members can be increased accordingly.

The total area occupied by fixtures and fittings relative to the area of the ceiling lining is not increased and the maximum tested opening in the lining is not exceeded.

c) With respect to the cavity:

The height of the cavity 'h' and the minimum distance 'd' between the ceiling and the structural members (see Figure below) are equal to or greater than those tested.



KEY

- | | |
|--|---|
| a) suspended ceiling | 4 insulation |
| b) self-supported ceiling | 5 pressure reference line |
| c) and d) direct fixed ceiling with insulation in cavity | d distance between ceiling and structural members |
| 1 supporting construction (joist) | h height of cavity |
| 2 ceiling lining | |
| 3 supporting frame | |