Title:

Indicative fire test

WF Report No:

153505 Issue 3

Prepared for:

Environmental Seals

Envirograf House
Bar Frefton
Kent
CT15 7JG

Date: 15th May 2006

warringtonfire
global safety
TESTING

Indicative Fire Test

We have pleasure in enclosing the information obtained from the indicative fire test conducted, on your behalf, on the 12th April 2006.

The test results relate to an investigation, which utilised the heating and pressure conditions specified in BS 476: Part 21: 1987. The information is provided for the test sponsor's information only and should not be used to demonstrate performance against any published fire test standard, nor compliance with a regulatory requirement.

The test was not conducted under the requirement of UKAS accreditation.

The purpose of the investigation was to provide an indication of the behaviour of a section of a timber floor protected on its underside by a plasterboard ceiling incorporating various types of downlighter, when subjected to its underside to the heating conditions and pressure conditions specified by BS 476: Part 21: 1987.

The assembly had nominal overall dimensions of 1200 mm wide by 1200 mm long and briefly comprised three sections of softwood timber joist at nominally 600 mm centres clad on their upper face with 22 mm thick tongue and groove edged chipboard flooring. The ends of the joists were closed with a section of the same softwood joist fixed across the ends on both edges. The underside of the floor was provided with a direct fixed ceiling formed from two layers of 12.5 mm thick Lafarge 'Firecheck' plasterboard with two sections of 22 mm thick chipboard flooring screw fixed to the joists. Four specimen downlighters were fitted into the ceiling, one to each quadrant.

The client stated that each specimen comprised 18-gauge powder coated metal rings, incorporating cut out slots to house the light fitting springs. A 2 mm thick by 25 mm wide 'number 2' Envirograph® intumescent seal was fitted to the lower, outer section and a 3 mm thick by 25 mm wide 'number 4' Envirograph® intumescent seal fitted to the upper, inner section of each metal ring.

The downlighters were referenced Light Fitting A to D for the purpose of the test and were described by the sponsor as follows,

Specimen	Reference
Light Fitting A	'Profile 2000'
Light Fitting B	'TD-L509'
Light Fitting C	'ALPHA 59393'
Light Fitting D	'TDL202'

The following information relating to the test is enclosed:

- Table 1 - Specified and actual furnace temperatures and percentage tolerances
- Table 2 - Individual air temperatures recorded within the air cavity adjacent to each specimen A to D. (Thermocouples 6 to 9 respectively)
- Table 3 - Individual unexposed surface temperatures recorded from the chipboard flooring either side of the central joist.
- Graph 1 - Specified and actual furnace temperatures
- Observations on the general behaviour of the specimens during the test.
- Photographs taken before and after the test.

The test was discontinued after a period of 66 minutes.

We trust that the information obtained from the test will be useful to you.

Yours faithfully,

N. Howard
Testing Officer
Fire Resistance
warringtonfire

Issue 3: Amendment to summary, Client information added (23rd August 2006)

Table 1

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	18
2	445	459
4	544	549
6	603	601
8	645	638
10	678	672
12	705	707
14	728	716
16	748	739
18	766	762
20	781	767
22	796	793
24	809	802
26	820	832
28	832	840
30	842	848
32	851	857
34	860	861
36	869	869
38	877	882
40	885	874
42	892	892
44	899	892
46	906	904
48	912	900
50	918	910
52	924	917
54	930	919
56	935	926
58	940	927
60	945	927
62	950	933
64	955	946
66	960	954

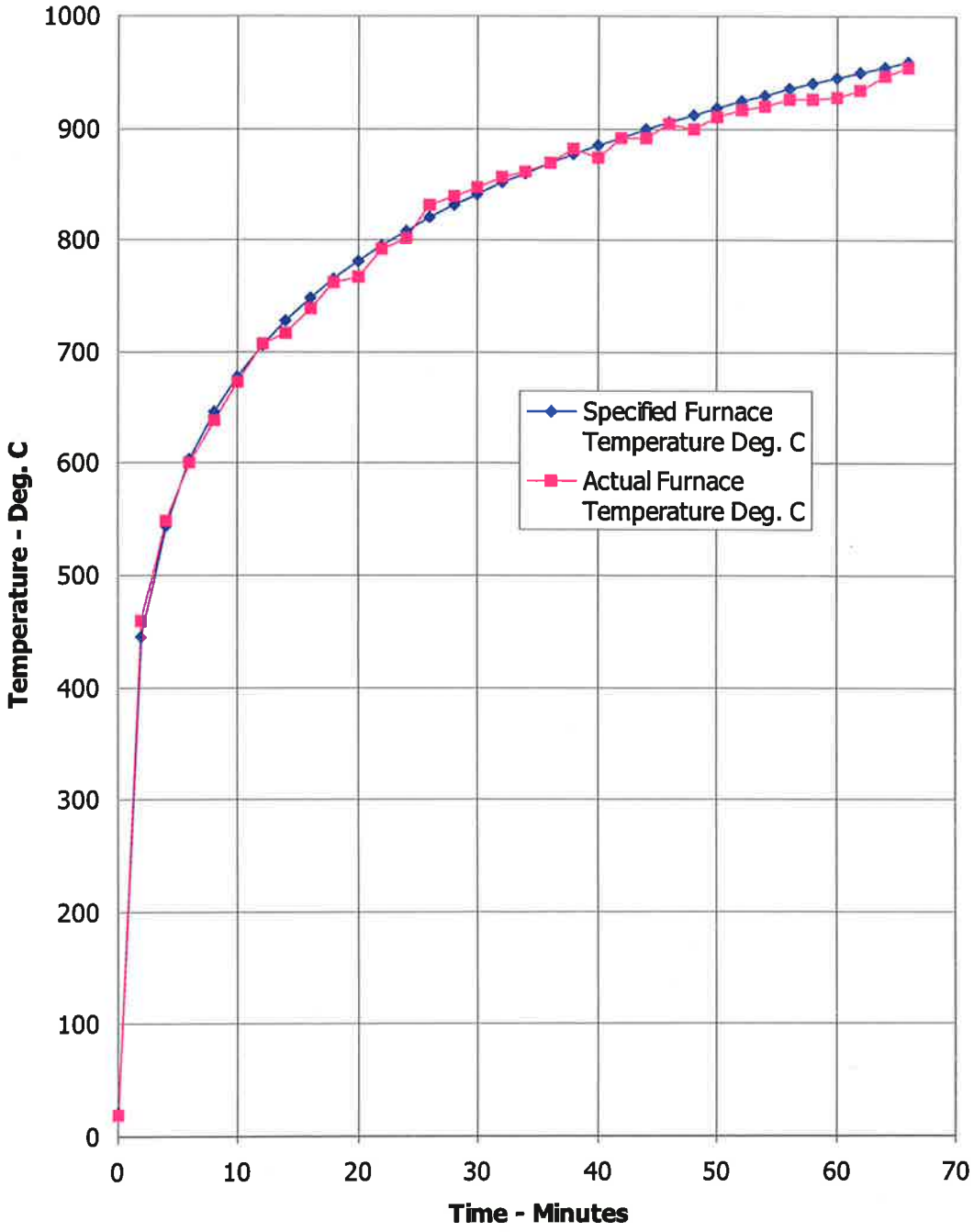
Table 2

Time Mins	T/C Number 6 Deg. C	T/C Number 7 Deg. C	T/C Number 8 Deg. C	T/C Number 9 Deg. C
0	15	14	16	16
2	15	14	16	16
4	16	15	17	17
6	19	15	17	17
8	22	18	20	19
10	27	23	27	25
12	34	31	34	33
14	43	39	40	41
16	49	47	48	48
18	55	52	56	54
20	62	60	63	60
22	67	65	73	69
24	72	66	78	70
26	78	68	90	71
28	82	70	109	74
30	84	74	99	78
32	86	77	107	83
34	89	81	103	89
36	92	84	100	92
38	95	89	105	95
40	97	97	112	99
42	98	113	119	101
44	101	116	128	103
46	101	116	131	105
48	102	108	120	107
50	103	110	121	108
52	104	120	130	109
54	105	122	124	110
56	106	133	126	111
58	107	126	125	112
60	107	114	119	113
62	109	113	125	113
64	110	113	127	115
66	111	113	130	118

Table 3

Time Mins	T/C Number 10 Deg. C	T/C Number 11 Deg. C
0	15	15
2	15	15
4	15	15
6	15	15
8	15	15
10	15	15
12	15	15
14	15	15
16	15	15
18	15	15
20	15	15
22	16	16
24	16	16
26	17	17
28	18	18
30	19	18
32	19	19
34	21	20
36	21	21
38	22	22
40	23	23
42	24	25
44	25	26
46	27	27
48	28	28
50	29	29
52	30	30
54	31	32
56	32	33
58	33	33
60	34	34
62	35	35
64	36	37
66	37	38

Graph 1


1000
900
800
700
600
500
400
300
200
100
0
Temperature - Deg. C
0
10
20
30
40
50
60
70
Time - Minutes
Specified Furnace Temperature Deg. C
Actual Furnace Temperature Deg. C

Test Observations

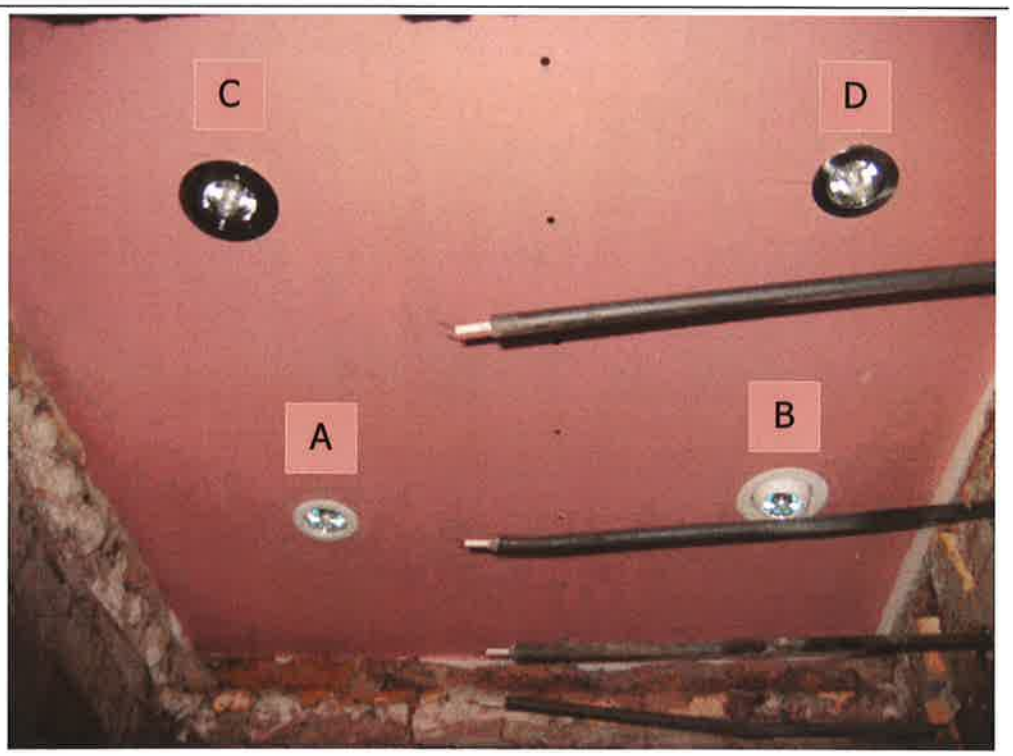
Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	The ambient air temperature in the vicinity of the test construction was 12°C at the start of the test with no variation during the test.
00	00	**The test commences.**
08	00	The exposed plasterboard discolours, turning black in appearance.
14	00	The exposed plasterboard mentioned at 8 minutes now glows a dull orange colour.
15	00	Slight smoke release is evident from the right side of the specimen.
31	00	The light bulb, wiring and outer casing of Specimen D become detached from the ceiling and in turn fall into the furnace chamber.
40	00	The light bulb and wiring of Specimen C fall from the fitting and are now suspended approximately 40 mm away from the soffit of the ceiling.
41	30	The outer casing of Specimen C falls from the soffit into the furnace chamber leaving the bulb and wires suspended.
47	00	The bulb and wiring from Specimen C become detached and fall into the furnace chamber.
60	00	No further significant changes are evident.
66	00	**The test is discontinued at the request of the sponsor.**

Post test observations

The internal casings to Specimens A, B and C remain in place with charred intumescent filling the voids.

Test Photographs

The exposed surface of the ceiling and specimen references prior to testing



The unexposed surface of the ceiling directly after testing

Showing the Downlighter fittings within the floor cavity immediately after testing

Bodycote

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