

Title:

Fire Resistance Test
In Accordance With
BS EN 1365-2: 2014,
On A Loadbearing
Timber Floor
Construction Protected
By A Plasterboard
Ceiling And
Incorporating
Downlighter Light
Fittings

Date of Test:

18th September 2020

Issue 1:

9th October 2020

WF Report No.

432428/R



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 4290 mm long by 3000 mm wide by 262 mm deep and comprised 'MiTek PS9' Posi-joists (metal-web joists) at 600 mm centres. The unexposed 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 a single layer of 15 mm thick British Gypsum Wall Board plasterboard, the ceiling was screw fixed to the underside of the floor joists.

The ceiling incorporated ten, 'Orlight Limited' downlighter light fittings. The lights are referenced as follows:

Test Ref.	Model Ref.	Description
A	ORL1009	Fixed Downlight
B	ORL1019	Direction Downlight
C	ORL009	Fixed Downlight
D	ORLCL	Fixed IP54 Rated Downlight
E (1-2)	AQUASPOT-FG	Fixed IP65 Rated Downlight
F	STEAMSPOT-FG	Fixed IP65 Rated Downlight
G	SHOWERSPOT	Fixed IP65-Rated Downlight
H	ORL1005	Fixed IP20 Rated Downlight
I	ORL6009	Fixed Downlight

The floor supported a uniformly distributed load of 1.07 kN/m². This load was provided by the test sponsor as to represent the expected working load for the floor construction in practice.

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

This is the time in completed minutes for which the test specimen continues to maintain its ability to support the test load during the test. Support of the test load is determined by both the amount and the rate of Deflection. The limiting deflection and the limiting rate of deflection for the specimen, as specified by the Standard, are calculated as:

Criteria	Value
<i>L: Clear span - in mm</i>	4100
<i>d: Depth of structural section - in mm</i>	225
Limiting deflection ($L^2/400d$) - in mm	186.8
Limiting rate of deflection ($L^2/9000d$) - in mm/min	8.3
Measured Deflection $1.5 \times (L^2/400d)$ - in mm	280.2

Failure to support the load is deemed to have occurred when a '**Measured Deflection**' greater than or equal to '**1.5 x Limiting Deflection**' is observed Or Both the '**Limiting rate of deflection**' and '**Limiting deflection**' are exceeded.

The criterion was satisfied for the **30-minute** test duration.

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: 2020
- 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*

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*

*The test duration. The test was discontinued after a period of 30 minutes and 50 seconds at the sponsor's request.

Date of Test

18th September 2020

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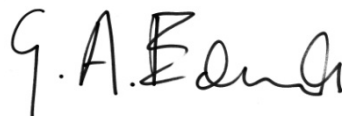
Signatories



Responsible Officer

C. Sweeney*

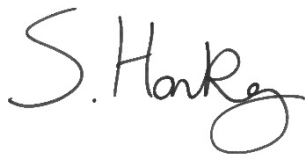
Technical Officer



Approved

G. Edmonds*

Senior Technical Officer



Head of Department

S. Hankey*

Business Unit Head – Fire Resistance

* For and on behalf of **Warringtonfire**.Report Issued: 9th October 2020

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Revision History

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Revised By:	Approved By:
Reason for Revision:	

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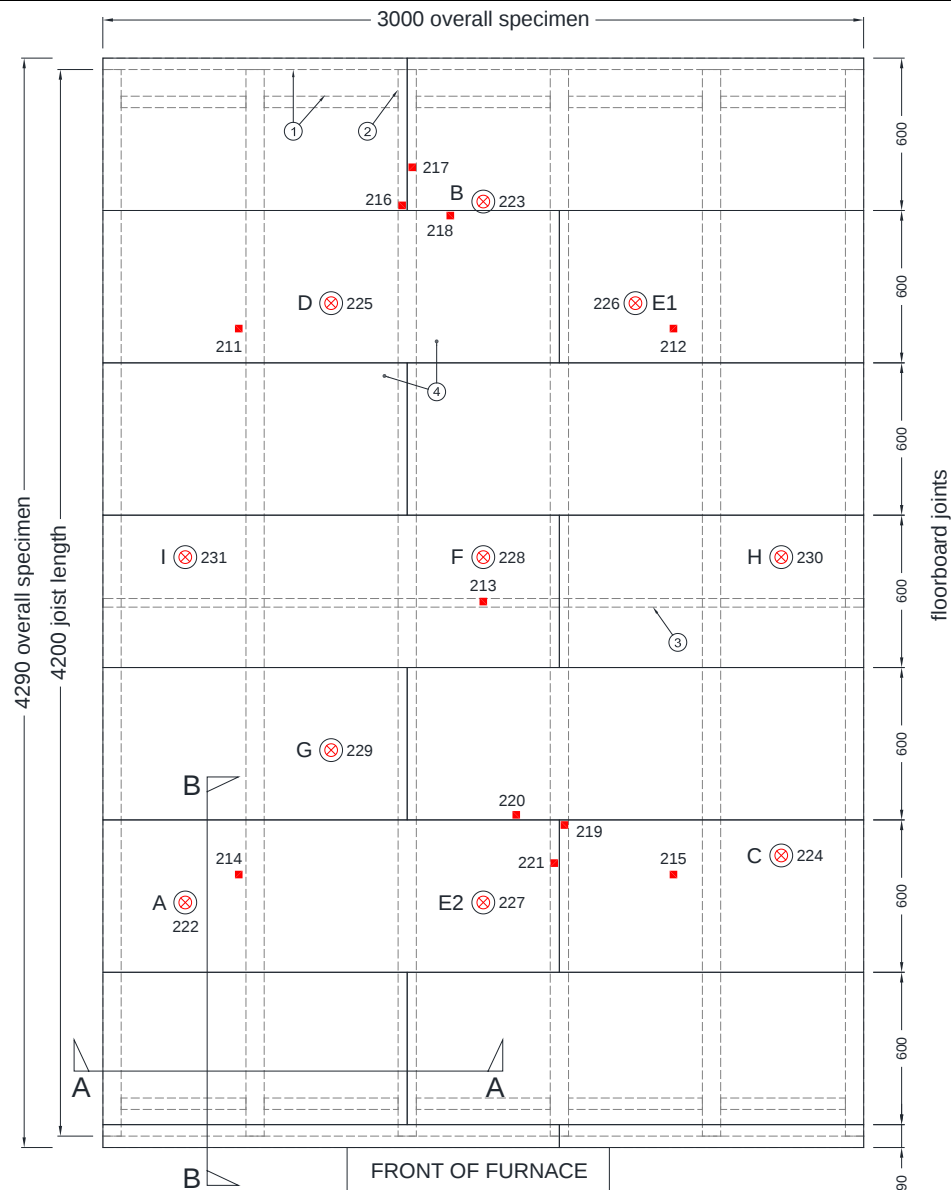
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Test Conditions

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. The results obtained during the test only apply to the test samples as provided by the test sponsor.
Installation	Representatives of Warringtonfire assembled the floor construction and installed the downlighters between the 14th and 16th September 2020.
Conditioning	The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of five 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 15.5°C to 28°C and 47.5% to 73.5% respectively.
Instruction to Test	The test was conducted on the 18th September 2020 at the request of Orlight Ltd, the test sponsor. Mr. C. Kanji, a representative of the test sponsor witnessed the test.
Ambient Temperature	The ambient air temperature in the vicinity of the test construction was 19°C at the start of the test with no variation 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 eight plate thermometers, distributed over a plane 100 mm from the underside of test assembly.
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: 2020, clause 5.2.1 The calculated pressure differential relative to the laboratory atmosphere 100 mm below the soffit of the specimen was 18 (± 5) Pa between 5 and 10 minutes and 18 (± 3) Pa thereafter.

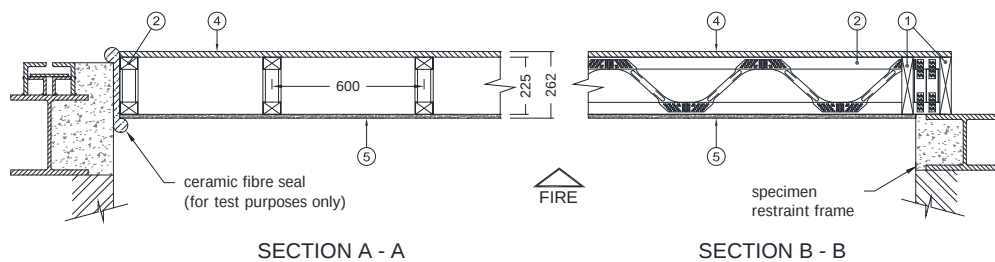
Test Construction

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



GENERAL PLAN VIEW OF TEST SPECIMEN SHOWING
THERMOCOUPLE POSITIONS - UNEXPOSED FACE

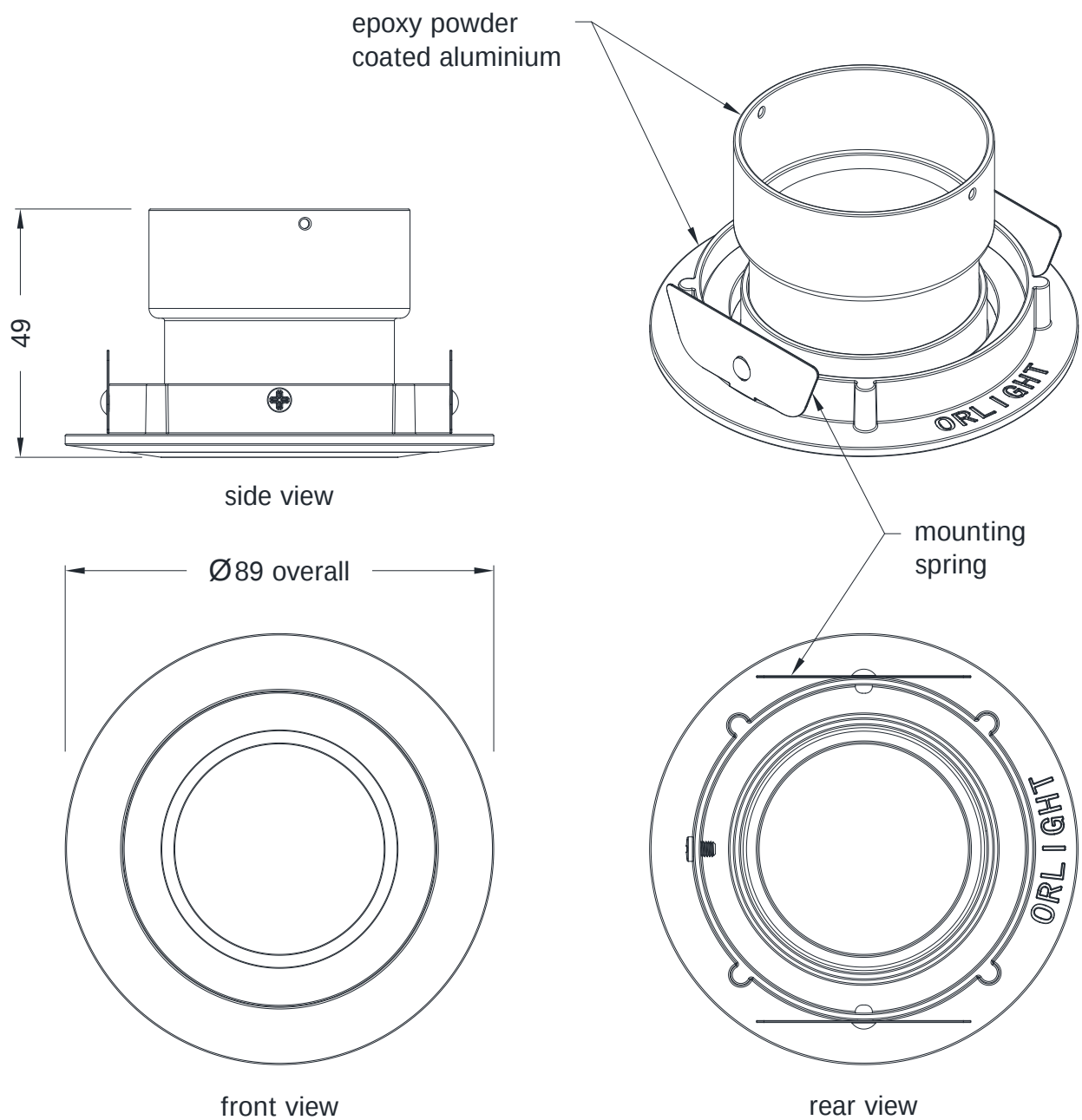
- Positions of surface thermocouples
- ⊗ Positions of minerally insulated thermocouples at mid-cavity, adjacent to each downlight



Do not scale. All dimensions are in mm

Figure 2 – General plan view showing ceiling board layout & downlights 'A' to 'I' - Exposed face

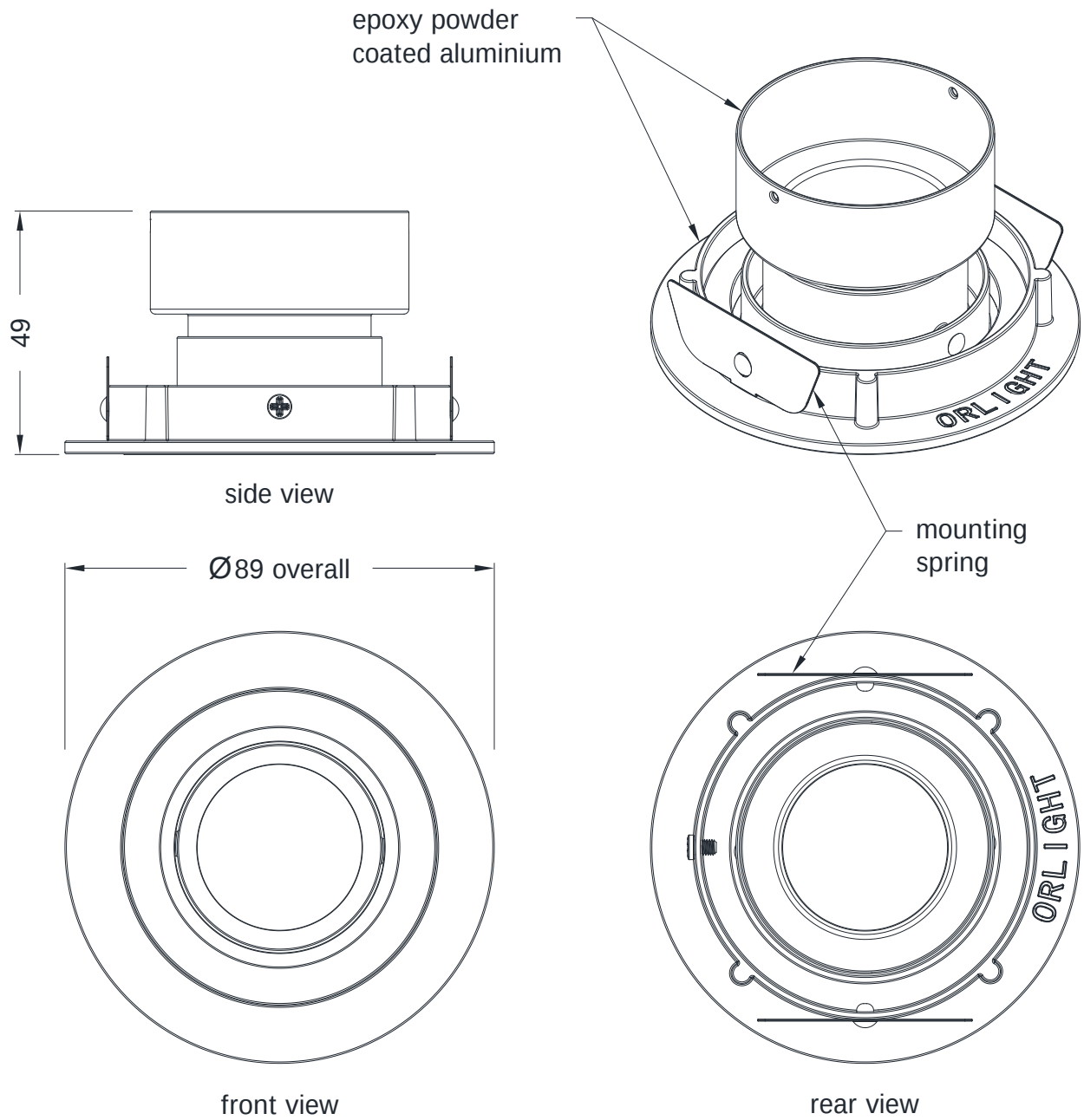


Figure 3 – Details of Downlight A - ORL1009

ORL1009

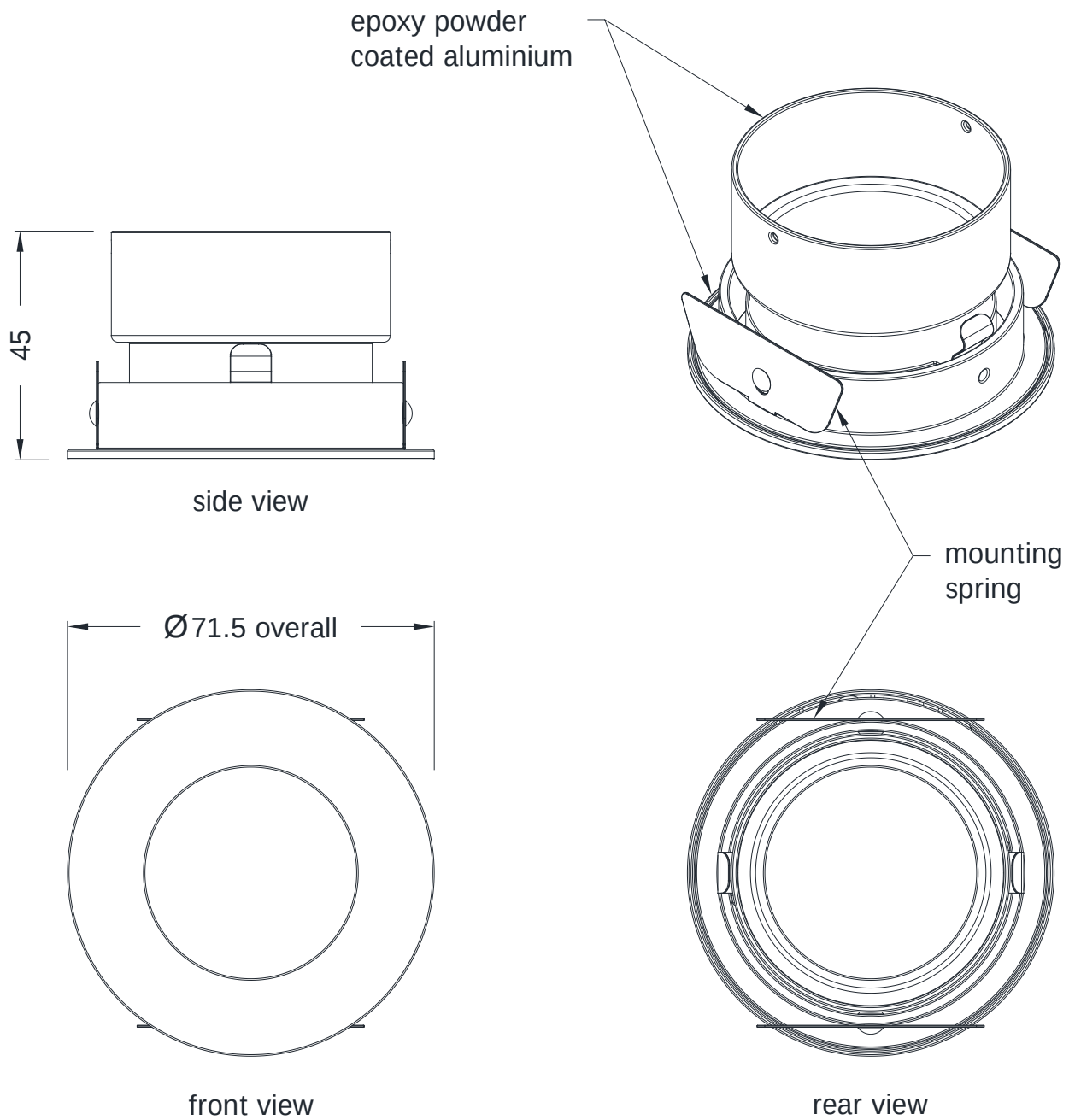
Do not scale. All dimensions are in mm

Figure 4 – Details of Downlight B - ORL1019



ORL1019

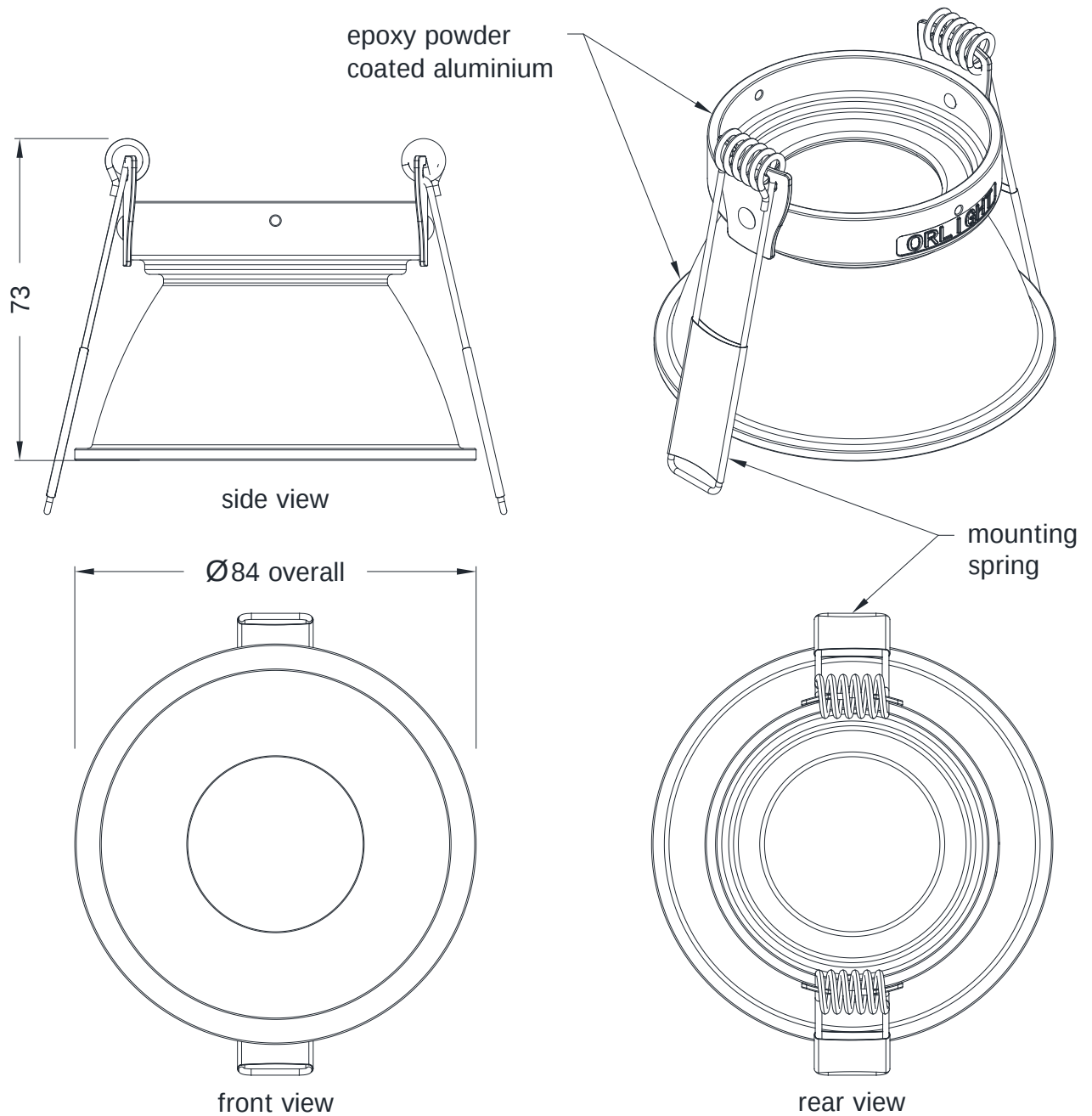
Do not scale. All dimensions are in mm

Figure 5 – Details of Downlight C - ORL009

ORL009

Do not scale. All dimensions are in mm

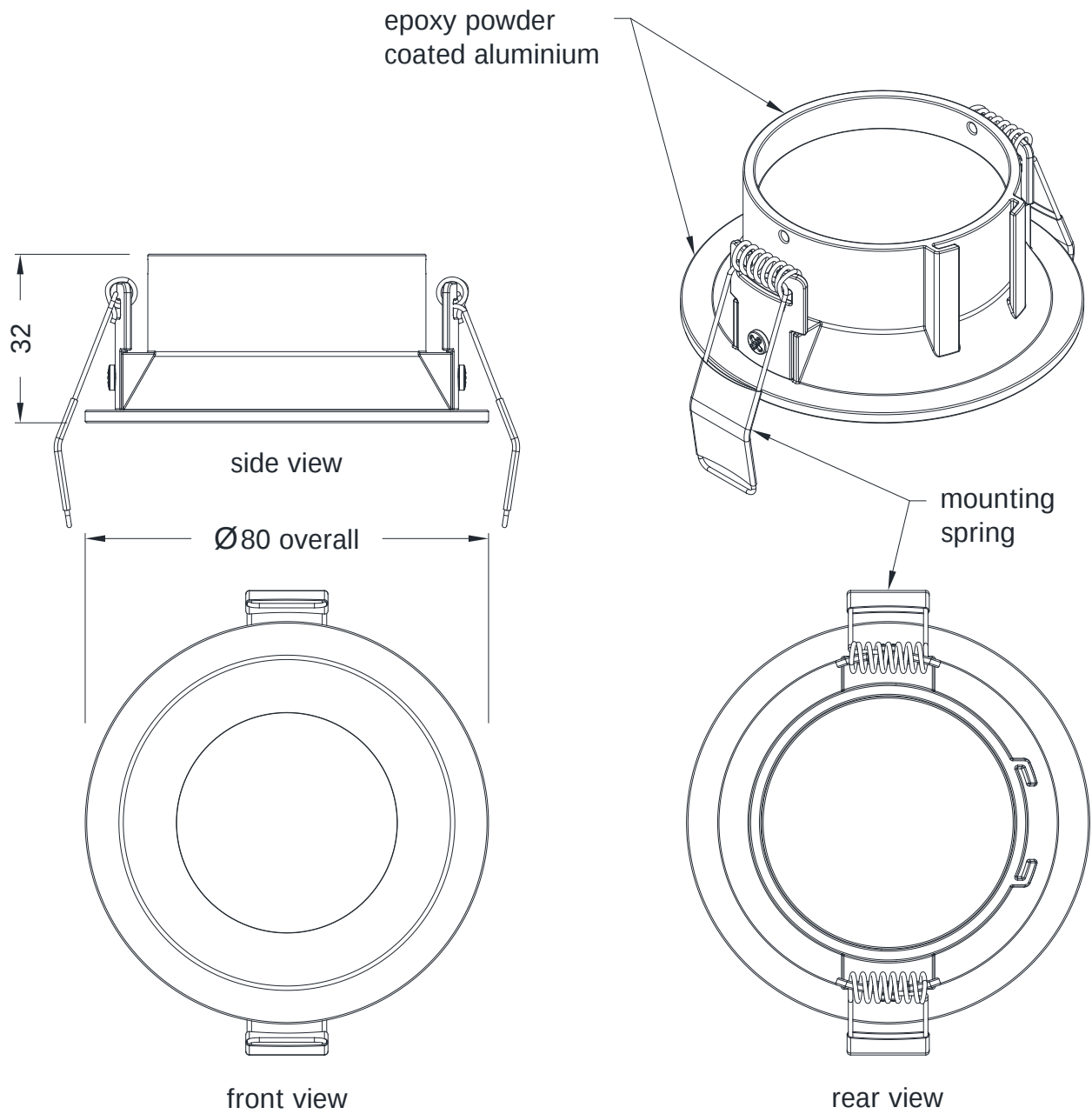
Figure 6 – Details of Downlight D - ORLCL-IP54



ORLCL-IP54

Do not scale. All dimensions are in mm

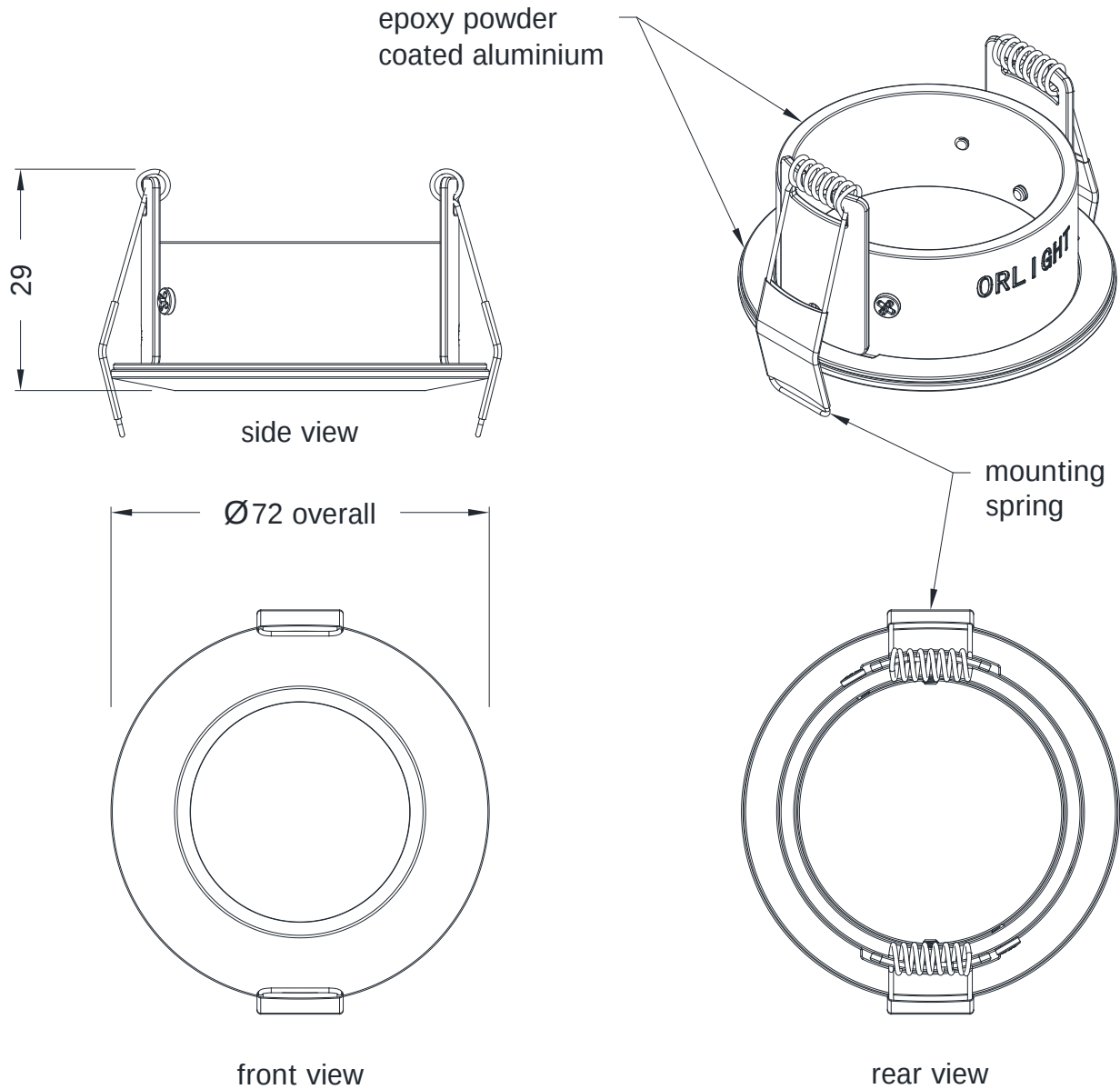
Figure 7 – Details of Downlights E1 & E2 - AQUASPOT



AQUASPOT

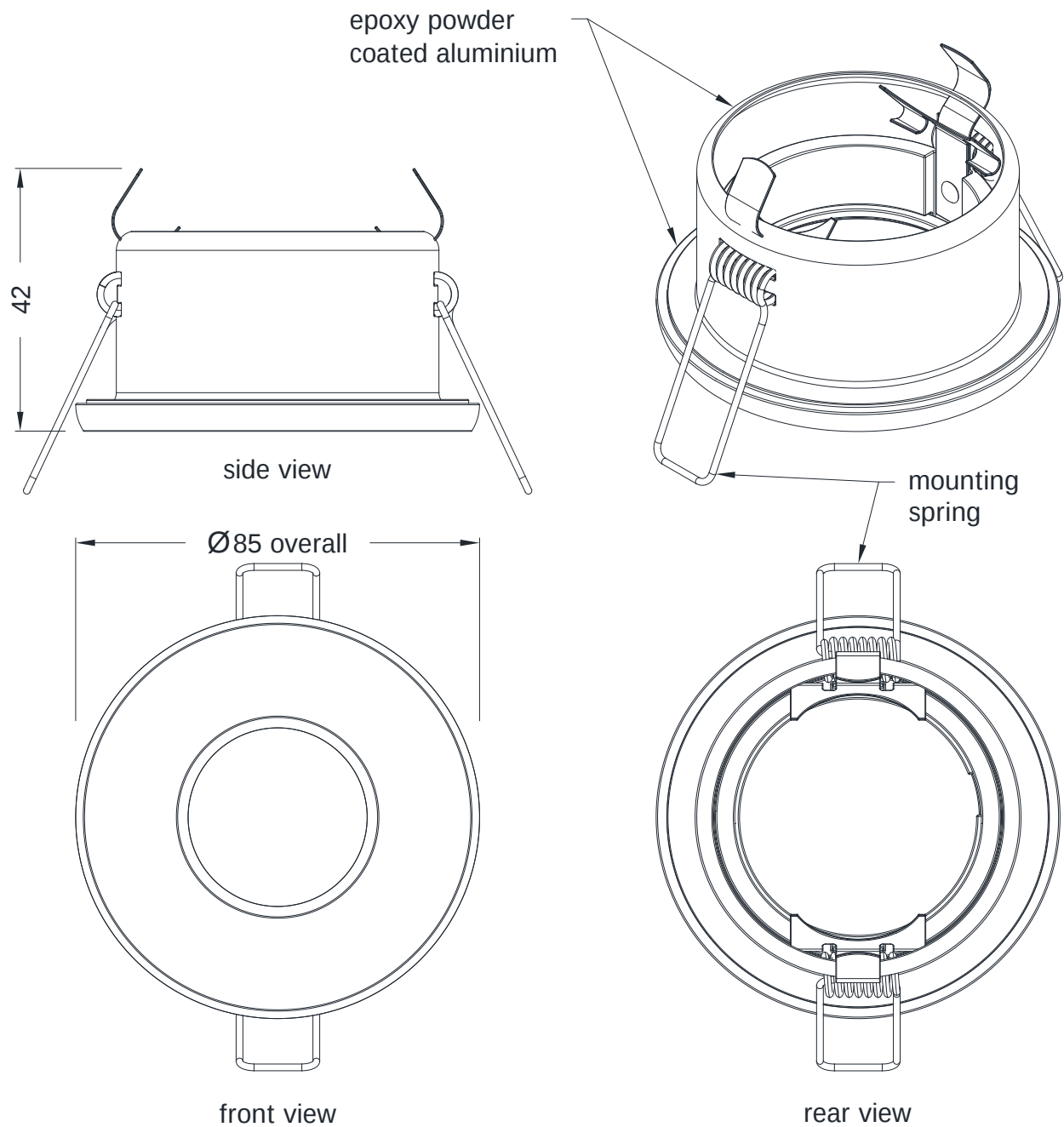
Do not scale. All dimensions are in mm

Figure 8 – Details of Downlight F - STEAMSPOT



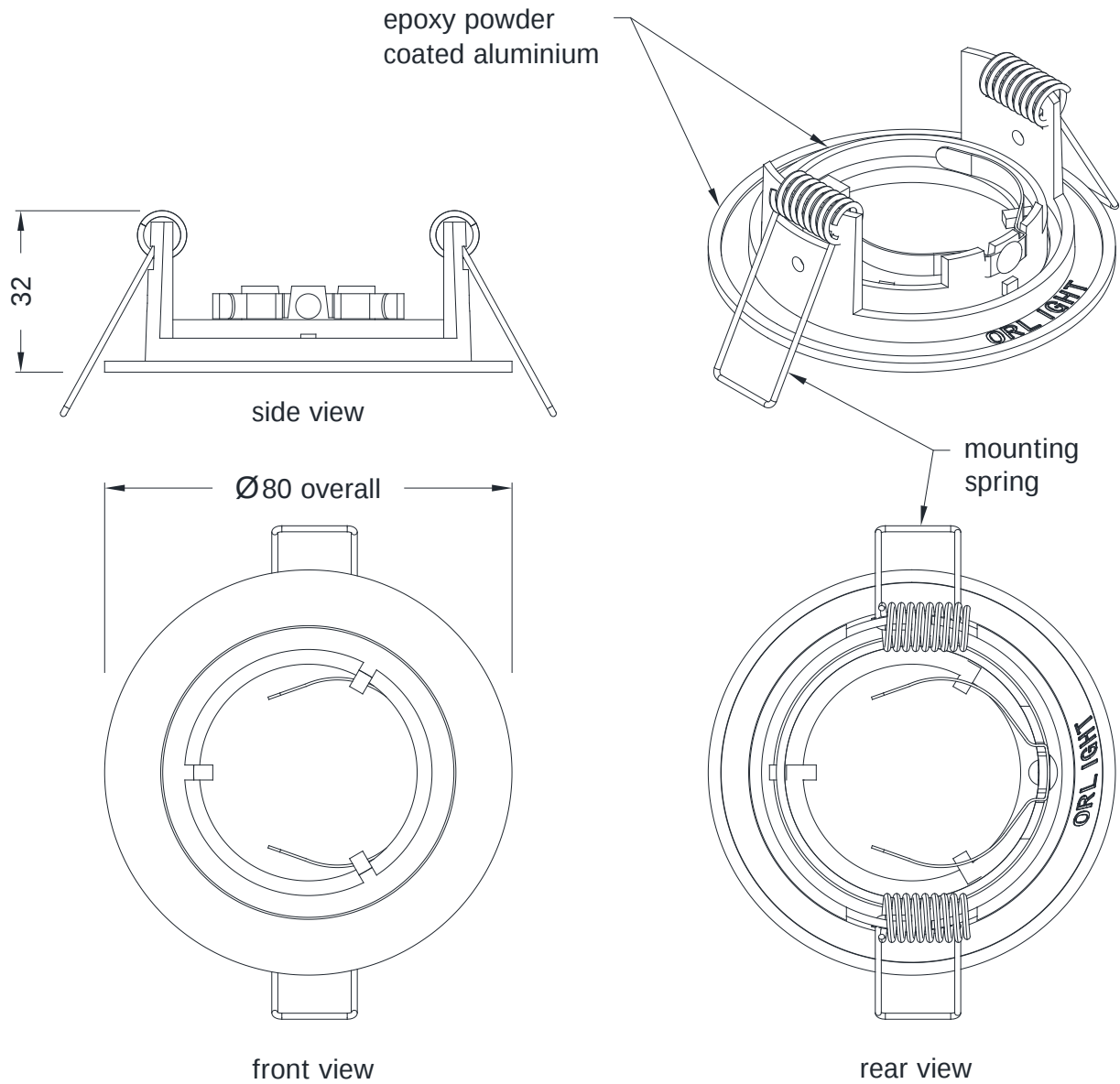
STEAMSPOT

Do not scale. All dimensions are in mm

Figure 9 – Details of Downlight G - SHOWERSPOT

SHOWERSPOT

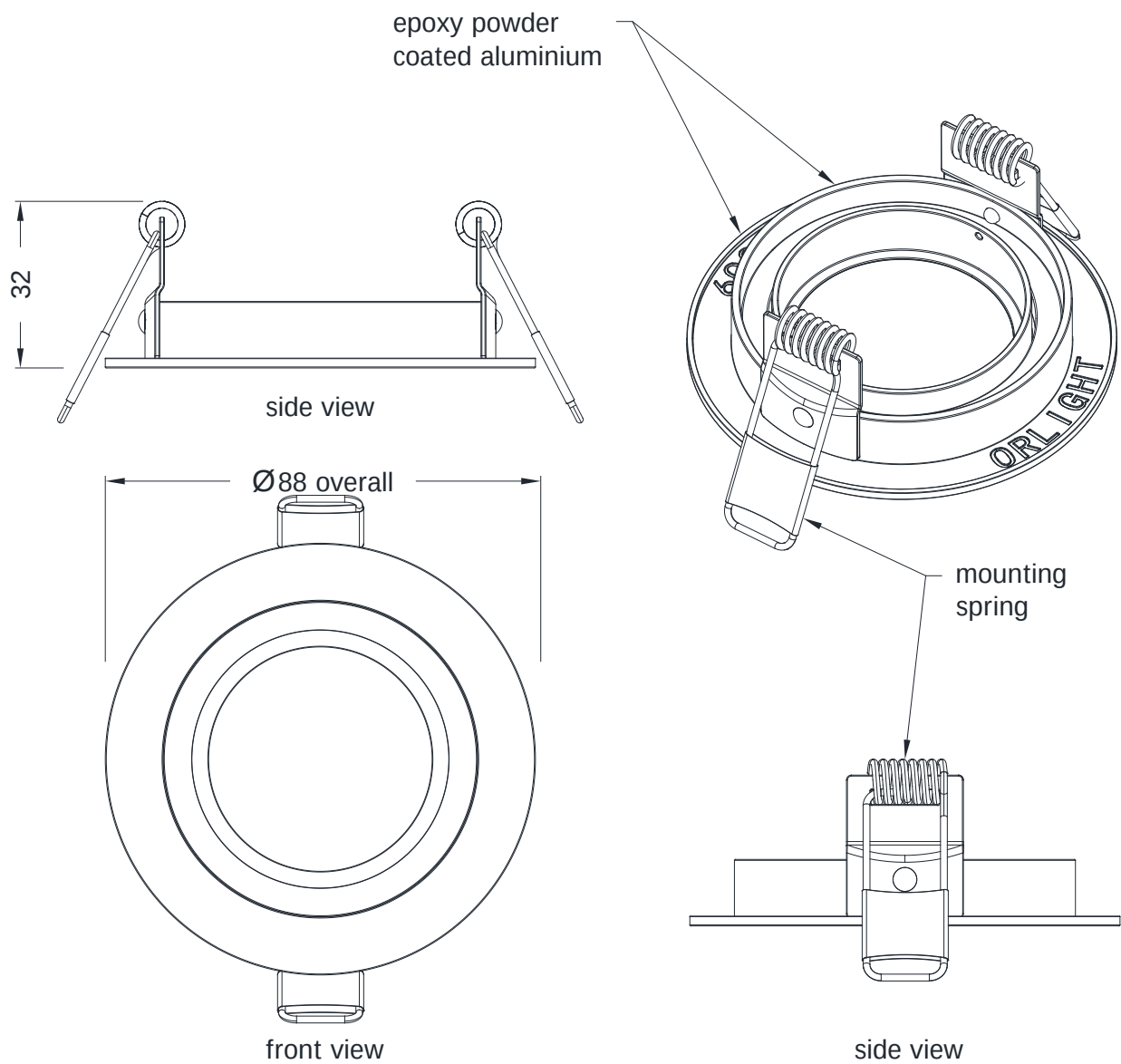
Do not scale. All dimensions are in mm

Figure 10 – Details of Downlight H – ORL1005

ORL1005

Do not scale. All dimensions are in mm

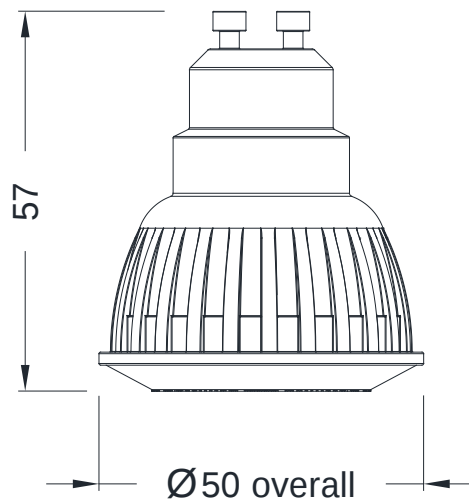
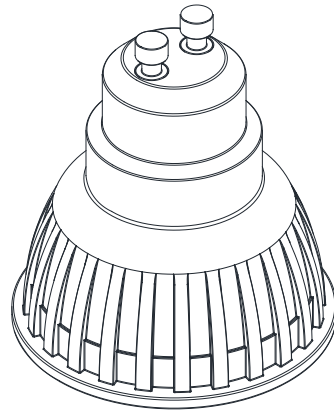
Figure 11 – Details of Downlight I – ORL6009



ORL6009

Do not scale. All dimensions are in mm

Figure 12 – Details of LUMENPLUS 3 lamp



LUMENPLUS 3

Do not scale. All dimensions are in mm

Schedule of Components

(Refer to Figures 1 to 12)

(All values are nominal unless stated otherwise)

(All other details are as stated by the sponsor)

<u>Item</u>	<u>Description</u>
1. End beams & end noggins	
Manufacturer	: MiTek
Reference	: Glulam RB2
Material	: Glue laminated timber
Section size	: 45 mm wide x 225 mm deep
Density	: 480 kg/m ³ (measured)
Fixing method	: Through fixed to joists with three nails to top and bottom flanges at each joist joint and two nails to top and bottom flanges at each noggin joint
Fixings	
i. type	: Ring shank nails
ii. size	: 100 mm long x 3.55 mm diameter (joists) 100 mm long x 3.85 mm diameter (noggins)
2. Posi-Joists	
Manufacturer	: MiTek
Reference	: PS9
Assembled joist size	: 72 mm wide x 225 mm deep x 4200 mm long
Top and bottom chords	
i. material	: TR26 grade European whitewood
ii. density	: 450 kg/m ³ (stated)
iii. cross section	: 72 mm horizontal x 46 mm vertical x 4200 mm long
End and Internal Blocks	
i. material	: TR26 grade European whitewood
ii. density	: 450 kg/m ³ (stated)
iii. cross section	: 72 mm horizontal x 46 mm vertical x 133 mm long
Metal Webs	
i. reference	: MiTek PS9 webs
ii. material	: Galvanised mild steel
iii. section size	: 206 mm high x 302.5 mm long x 1.0 mm thick, 12 off each side of joist
iv. fixing method	: Fitted between top and bottom chords and fixed via integral nailplate
Centres	: 600 mm
3. Strongback	
Material	: Softwood (Grade TR26)
Section size	: 34 mm deep x 123 mm wide.
Density	: 464 kg/m ³ (measured)
Fixing method	: Through fixed to joists through webs to exposed face with two nails per joint in the centre of the specimen
Fixings	
i. type	: Ring shank nails
ii. size	: 100 mm long x 3.55 mm diameter

Item**Description****4. Floorboards**

Manufacturer	:	Egger
Reference	:	Egger E1 P5
Material	:	Chipboard (tongue & groove)
Thickness	:	22 mm
Density	:	705 kg/m ³ (measured)
Fixing method	:	Through fixed to timber framework with nails and adhesive
Fixings		
i. type	:	Ring shank nails
ii. size	:	65 mm long x 3.25 mm diameter
iii. centres	:	600 mm (in centre of each board on each joist)
Adhesive		
i. reference	:	Harmony Timber Solutions Limited
ii. type	:	D4 PU Adhesive

5. Ceiling boards

Manufacturer	:	British Gypsum
Reference	:	Gyproc Wallboard
Material	:	Aerated high-density gypsum core encased in strong paper liners
Thickness	:	15 mm
Density	:	668 kg/m ³ (measured)
Fixing method	:	Through fixed to timber framework with screws.
Fixings		
i. manufacturer	:	Timco
ii. reference	:	Coarse Thread Collated Drywall Screws 00035COLDYS
iii. type	:	Black phosphate coated steel screws
iv. size	:	35 mm long x 3.5 mm diameter
v. centres	:	230 mm (edge), 230 mm (field)
Tape		
i. manufacturer	:	Siniat
ii. reference	:	GTEC Finish Tape
Filler		
i. manufacturer	:	Siniat
ii. reference	:	Smartmix

6. Downlight 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 15). (See Figure 3)
Material	:	Aluminium
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

Item**Description****7. Downlight 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 15). (See Figure 4)
Material	:	Aluminium
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

8. Downlight C

Manufacturer	:	Orlight Limited
Reference	:	ORL009
Description	:	Fixed downlight with anti-glare baffle. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 15). (See Figure 5)
Material	:	Aluminium
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

9. Downlight D

Manufacturer	:	Orlight Limited
Reference	:	ORLCL
Description	:	Fixed IP54-rated downlight. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 15). (See Figure 6)
Material	:	Aluminium
Overall sizes	:	
i. height (excluding lamp)	:	73 mm
ii. height (including lamp)	:	113 mm
iii. overall diameter	:	84 mm
iv. cut-out diameter	:	78 mm

10. Downlights E1 & E2

Manufacturer	:	Orlight Limited
Reference	:	AQUASPOT-FG
Description	:	Fixed IP65-rated downlight. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 15). (See Figure 7)
Material	:	Aluminium
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

Item**Description****11. Downlight F**

Manufacturer	:	Orlight Limited
Reference	:	STEAMSPOT-FG
Description	:	Fixed IP65-rated downlight. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 15). (See Figure 8)
Material	:	Aluminium
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

12. Downlight G

Manufacturer	:	Orlight Limited
Reference	:	SHOWERSPOT
Description	:	Fixed IP65-rated downlight. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 15). (see Figure 9)
Material	:	Aluminium
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

13. Downlight H

Manufacturer	:	Orlight Limited
Reference	:	ORL1005
Description	:	Fixed IP20-rated downlight. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 15). (See Figure 10)
Material	:	Aluminium
Overall sizes	:	
i. height (excluding lamp)	:	32 mm
ii. height (including lamp)	:	66 mm
iii. overall diameter	:	80 mm
iv. cut-out diameter	:	70 mm

14. Downlight I

Manufacturer	:	Orlight Limited
Reference	:	ORL6009
Description	:	Fixed downlight with anti-glare baffle and magnetic lamp change. Fitted with Lumenplus 3 (LP3) 7W LED lamp (item 15). (See Figure 11)
Material	:	Steel / Magnetic Suspension
Overall sizes	:	
i. height (excluding lamp)	:	32 mm
ii. height (including lamp)	:	68 mm
iii. overall diameter	:	88 mm
iv. cut-out diameter	:	80 mm

15. Lamp

Manufacturer	:	Orlight Limited
Reference	:	Lumenplus 3 (LP3) 7W LED lamp
Overall size	:	57 mm high x 50 mm diameter (See Figure 12)

Test Observations

Time		All observations are from the exposed face unless noted otherwise.
mins	secs	
-60	00	Load applied.
00	00	The test commences.
03	30	Intermittent flaming across the plasterboard face.
05	70	The paper face of the plasterboard is glowing/burning away.
07	00	Light fittings I and P are hanging from the ceiling and flaming.
11	30	Light fitting A has fallen slightly from its starting position.
12	00	Flaming at light fitting H which has fallen slightly.
14	30	Light fitting G is hanging from the ceiling and flaming, flaming at light fitting A.
15	40	Tape and jointing work has fallen away, the plasterboard ceiling is glowing bright red.
16	30	The long edges of the plasterboard are beginning to ripple.
18	00	Flaming at light fitting F.
18	20	Flaming at light fittings C and H which are hanging down.
21	00	Gaps between the plasterboard joints on the long edges are around 5 mm.
23	00	Gaps between the plasterboard joints on the long edges are around 10 mm in places.
25	00	Light fitting E is hanging from the ceiling and flaming.
26	00	Gaps between the plasterboard joints on the long edges are around 30 mm.
26	20	The plasterboard is sagging at the joints on the long edges.
27	00	Gaps between the plasterboard joints on the long edges are around 40 mm.
28	46	Sections of the plasterboard have fallen into the furnace, intense flaming.
30	50	Test discontinued without failure at the sponsor's request.

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: 2020

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	32
1	349	248
2	445	449
3	502	486
4	544	601
5	576	560
6	603	606
7	626	625
8	646	640
9	663	655
10	678	681
11	693	693
12	706	703
13	717	712
14	728	723
15	739	736
16	748	747
17	757	755
18	766	762
19	774	769
20	781	780
21	789	788
22	796	795
23	802	802
24	809	808
25	815	816
26	820	821
27	826	828
28	832	833
29	837	856
30	842	852

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	24	24	24	24	23	24
1	24	24	24	24	23	24
2	24	24	24	24	23	24
3	24	24	24	24	23	24
4	24	24	24	24	23	24
5	24	24	24	24	23	24
6	24	24	24	24	23	24
7	24	24	25	24	23	24
8	24	24	25	24	23	24
9	25	24	25	24	24	24
10	25	25	26	25	24	25
11	26	25	26	25	25	25
12	26	26	27	26	25	26
13	27	27	27	26	26	27
14	28	27	28	27	27	27
15	29	28	29	28	27	28
16	29	29	30	29	28	29
17	30	30	31	29	29	30
18	31	31	31	30	30	31
19	32	31	32	31	31	31
20	33	32	33	32	31	32
21	34	33	34	33	32	33
22	35	34	35	33	33	34
23	35	35	36	34	34	35
24	36	35	36	35	35	35
25	37	36	37	36	35	36
26	38	37	38	36	36	37
27	38	38	38	37	37	38
28	39	39	39	38	37	38
29	41	42	41	39	39	40
30	44	47	44	39	46	44

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	23	23	24	24	25	24
1	23	23	24	24	25	24
2	23	23	24	24	24	24
3	23	23	24	24	25	24
4	23	23	24	24	25	24
5	23	23	24	24	25	24
6	23	23	24	24	25	24
7	23	23	24	24	25	24
8	23	23	24	24	25	24
9	23	23	25	24	25	24
10	23	23	25	24	26	24
11	23	24	26	24	26	24
12	24	24	27	24	27	24
13	24	24	28	25	28	25
14	24	24	28	25	28	25
15	24	25	29	25	29	25
16	25	25	31	25	30	25
17	25	26	32	26	31	25
18	25	26	33	26	32	25
19	26	27	35	26	32	25
20	26	27	36	27	33	26
21	26	28	38	27	34	26
22	27	28	40	27	35	26
23	27	29	41	28	36	27
24	28	29	43	28	36	27
25	28	30	44	29	37	27
26	29	30	46	29	38	27
27	29	31	49	29	39	28
28	30	32	52	30	40	28
29	30	32	54	30	41	28
30	31	33	57	31	47	29

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
0	24	28	24	26	26
1	25	28	26	28	26
2	31	33	31	37	33
3	43	46	44	50	50
4	54	74	53	66	60
5	63	71	60	75	67
6	67	156	67	84	72
7	72	178	71	86	76
8	78	199	76	92	81
9	84	216	80	93	87
10	90	193	85	98	92
11	92	206	92	101	96
12	98	219	95	103	99
13	103	206	99	107	102
14	102	197	103	111	104
15	111	198	104	118	107
16	113	193	115	120	109
17	108	195	122	129	115
18	113	200	122	140	126
19	109	182	119	148	128
20	109	188	120	157	134
21	117	199	128	163	146
22	128	208	129	178	165
23	127	243	145	201	191
24	138	254	163	213	212
25	153	279	193	231	229
26	178	314	204	241	245
27	194	316	220	254	269
28	197	329	237	267	302
29	229	301	554	276	299
30	317	630	501	617	710

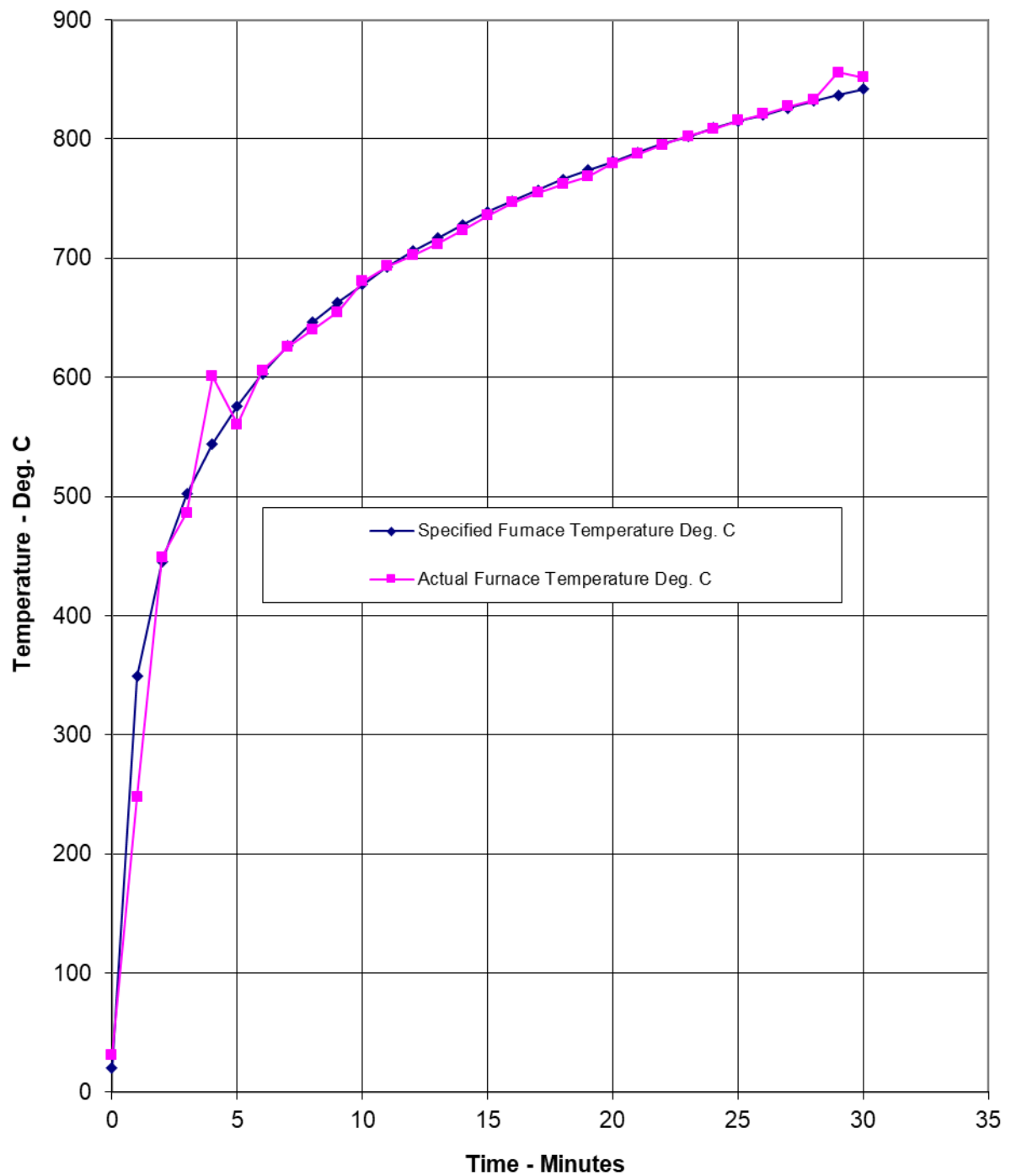
Individual Temperatures Recorded At Mid-Height Of The Cavity Coincidental With The Light Fittings (continued)

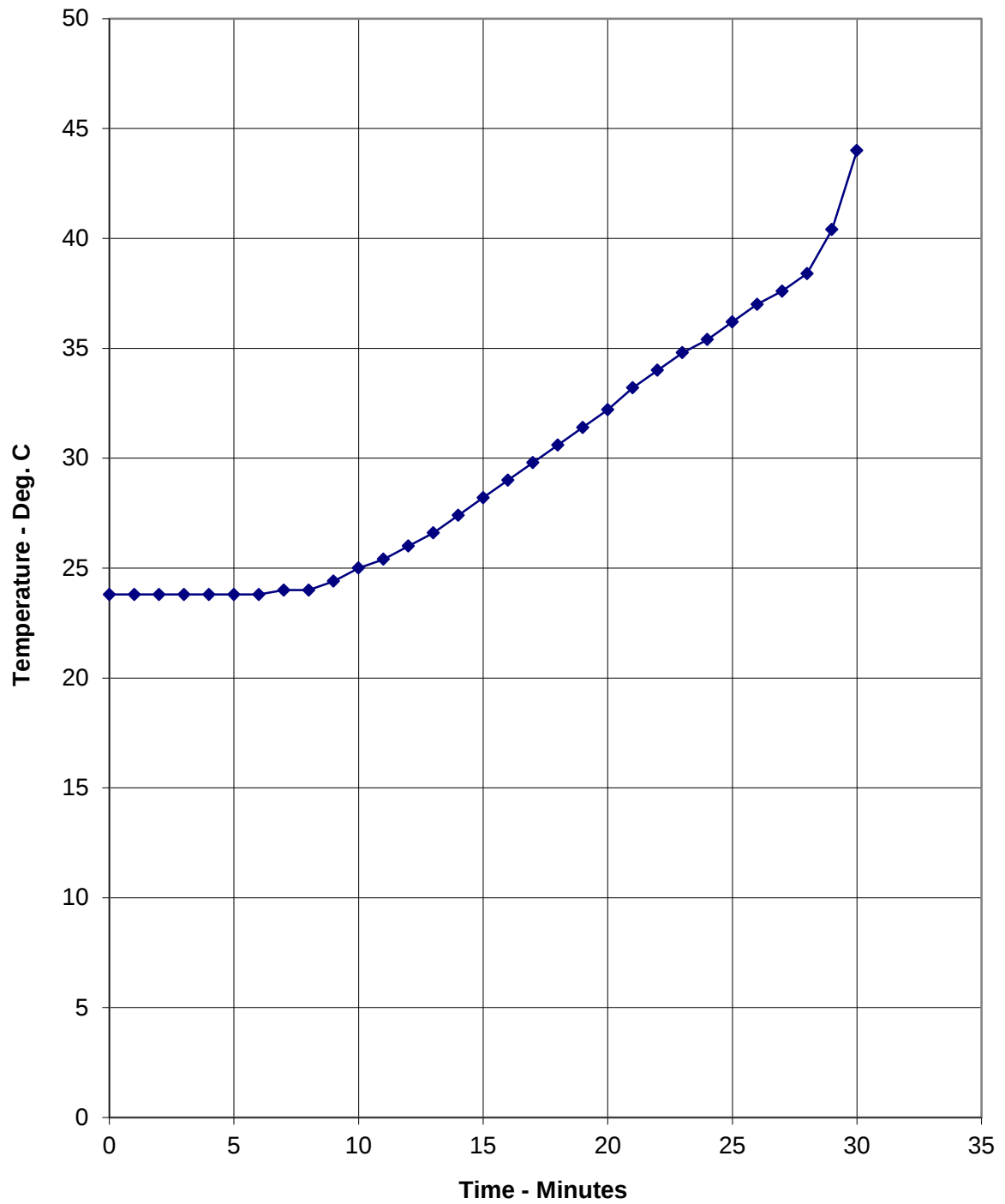
Time Mins	T/C Number 227 Deg. C	T/C Number 228 Deg. C	T/C Number 229 Deg. C	T/C Number 230 Deg. C	T/C Number 231 Deg. C
0	26	26	25	25	26
1	26	27	25	25	28
2	31	33	32	28	31
3	47	49	49	40	44
4	56	57	57	50	53
5	63	63	65	57	58
6	69	70	69	61	64
7	73	78	72	67	70
8	77	86	78	72	84
9	82	91	84	77	95
10	87	94	88	81	103
11	91	95	95	85	105
12	96	98	94	88	104
13	97	100	98	92	105
14	99	101	103	153	104
15	100	100	115	230	101
16	103	101	120	221	102
17	104	103	116	218	102
18	108	106	133	214	104
19	113	112	123	214	105
20	121	123	124	214	108
21	126	138	134	217	112
22	135	160	145	254	124
23	153	176	169	255	142
24	183	193	187	257	162
25	225	214	205	287	182
26	255	228	226	277	197
27	282	243	240	312	206
28	302	265	254	335	214
29	439	301	292	359	216
30	653	736	716	424	419

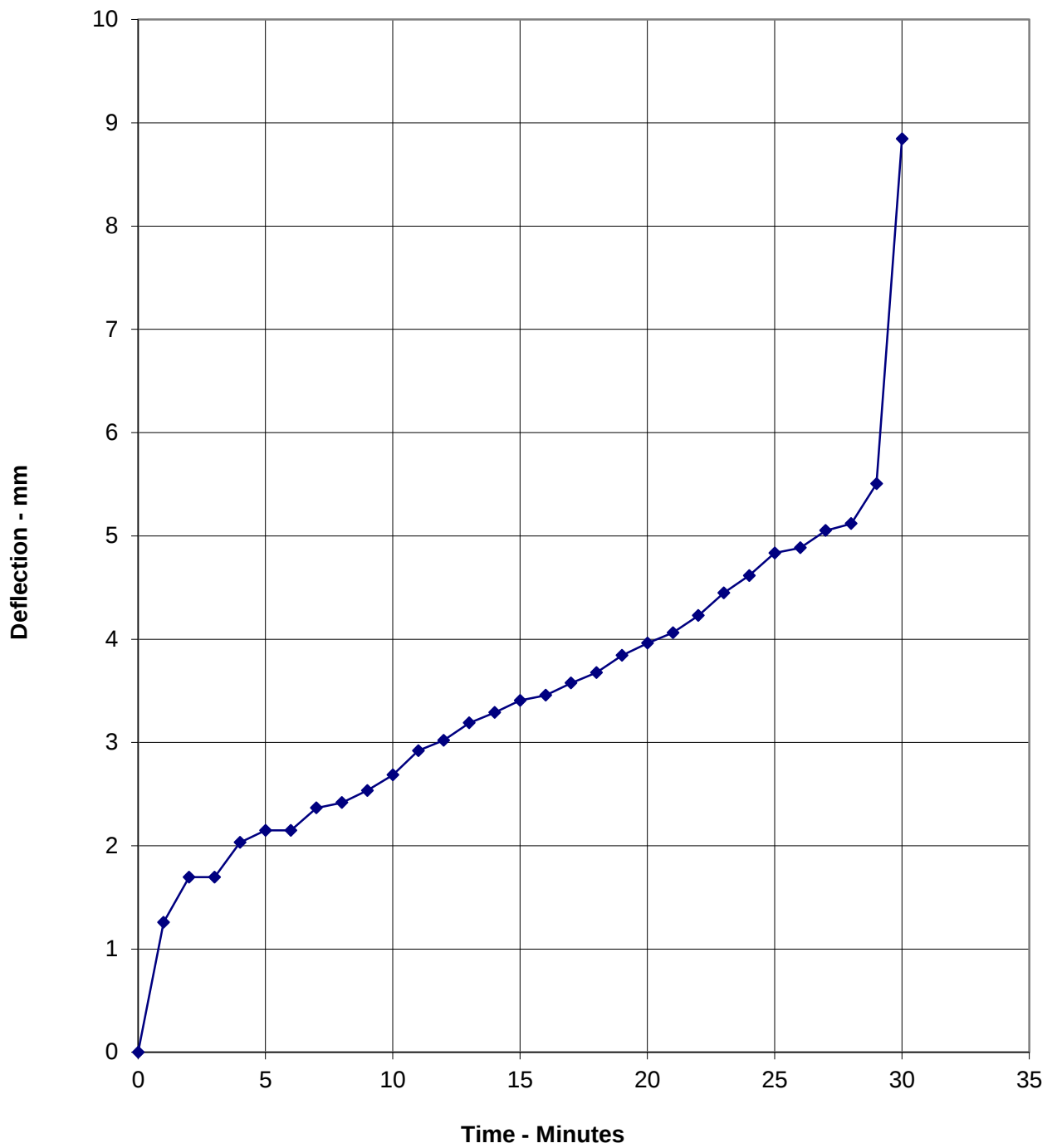
Central Vertical Deflection Of The Specimen

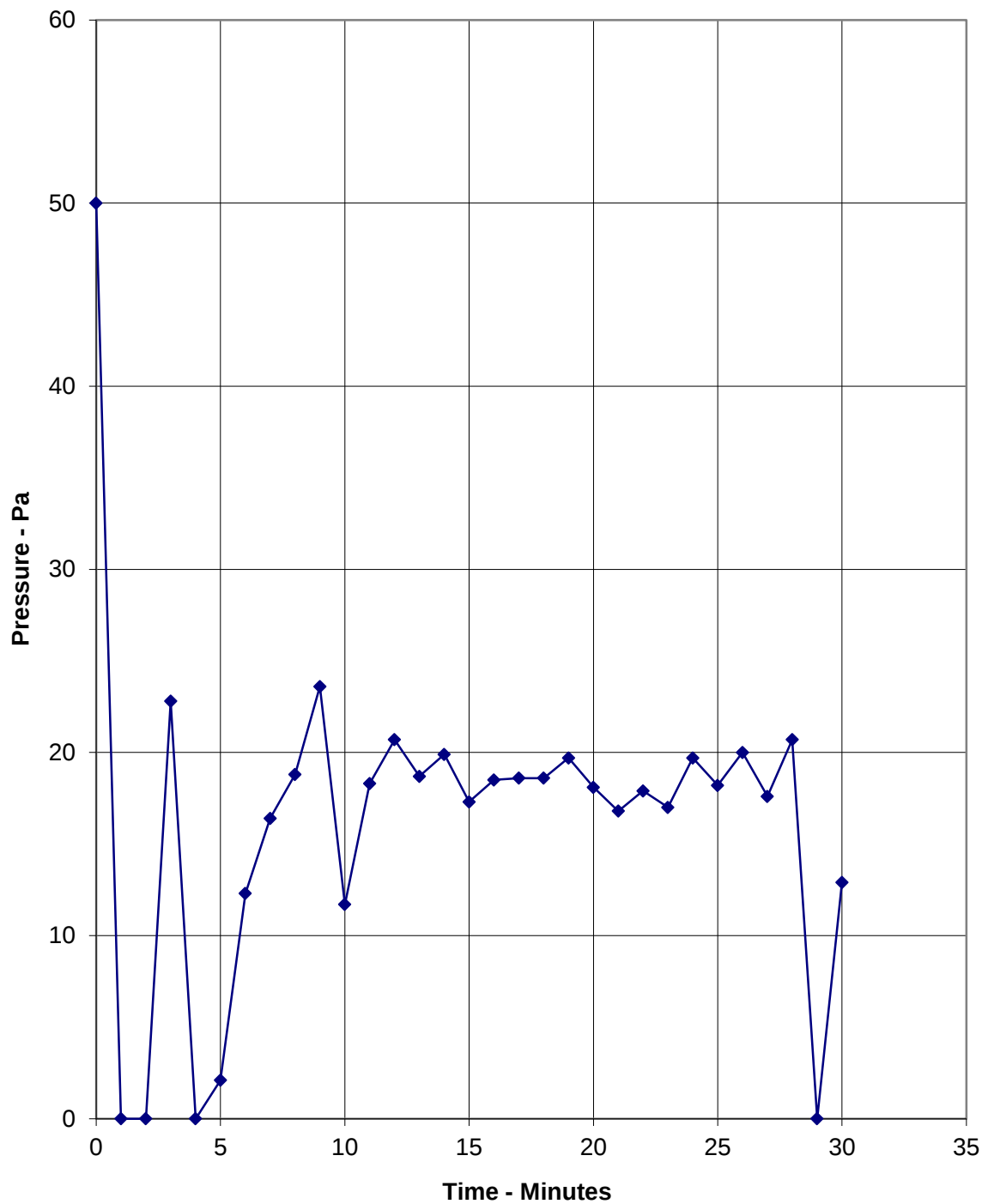
Time Mins	Central Vertical Deflection mm	Rate Of Deflection mm/min
0	0.0	0.0
1	1.3	1.3
2	1.7	0.4
3	1.7	0.0
4	2.0	0.3
5	2.1	0.1
6	2.1	0.0
7	2.4	0.2
8	2.4	0.1
9	2.5	0.1
10	2.7	0.2
11	2.9	0.2
12	3.0	0.1
13	3.2	0.2
14	3.3	0.1
15	3.4	0.1
16	3.5	0.0
17	3.6	0.1
18	3.7	0.1
19	3.8	0.2
20	4.0	0.1
21	4.1	0.1
22	4.2	0.2
23	4.4	0.2
24	4.6	0.2
25	4.8	0.2
26	4.9	0.1
27	5.1	0.2
28	5.1	0.1
29	5.5	0.4
30	8.8	3.3

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



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

From 29 to 30 minutes a fluctuation of the pressure was observed due to the behaviour of the Specimen relating to the detachment of the ceiling. The effect of those fluctuations on the performance of the Specimen can be neglected.

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.

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.

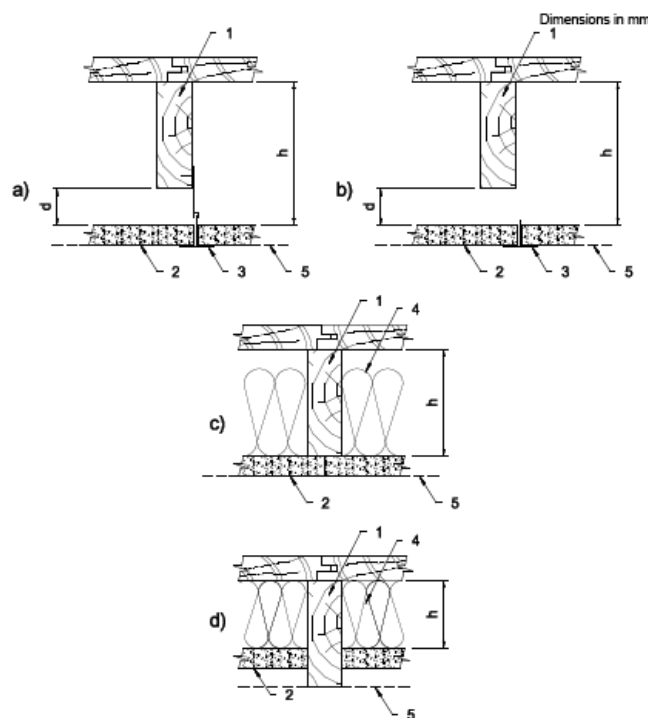
b) With respect to the ceiling system:

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 | |