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Title:

The Fire Resistance Performance Of A Loadbearing Timber Floor Assembly Protected by a Plasterboard Ceiling And Incorporating Down Lighters, When Tested in Accordance with BS 476: Part 21: 1987, Clause 7

Date of Test:

7th May 2020

Issue 1:

25th June 2020

WF Report No.

427974

Prepared for:

JCC Lighting Products Limited

Innovation Centre,
Beeding Close,
Southern Cross Trading Estate,
West Sussex,
PO22 9TS
United Kingdom

UKAS TESTING
0249

Test Specimen

Summary of Tested Specimen

The timber floor had overall nominal dimensions of 4290 mm long by 2980 mm wide and comprised 'James Jones' engineered timber I-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 a layer of 15 mm thick British Gypsum 'Wallboard' plasterboard, the ceiling was screw fixed to the underside of the floor joists.

The ceiling incorporated eight 'JCC Lighting' downlighter light fittings referenced as follows:

Test Ref.	Model Ref.
Downlighter 1	V50 JC1001 WH/CH/BN
Downlighter 2	V50 Tilt JC1002 WH/CH/BN
Downlighter 3	JC94113 WH/CH/BN
Downlighter 4	JC94114 Tilt WH/CH/BN
Downlighter 5	JC94110 WH/CH/BN
Downlighter 6	JC010010 WH/CH/BN
Downlighter 7	JC010016 WH/CH/BN
Downlighter 8	JC010023 WH/CH/BN

The floor supported a uniformly distributed load of 1.10 kN/m^2. 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

The specimen is deemed to have failed if it's no longer able to support the test load. This is taken to be when either the maximum allowable deflection or rate of deflection is exceeded.

Criteria	Value
(L) Clear span, *in mm*	4100
(d) Depth of Structural Section, *in mm*	220
Max Deflection (L/20) - *in mm*	**205.0**
Rate (L^2 / 9000d) - *in mm*	**8.5**
Rate is not applicable until (L/30) exceeded - in mm	**136.7**

The specimen satisfied this requirement for 33 minutes, after which time the test was discontinued.

Integrity

It is required that there is no collapse of the specimen, no sustained flaming on the unexposed surface and no loss of impermeability.

Integrity Result

33 minutes

No failure*

Insulation

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

Insulation Result

33 minutes

No failure*

*Test duration. The test was discontinued after a period of 33 minutes.

Date of Test

7th May 2020

Signatories

Responsible Officer
C. Sweeney*
Technical Officer

Approved
W. Drazkiewicz*
Technical Manager – Fire Resistance

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

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

Report Issued: 25th June 2020

Revision History

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

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Test Conditions

Standard

Clause 7 of BS 476: Part 21: 1987 'Methods for determination of the fire resistance of loadbearing elements of construction'.

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 4th and 6th May 2020.

Conditioning

The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of four 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 16.5°C to 30°C and 22% to 52.5% respectively.

Instruction to Test

The test was conducted on the 7th May 2020 at the request of **JCC Lighting Products Limited**, the test sponsor.

Ambient Temperature

The ambient air temperature in the vicinity of the test construction was 21ºC at the start of the test with a maximum variation of -1ºC during the test.

Furnace

The furnace was controlled so that its mean temperature complied with the requirements of BS 476: Part 20: 1987, Clause 3.1, using eight mineral insulated thermocouples distributed over a plane 100 mm from the underside 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. Additional thermocouples were included for information purposes only. These additional thermocouples were installed within the assembly during its construction located at mid height of the cavity adjacent to the light fittings.

Loadbearing Capacity Criteria

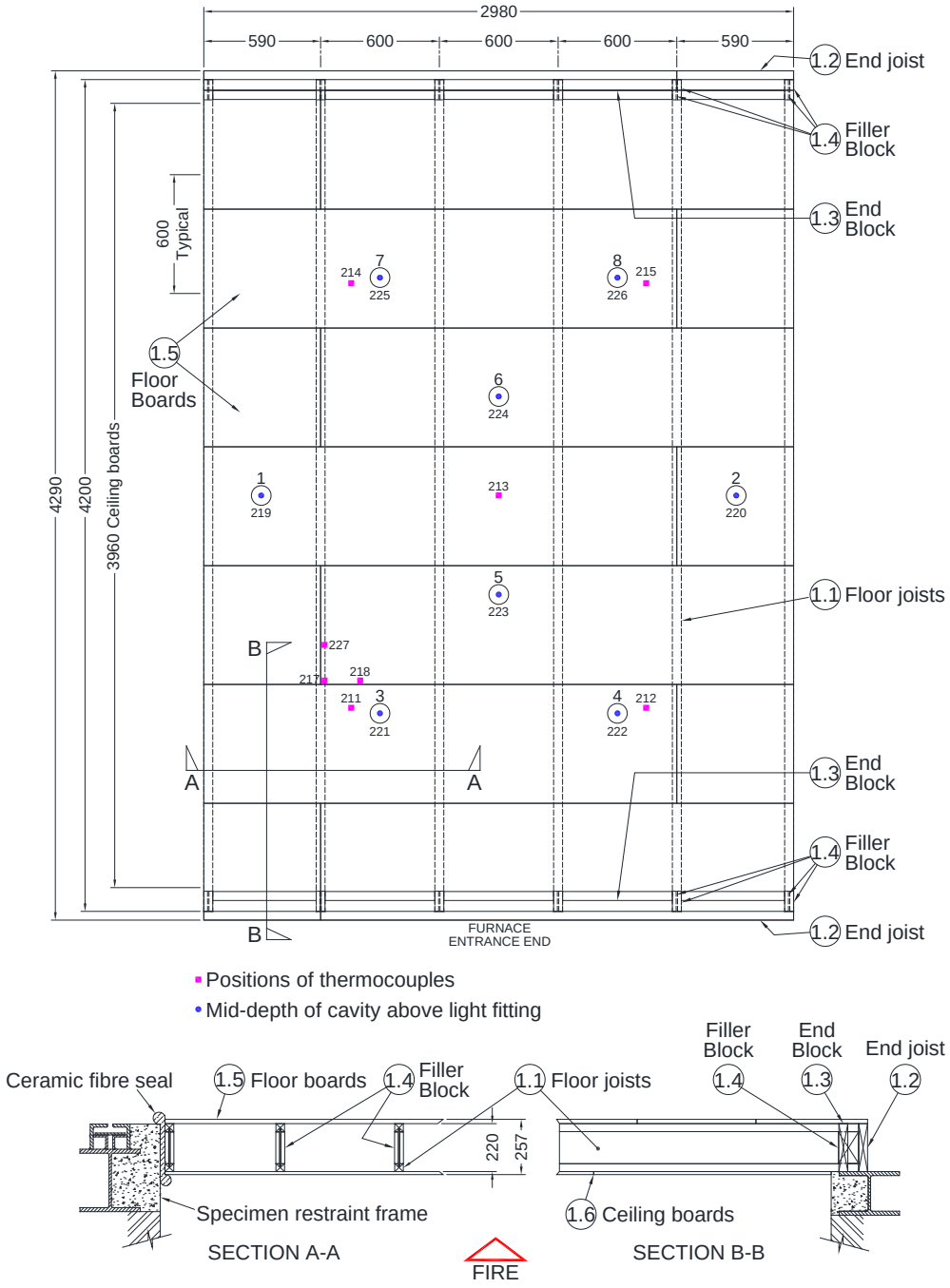
A linear deflection transducer was provided at the approximate centre on the unexposed surface of the specimen to record its vertical deflection.

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 476: Part 20: 1987, Clause 3.2.2 (including allowance for transient occurrences in-line with Clause 12(l)). The calculated pressure differential relative to the laboratory atmosphere at a position 100 mm below the underside of the assembly was 18 (±2) Pa

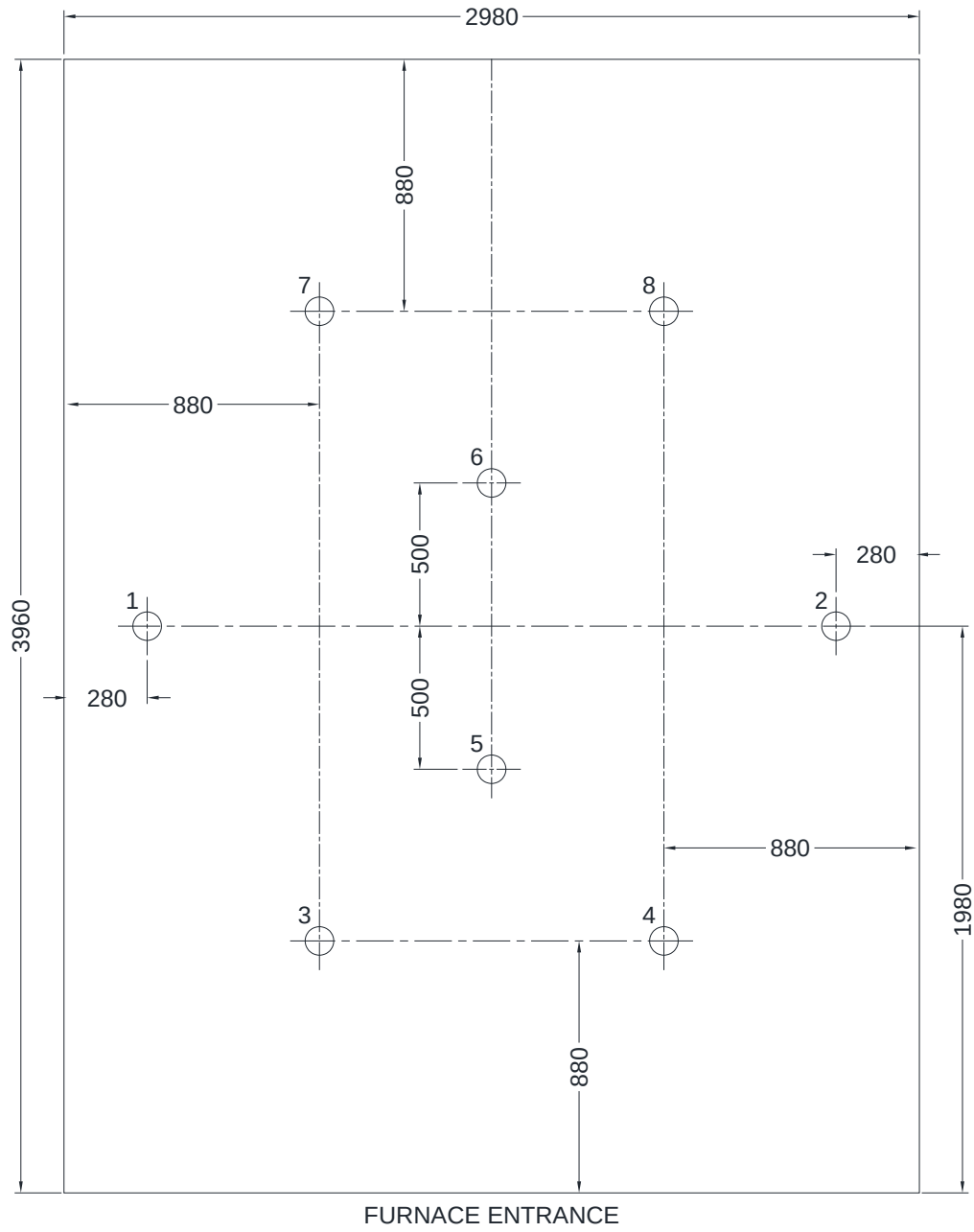
Test Construction

Figure 1- Plan View of Test Specimen



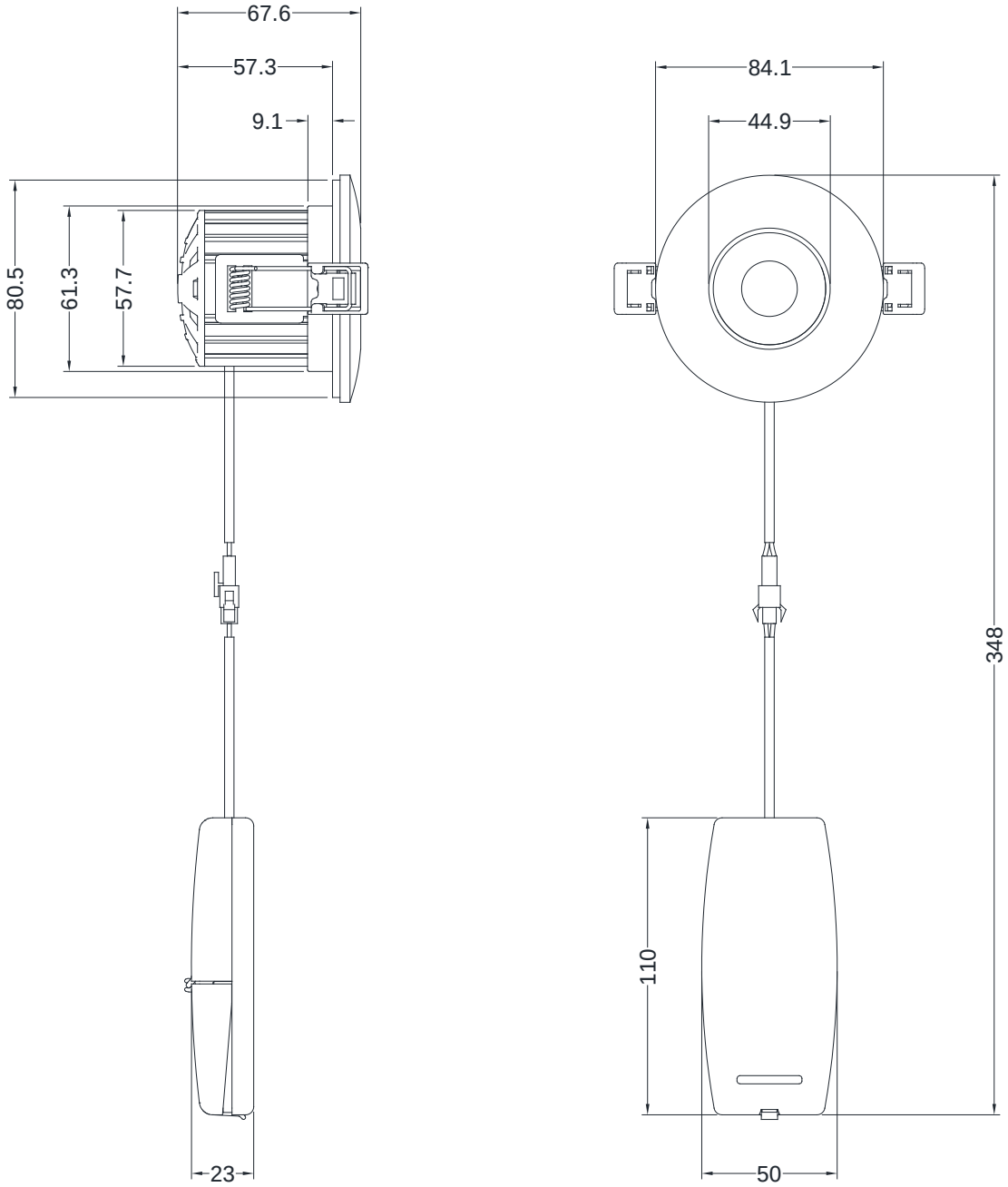
Do not scale. All dimensions are in mm

Figure 2 – Details of Downlighter Positions



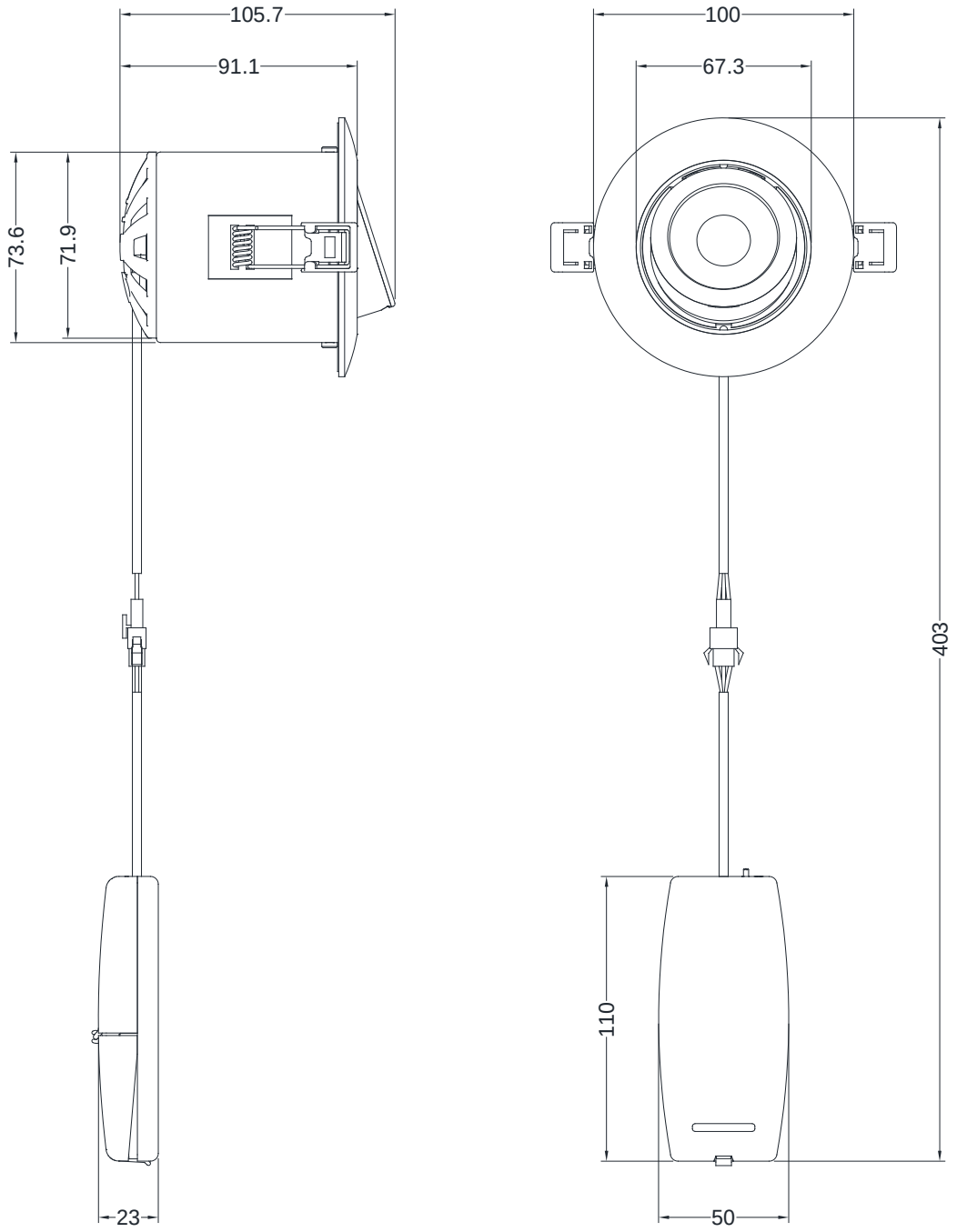
Do not scale. All dimensions are in mm

Figure 3 – Details of Downlighter 1



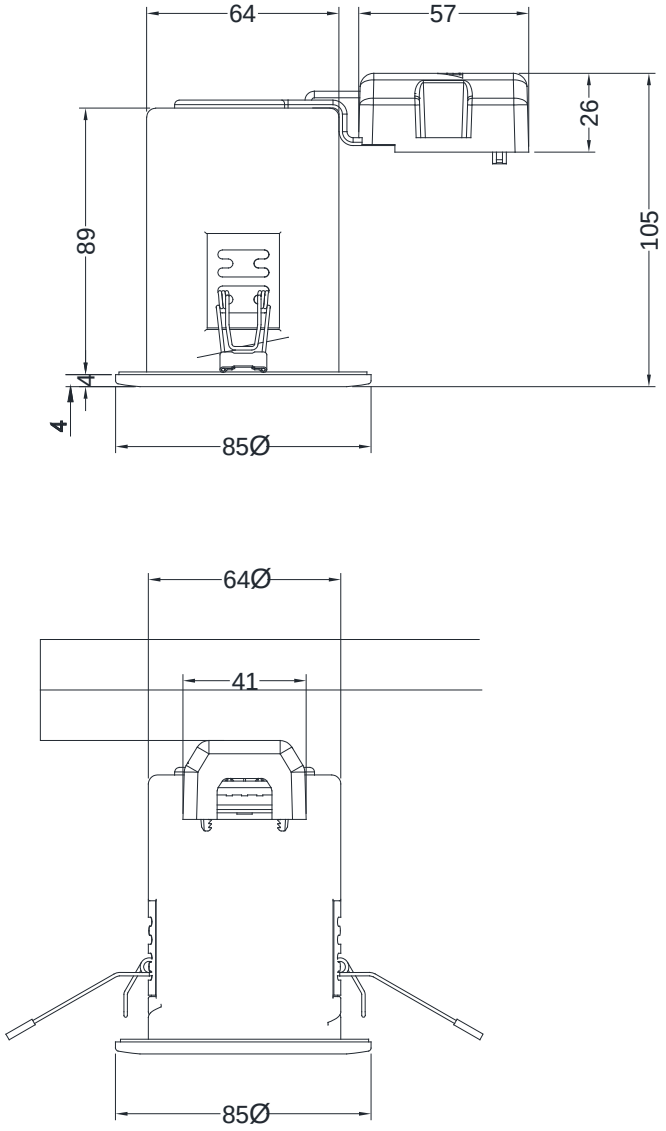
Do not scale. All dimensions are in mm

Figure 4 – Details of Downlighter 2



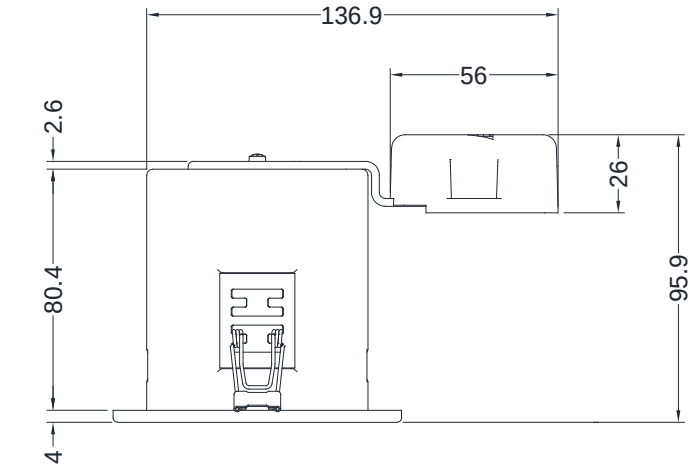
Do not scale. All dimensions are in mm

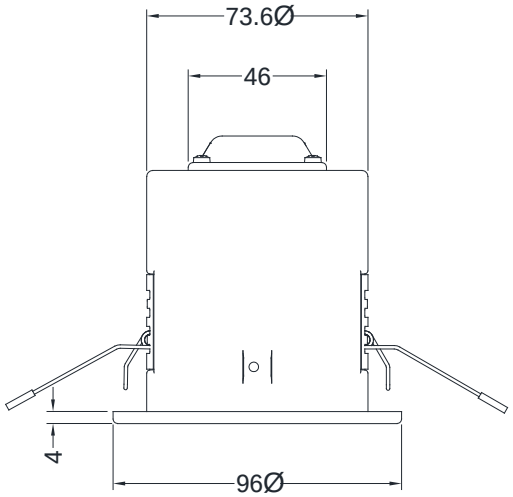
Figure 5 – Details of Downlighter 3



Do not scale. All dimensions are in mm

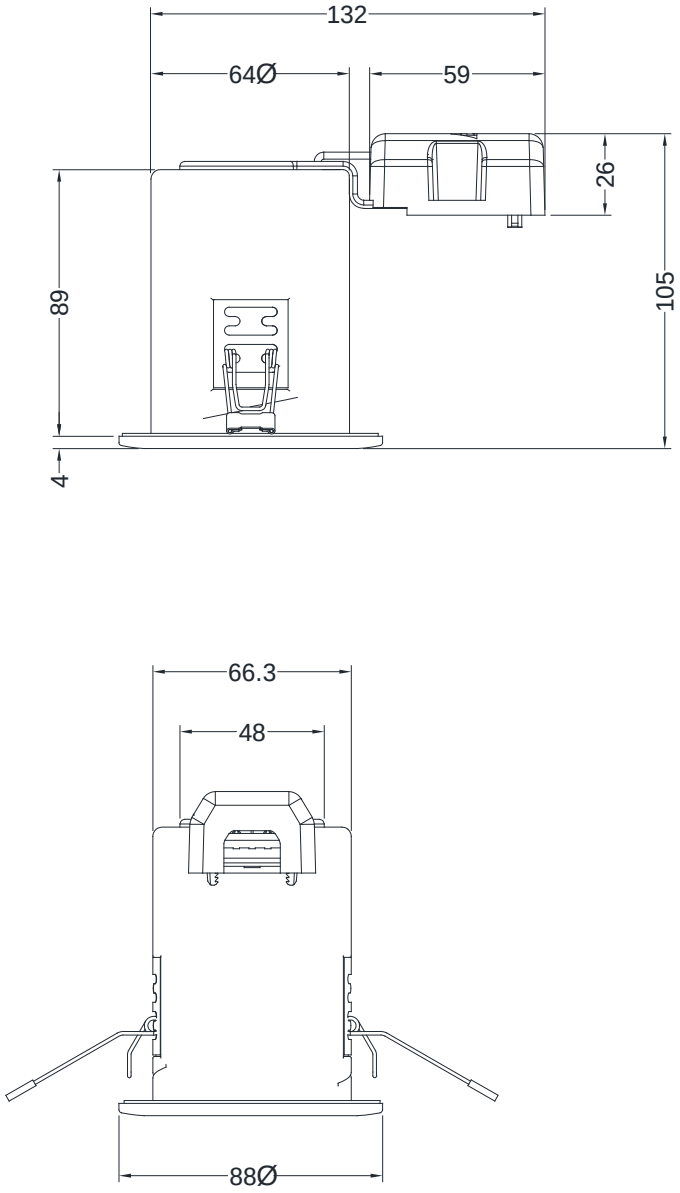
Figure 6 – Details of Downlighter 4





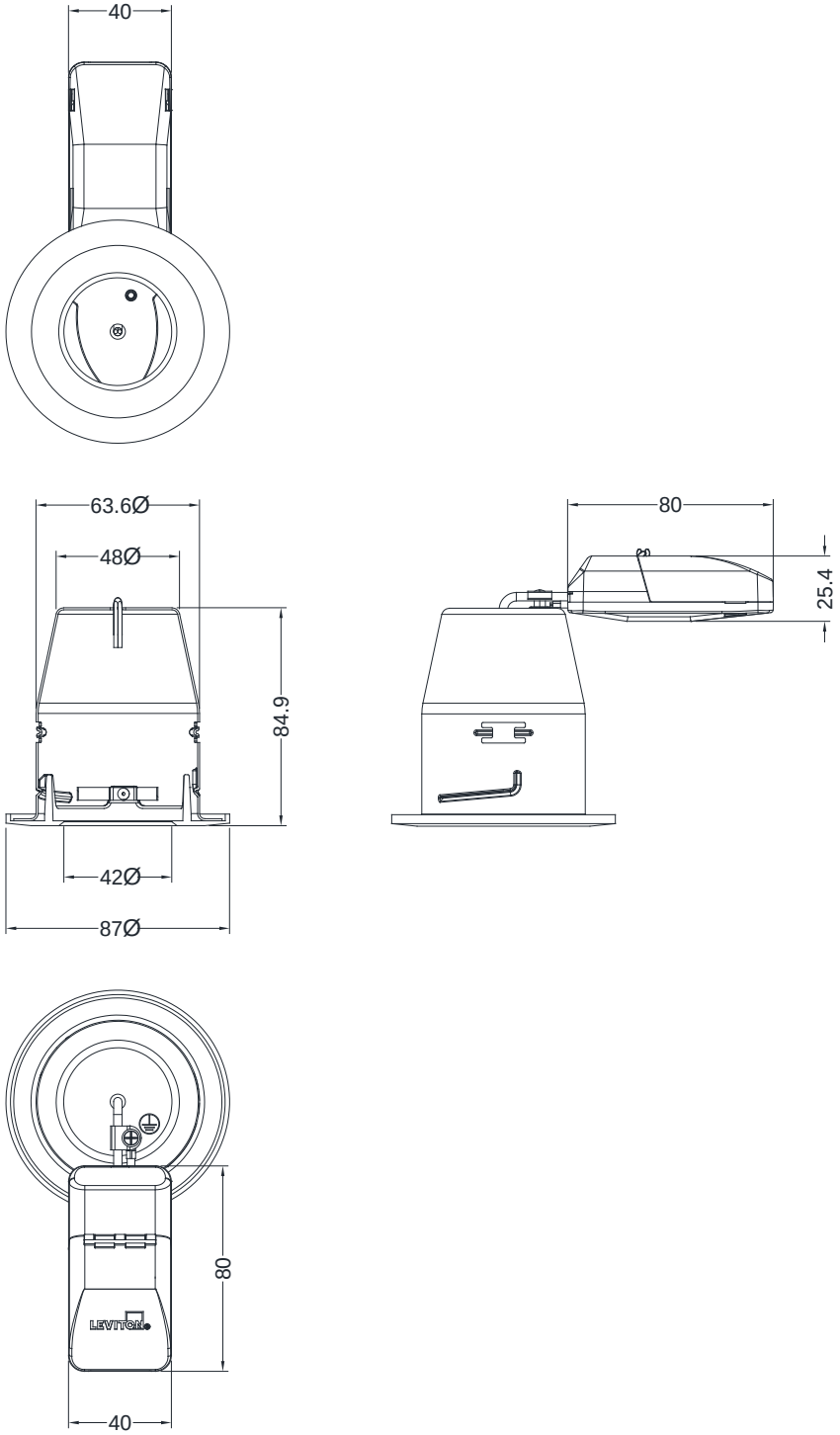
Do not scale. All dimensions are in mm

Figure 7 – Details of Downlighter 5



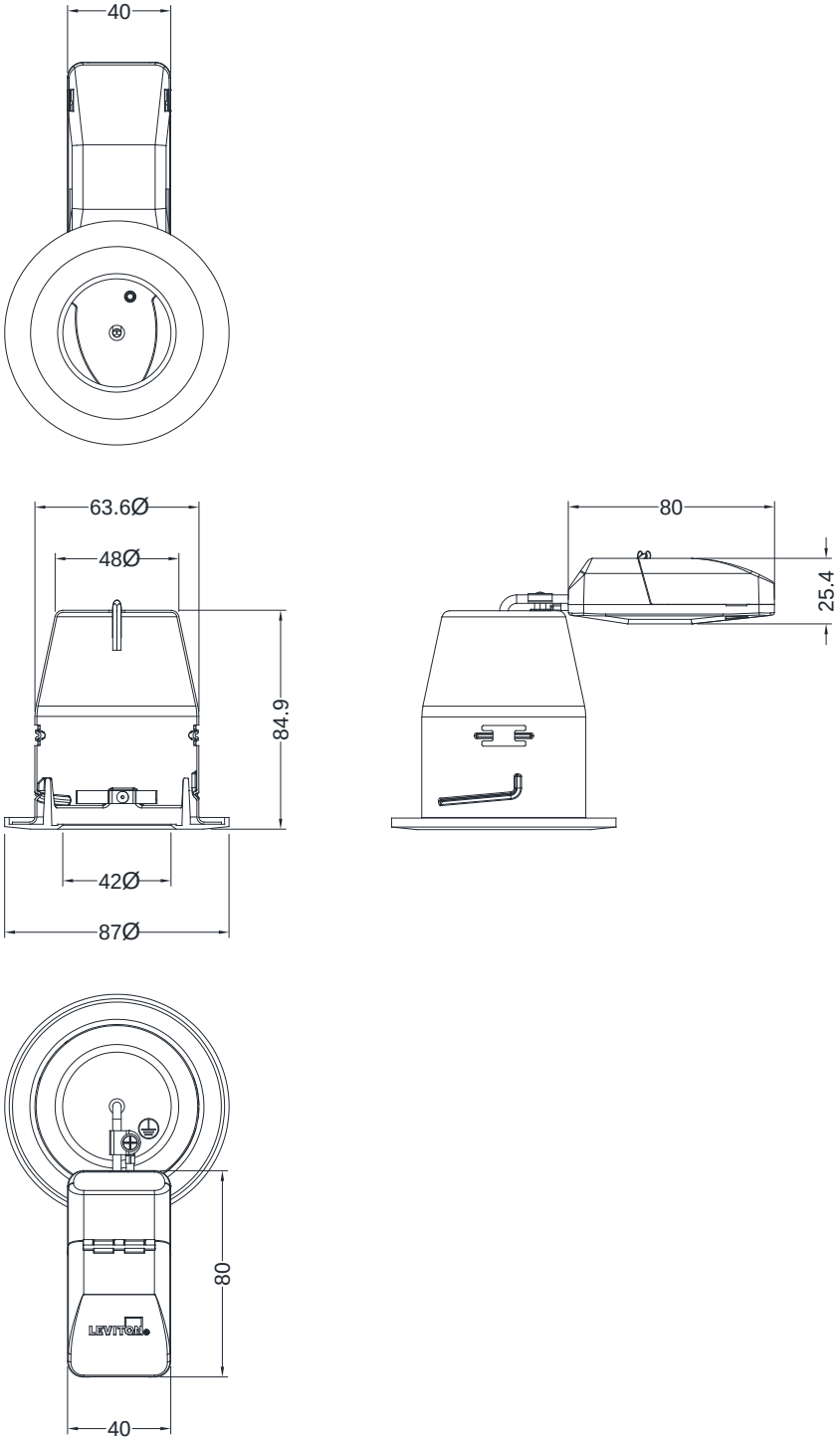
Do not scale. All dimensions are in mm

Figure 8 – Details of Downlighter 6



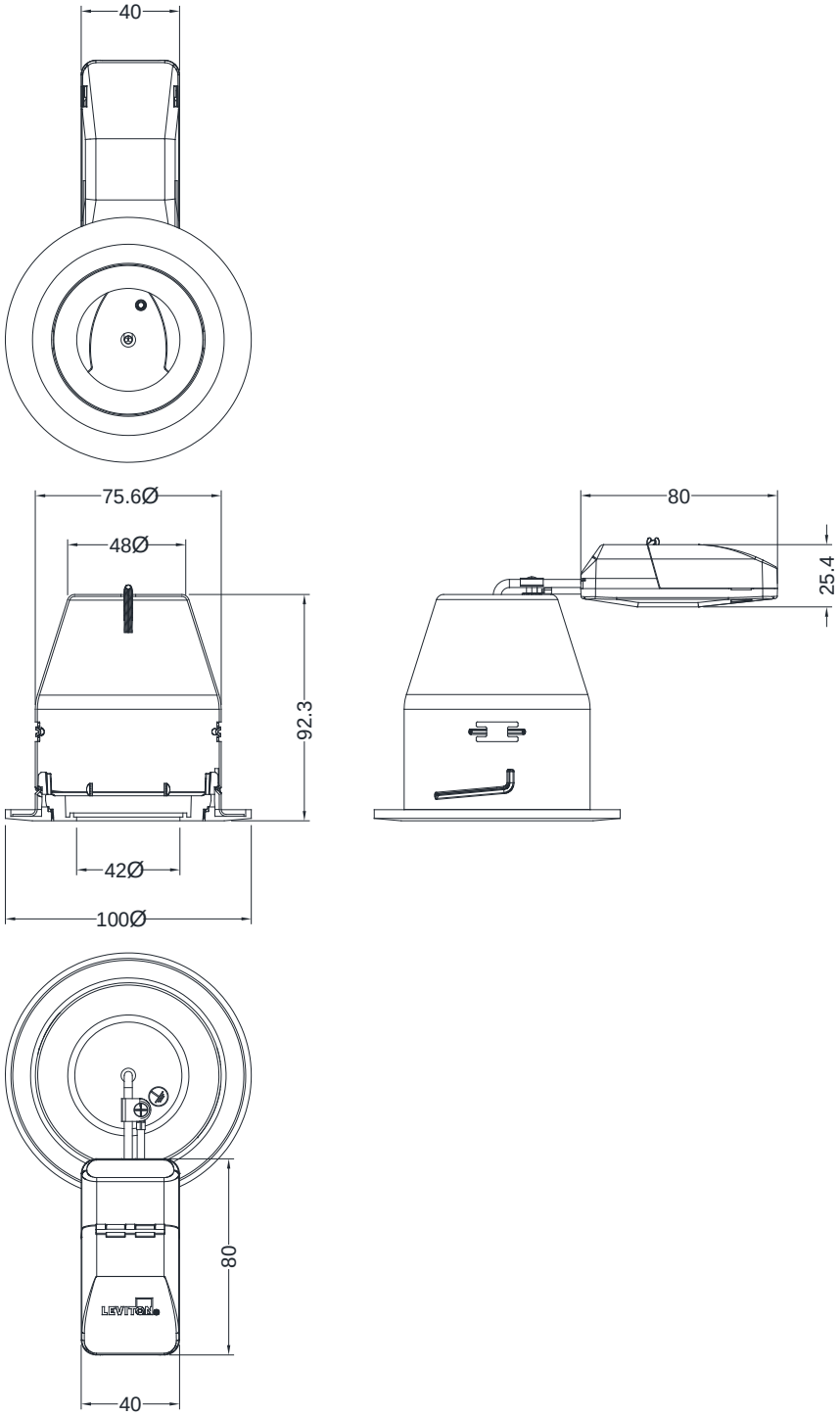
Do not scale. All dimensions are in mm

Figure 9 – Details of Downlighter 7



Do not scale. All dimensions are in mm

Figure 10 – Details of Downlighter 8



Do not scale. All dimensions are in mm

Schedule of Components

(Refer to Figures 1 to 10)
(All other details are as stated by the sponsor)

Item		Description
1. Timber Floor		
1.1. Engineered-Joists		
Manufacturer	:	James Jones & Sons Ltd
Reference	:	JJI 220 A+
Assembled joist size	:	47.2 mm wide x 220 mm deep x 4200 mm long
Top and bottom chords		
i. material	:	General commercial softwood
ii. density	:	379.4 kg/m^3, measured
iii. cross section	:	44.4 mm high x 47.2 mm wide x 4200 mm long
Web		
i. material	:	Oriented Strand Board, OSB
ii. density	:	638.6 kg/m^3, measured
iii. cross section	:	156 mm high x 9.6 mm thick x 4200 mm
Centres	:	600 mm, please see Figure 1
1.2. End Joists		
Material	:	British home-grown, rough sawn softwood, kiln dried glue-lam joist
Grade	:	C16, to BS EN 519
Density	:	440.8 kg/m^3, measured
Size	:	44.2 mm wide x 220 mm deep x 2980 long
Fixing method	:	Fitted across the ends of the posi-joists and fixed with 2 off 100 mm long x 3.2 mm diameter ring shank fired nails to the top and bottom chords of each joist
1.3. Ceiling Closure Joist (Section of End-Joist)		
i. materials	:	British home-grown, rough sawn softwood, kiln dried glue-lam joist
ii. cross section	:	44.2 mm wide x 220 mm deep
iii. fixing method	:	Fitted between the joists, item 1.2, and fixed with 100 mm long x 3.2 mm diameter ring shank fired nails. Please see Figure 1 for positions
1.4. Filler & Backer Blocks		
i. material	:	Oriented Strand Board, OSB
ii. density	:	551.6 kg/m^3, measured
iii. cross section	:	102 mm wide x 132 mm high x 18.2 mm thick
iv. fixing method	:	Fitted between the bottom chords of joist and fixed with 65 mm long ring shank nails that were bent at 90 degrees. Please see Figure 1 for positions

Item		Description
1. Timber Floor (Continued)		
1.5. Floor Boards		
i. material	:	Flooring grade tongue and groove chipboards
ii. thickness	:	22 mm
iii. density	:	660.9 kg/m^3, measured
iv. fixing method	:	Fitted in a single layer and bonded to the bottom chords of each joist and the soffit of the end joists as well as in the tongue and groove of adjoining boards. Also, fixed with 64.3 mm long x 4.4 mm diameter countersunk steel screws to floor joists at 300 mm centres around the perimeter and 600 mm in the field of each board
1.6. Ceiling Boards		
Manufacturer	:	British Gypsum
Reference	:	Gyproc Wallboard
Material	:	Type A gypsum complete with strong paper liners
Thickness	:	1 off layer 15 mm thick
Density	:	763.8 kg/m^3, measured
Fixing method		The boards were screw fixed to the soffit of the joists with all joints staggered, paper taped and skimmed with British Gypsum jointing compound
i. manufacturer	:	British Gypsum
ii. overall size	:	42 mm long x 3.5 mm diameter drywall screws
iii. centres	:	230 mm centres along joints and 230 mm to the perimeter of the ceiling
2. Downlighter 1		
Manufacturer	:	JCC Lighting
Reference	:	V50 JC1001 WH/CH/BN
Overall dimensions and construction	:	See Figure 3 for details
Luminaire Details		
i. body materials	:	Steel, Heat Sink of extruded aluminium, Lens of Polycarbonate, Rim of Die cast aluminium
ii. diffuser material	:	PMMA
iii. diffuser rating	:	650ºC
iv. chipset	:	SUNPU 2828
v. weight	:	0.29Kg
vi. input voltage	:	230-240V
vii. input frequency	:	50-60Hz
viii. inrush current	:	≤5A 2.2µS
ix. running current	:	175mA
x. electrical class	:	II
xi. lamp type	:	LED
xii. dimmable	:	Yes
xiii. MacAdam steps	:	5
xiv. lumen depreciation	:	L70 @ 51,000hrs
xv. LED driver manufacturer	:	JCC Lighting
xvi. IP rating	:	IP65
xvii. operating temperature	:	-5 ºC to 25 ºC
xviii. correlated colour temperature	:	3000K & 4000k
xix. colour rendering index	:	Ra80
xx. forward voltage	:	36V DC
xxi. total power	:	7W

Item		Description
2. Downlighter 1		
Luminaire Details		
xxii. power factor	:	0.9
xxiii. intumescent	:	80 mm x diameter x 1 mm thick graphite based intumescent
xxiv. sealing ring		10 mm x wide x 1 mm thick silicone rubber based seal
xxv. cut out size	:	70 mm
3. Downlighter 2		
Manufacturer	:	JCC Lighting
Reference	:	V50 Tilt JC1002 WH/CH/BN
Overall dimensions and construction	:	See Figure 4 for details
Luminaire Details		
i. body materials	:	Steel, Heat Sink of extruded aluminium, Lens of Polycarbonate, Rim of Die cast aluminium
ii. diffuser material	:	PMMA
iii. diffuser rating	:	650ºC
iv. chipset	:	SUNPU 2828
v. weight	:	0.46Kg
vi. input voltage	:	230-240V
vii. input frequency	:	50-60Hz
viii. inrush current	:	≤5A 2.2µS
ix. running current	:	175mA
x. electrical class	:	II
xi. lamp type	:	LED
xii. dimmable	:	Yes
xiii. MacAdam steps	:	5
xiv. lumen depreciation	:	L70 @ 51,000hrs
xv. LED driver manufacturer	:	JCC Lighting
xvi. IP rating	:	IP65
xvii. operating temperature	:	-5 ºC to 25 ºC
xviii. correlated colour temperature	:	3000K & 4000k
xix. colour rendering index	:	Ra80
xx. forward voltage	:	36V DC
xxi. total power	:	7W
xxii. power factor	:	0.9
xxiii. intumescent	:	92 mm x diameter x 1 mm thick graphite based intumescent (top of can)
xxiv. sealing ring	:	10 mm x wide x 1 mm thick silicone rubber based seal
xxv. cut out size	:	85 mm
4. Downlighter 3		
Manufacturer	:	JCC Lighting
Reference	:	JC94113 WH/CH/BN
Overall dimensions and construction	:	See Figure 5 for details
Luminaire Details		
i. body materials	:	Mild Steel
ii. bezel materials	:	Die Cast Aluminium
iii. weight	:	0.25kg
iv. input voltage	:	220-240vAC
v. electrical class	:	Class II
vi. lamp type	:	GU10 Cap
vii. maximum lamp size	:	50W Halogen

Item		Description
4. Downlighter 3 (Continued)		
Luminaire Details		
viii. IP rating	:	IP20
ix. operating temperature	:	Ambient 26°C
x. intumescent	:	50 mm x diameter x 1 mm thick graphite based intumescent (top of can)
xi. sealing ring	:	10 mm x wide x 1mm thick silicone rubber based seal
xii. cut out size	:	74 mm
5. Downlighter 4		
Manufacturer	:	JCC Lighting
Reference	:	JC94114 Tilt WH/CH/BN
Overall dimensions and construction	:	See Figure 6 for details
Luminaire Details		
i. body materials	:	Mild Steel
ii. bezel materials	:	Die Cast Aluminium
iii. weight	:	0.32kg
iv. input voltage	:	220-240vAC
v. electrical class	:	Class II
vi. lamp type	:	GU10 Cap
vii. maximum lamp size	:	50W Halogen
viii. IP rating	:	IP20
ix. operating temperature	:	Ambient 26°C
x. intumescent/sealing ring	:	50 mm x diameter x 1 mm thick graphite based intumescent (top of can)
xi. sealing ring	:	10 mm x wide x 1 mm thick silicone rubber based seal
xii. cut out size	:	85 mm
6. Downlighter 5		
Manufacturer	:	JCC Lighting
Reference	:	JC94110 WH/CH/BN
Overall dimensions and construction	:	See Figure 7 for details
Luminaire Details		
i. body materials	:	Mild Steel
ii. bezel materials	:	Die Cast Aluminium
iii. diffuser material	:	Heat Resistant Glass
iv. weight	:	0.28kg
v. input voltage	:	220-240vAC
vi. electrical class	:	Class II
vii. lamp type	:	GU10 Cap
viii. maximum lamp size	:	50W Halogen
ix. IP rating	:	IP65
x. operating temperature	:	Ambient 26°C
xi. intumescent	:	50 mm x diameter x 1 mm thick graphite based intumescent (top of can)
xii. sealing ring	:	10 mm x wide x 1 mm thick silicone rubber based seal
xiii. cut out size	:	74 mm

Item		Description
7. Downlighter 6		
Manufacturer	:	JCC Lighting
Reference	:	JC010010 WH/CH/BN
Overall dimensions and construction	:	See Figure 8 for details
Luminaire Details		
i. body materials	:	Mild Steel
ii. bezel materials	:	Die Cast Aluminium
iii. weight	:	0.24kg
iv. input voltage	:	220-240vAC
v. electrical class	:	Class I
vi. lamp type	:	GU10 Cap
vii. maximum lamp size	:	LED GU10 Lamps Only – 10W
viii. IP rating	:	IP20
ix. operating temperature	:	Ambient 26°C
x. sealing ring	:	9.5 mm wide x 1 mm thick silicone rubber based seal
xi. cut out size	:	72 mm
8. Downlighter 7		
Manufacturer	:	JCC Lighting
Reference	:	JC010016 WH/CH/BN
Overall dimensions and construction	:	See Figure 9 for details
Luminaire Details		
i. body materials	:	Mild Steel
ii. bezel materials	:	Die Cast Aluminium
iii. weight	:	0.30kg
iv. input voltage	:	220-240vAC
v. electrical class	:	Class I
vi. lamp type	:	GU10 Cap
vii. maximum lamp size	:	LED GU10 Lamps Only – 10W
viii. IP rating	:	IP65
ix. operating temperature	:	Ambient 26°C
x. sealing ring	:	9.5 mm wide x 1 mm thick silicone rubber based seal
xi. cut out size	:	72 mm
9. Downlighter 8		
Manufacturer	:	JCC Lighting
Reference	:	JC010023 WH/CH/BN
Overall dimensions and construction	:	See Figure 10 for details
Luminaire Details		
i. body materials	:	Mild Steel
ii. bezel materials	:	Die Cast Aluminium
iii. weight	:	0.30kg
iv. input voltage	:	220-240vAC
v. electrical class	:	Class I
vi. lamp type	:	GU10 Cap
vii. maximum lamp size	:	LED GU10 Lamps Only – 10W
viii. IP rating	:	IP65
ix. operating temperature	:	Ambient 26°C
x. sealing ring	:	9.5 mm wide x 1 mm thick silicone rubber based seal
xi. cut out size	:	84 mm

Test Observations

Time		All observations are from the exposed face unless noted otherwise.
-60	00	Load applied.
00	00	**The test commences.**
09	00	The paper face of plasterboard is burning/glowing away.
12	00	Downlighter 6 is glowing red.
24	00	Flickers of flame at Downlighter 7.
14	30	Tape and jointing beginning to fall away.
18	00	Long edges of the plasterboard are beginning to ripple.
20	00	Intermittent flaming at Downlighters; 2, 3, 4, 5 and 6.
24	00	Ceiling sagging in its centre, light fittings begin to distort.
25	00	Gaps beginning to open at the plasterboard joints.
27	00	Constant flaming at Downlighters 5 and 6 as the bezels fall.
27	30	Gaps between the plasterboard joints are around 5 mm.
28	30	Gaps between the plasterboard joints are around 10 mm.
29	00	Central section of plasterboard falls from the floor exposing the joists. Intense flaming in the furnace.
30	30	Smoke release from floor perimeter as viewed from the unexposed face, the floor is sagging in its centre.
33	00	**Test discontinued for safety reasons.**

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

The unexposed face of the floor assembly after 33 minutes of testing

Temperature, Pressure and Deflection Data

Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In BS 476: Part 21: 1987

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	38
1	349	330
2	445	416
3	502	482
4	544	561
5	576	578
6	603	601
7	626	621
8	646	636
9	663	663
10	678	679
11	693	692
12	706	697
13	717	716
14	728	728
15	739	731
16	748	739
17	757	759
18	766	767
19	774	777
20	781	786
21	789	786
22	796	791
23	802	798
24	809	799
25	815	813
26	820	833
27	826	836
28	832	836
29	837	840
30	842	864
31	847	861
32	852	859
33	856	860

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

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	26	26	25	28	19	25
1	26	26	25	28	19	25
2	26	26	25	28	19	25
3	26	26	25	28	19	25
4	26	26	25	28	19	25
5	26	26	25	28	*	26
6	26	26	25	28	*	26
7	26	26	25	*	*	26
8	26	26	25	28	*	26
9	26	26	25	28	*	26
10	26	26	26	28	*	27
11	26	26	26	29	*	27
12	26	27	27	29	*	27
13	27	27	27	30	*	28
14	27	27	28	30	*	28
15	28	28	28	31	*	29
16	28	29	29	31	*	29
17	29	*	*	32	*	31
18	30	30	30	33	28	30
19	30	31	31	34	28	31
20	31	31	31	34	27	31
21	32	32	32	35	27	32
22	32	33	33	36	27	32
23	33	33	33	37	27	33
24	34	34	34	37	27	33
25	34	34	34	38	27	33
26	35	35	35	39	27	34
27	36	36	36	40	28	35
28	36	36	36	40	28	35
29	37	37	37	41	28	36
30	38	37	38	43	28	37
31	38	38	39	46	32	39
32	39	39	41	60	43	44
33	39	40	47	76	52	51

*Thermocouple malfunction

Individual Temperatures Recorded Adjacent To Joints In The Flooring

Time Mins	T/C Number 217 Deg. C	T/C Number 218 Deg. C	T/C Number 227 Deg. C
0	26	27	26
1	26	27	26
2	26	27	26
3	26	26	26
4	26	26	26
5	26	26	26
6	26	26	26
7	26	26	26
8	26	26	26
9	26	26	26
10	26	27	26
11	26	27	26
12	26	27	26
13	27	28	26
14	27	29	26
15	27	29	26
16	28	30	26
17	28	31	26
18	29	32	26
19	30	33	26
20	30	34	26
21	31	35	26
22	32	36	27
23	33	37	27
24	33	38	27
25	34	39	28
26	35	40	28
27	36	41	28
28	36	42	29
29	37	43	29
30	38	45	30
31	39	46	30
32	40	47	30
33	41	49	31

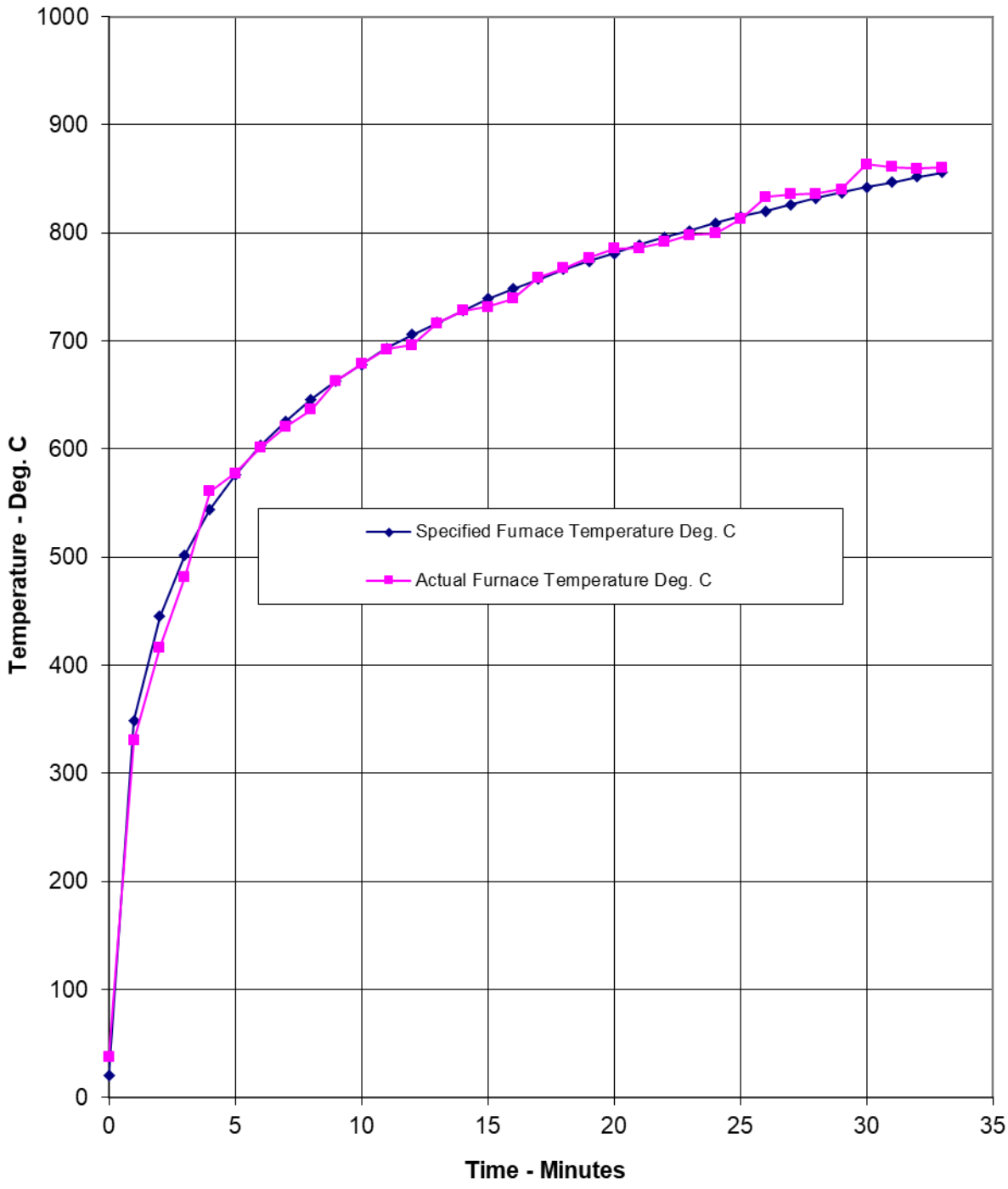
Individual Temperatures Recorded Mid-Height Of The Air Cavity

Time Mins	T/C Number 219 Deg. C	T/C Number 220 Deg. C	T/C Number 221 Deg. C	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	38	38	36	34	36	34	37	36
1	38	38	37	35	36	34	37	36
2	38	39	37	36	37	35	38	37
3	40	41	40	39	41	38	45	42
4	46	48	47	46	51	45	57	51
5	55	57	55	53	58	54	66	59
6	63	63	60	59	69	60	76	66
7	69	69	66	65	79	66	80	73
8	74	75	71	69	85	71	84	76
9	81	81	74	73	94	75	88	82
10	86	85	78	77	105	80	95	89
11	94	88	81	80	111	84	101	90
12	95	96	87	83	117	88	100	94
13	98	96	90	87	121	91	118	96
14	102	100	91	89	108	95	122	99
15	102	102	95	91	107	97	126	104
16	107	107	96	93	126	99	119	102
17	107	115	97	96	137	103	132	102
18	105	111	101	97	145	105	134	114
19	106	116	102	99	147	108	135	108
20	107	111	103	100	145	112	145	107
21	108	113	104	103	153	117	142	110
22	111	117	107	103	144	118	140	114
23	112	119	109	105	144	121	148	123
24	117	124	110	107	154	125	161	140
25	125	129	113	109	170	127	186	165
26	138	141	116	112	194	136	198	185
27	153	158	122	117	225	149	225	202
28	171	174	130	126	245	166	244	235
29	183	193	139	138	271	185	253	255
30	198	202	176	181	626	289	694	743
31	209	213	217	207	688	304	703	792
32	218	243	292	227	742	335	771	810
33	230	246	366	249	779	384	786	824

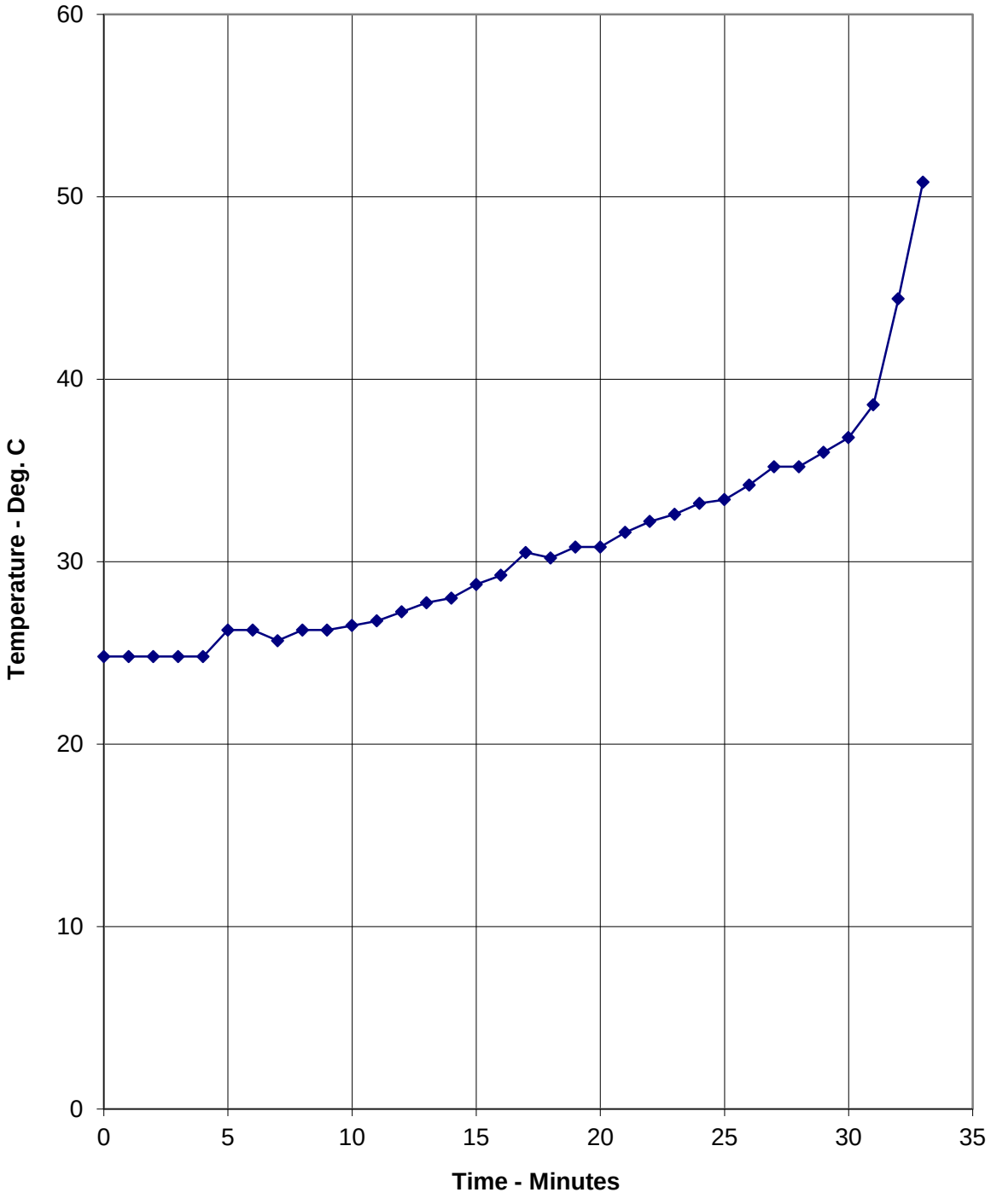
Deflection And Rate Of Deflection Of The Floor Assembly During The Test

Time Mins	Central Vertical Deflection mm	Rate Of Deflection mm/min
0	0.000	0.000
1	0.000	0.000
2	0.386	0.386
3	0.554	0.168
4	0.722	0.168
5	0.822	0.100
6	0.890	0.068
7	0.990	0.100
8	1.057	0.067
9	1.208	0.151
10	1.208	0.000
11	1.376	0.168
12	1.443	0.067
13	1.594	0.151
14	1.813	0.219
15	1.930	0.117
16	1.981	0.051
17	2.199	0.218
18	2.367	0.168
19	2.434	0.067
20	2.585	0.151
21	2.753	0.168
22	2.921	0.168
23	2.971	0.050
24	3.307	0.336
25	3.575	0.268
26	3.911	0.336
27	4.028	0.117
28	4.297	0.269
29	4.733	0.436
30	6.059	1.326
31	16.348	10.289
32	32.462	16.114
33	48.072	15.610

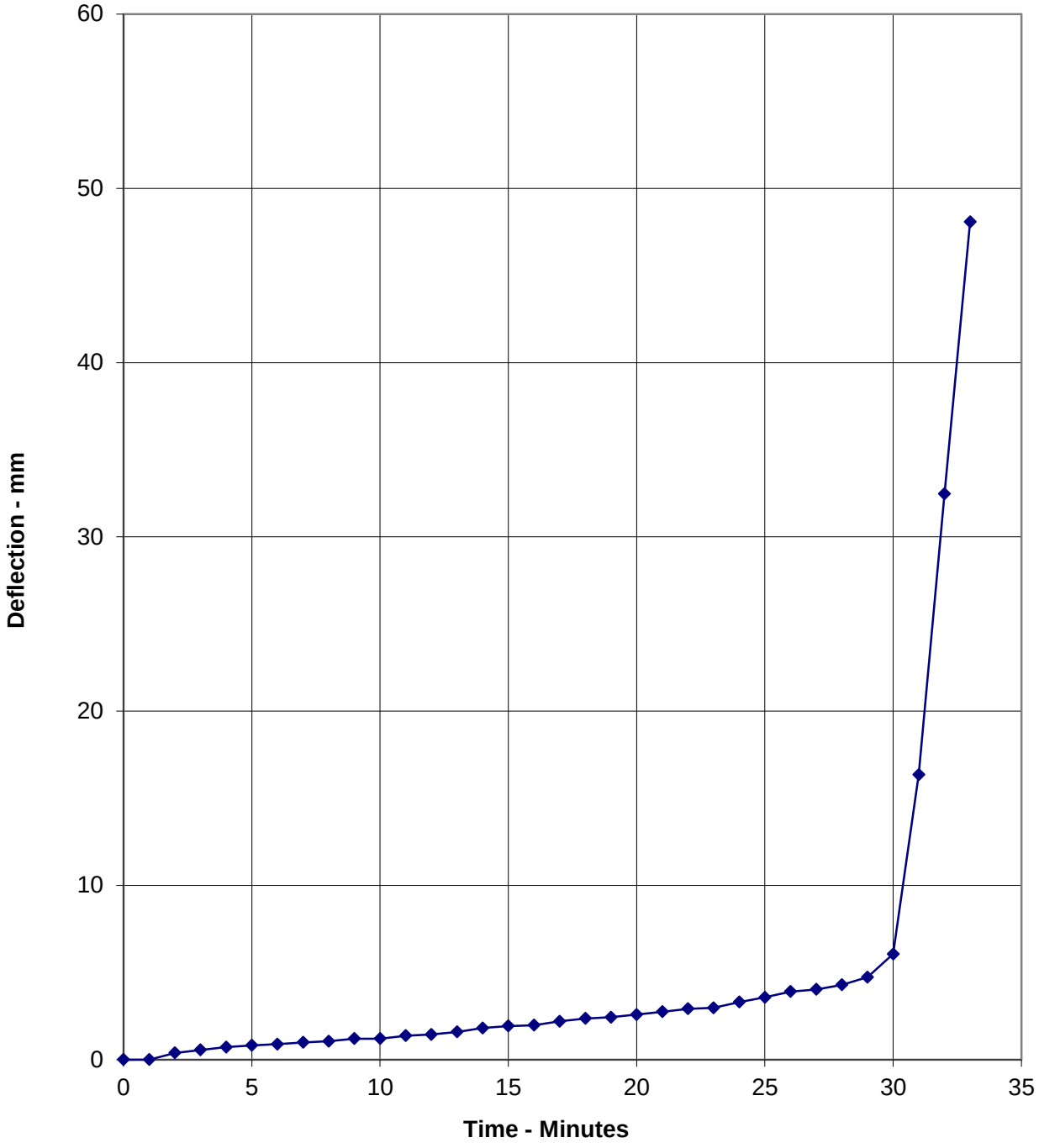
Graph Showing Specified And Actual Furnace Temperatures



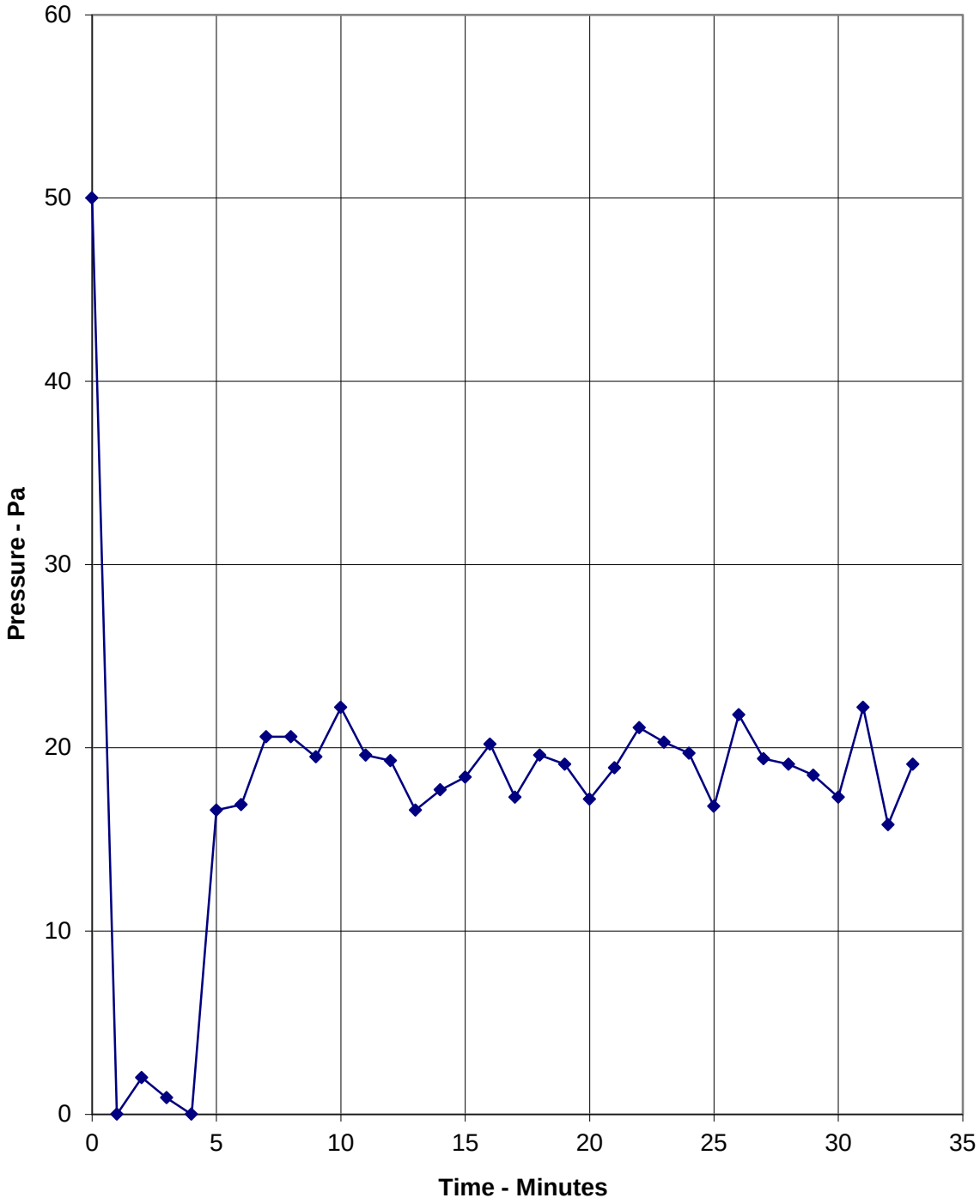
Graph Showing Mean Unexposed Surface Temperature Of The Floor Assembly



Graph Showing The Central Vertical Deflection Of The Floor Assembly During The Test



Graph Showing Recorded Furnace Pressure 100 mm Below The Underside Of The Floor Assembly



On-going Implications

Limitations

The results relate only to the behaviour of the specimen 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 test results relate only to the specimen tested. Appendix A of BS 476: Part 20: 1987 provides guidance information on the application of fire resistance tests and the interpretation of test data. Application of the results to assemblies of different dimensions or incorporating different components should be the subject of a design appraisal.

The tested assembly was asymmetrical, the test results may not be appropriate to situations where the assembly is mounted in the opposite orientation to that tested.

Review

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 five years old should be considered by the user. The laboratory that issued the report 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.

Fire Test Study Group

Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group 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 Group. Where such Resolutions are applicable to this test they have been followed.