



CONFIDENTIAL

Report: Chilit/RF08156

**A fire resistance test performed on
two single leaf single acting doorsets**

**Test conducted in accordance with BS
476: Part 22: 1987**

Test date: 13th November 2008

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committed to excellence

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1 Introduction

The door leaves were manufactured and supplied for test by the client and delivered on 1st November 2008. Chiltern International Fire Limited (CIFL) conducted further work on the doorsets as follows:

Doorset A	Softwood door frame Hardware Overhead closer	Doorset B	Softwood door frame Hardware Overhead closer
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CIFL constructed a timber stud/plasterboard clad partition and installed the doorsets into the partition.

2 Specification

Details of the specimen are shown in the Appendix.

2.1 Door leaves

The left leaf was designated doorset A and measured 2040mm high x 926mm wide x 44mm thick. The right leaf was designated doorset B and measured 1981mm high x 838mm wide x 44mm thick. Both leaves were hung to open towards the furnace, which is considered to be the most onerous direction based on experience of testing doors of similar construction. It is therefore the opinion of the laboratory that the test results can be applied to doors opening in either direction. The results of this test were obtained from doors fitted with an engaged latches.

2.2 Door perimeter gaps

The gaps between the edge of the doors and frame were measured prior to test. A total of 24 readings were taken. The measurements (in mm) are given in Figure 4 of the Appendix.

2.3 Closer forces

Measured in accordance with FTSG Resolution No 63.

	Opening force (Nm)	Closing force (Nm)
Left leaf	37	46
Right leaf	23	31

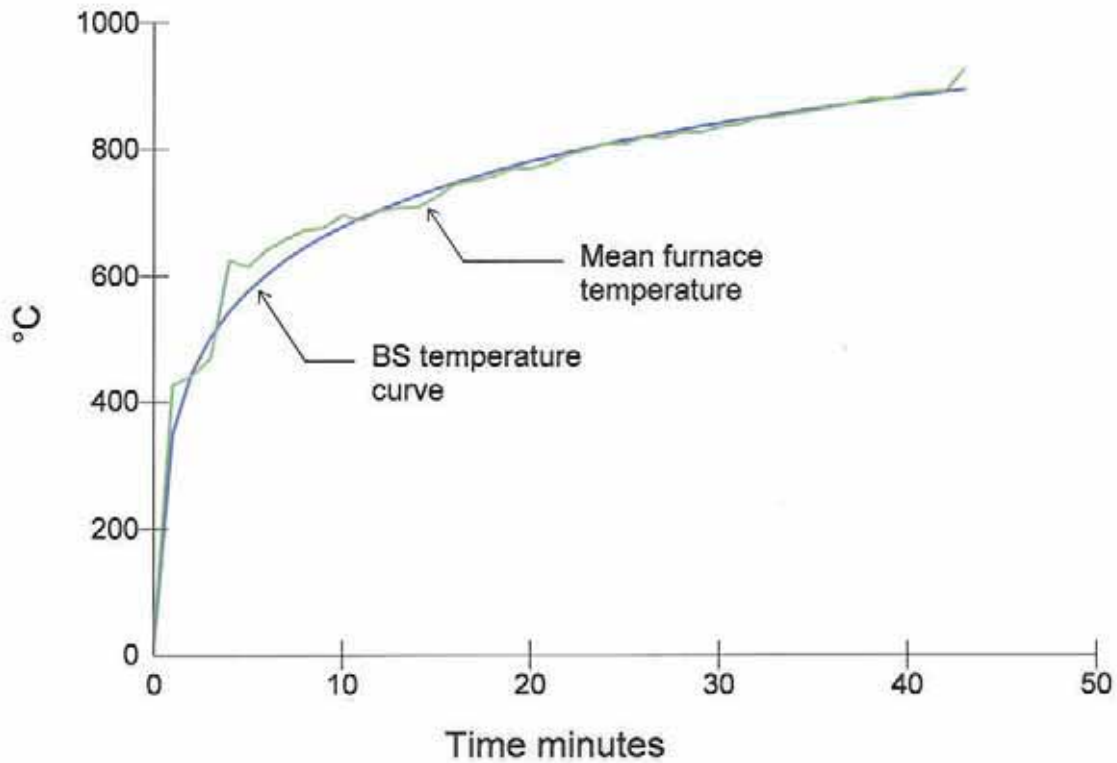
3 Test conditions

- 3.1 Where areas of the test specification are ambiguous or open to interpretation the Fire Test Study Group Resolutions No's 51, 63, 70, 71, 72 and 78 have been followed (further specific details are available on request). These Resolutions provide basis of common agreements between the fire test laboratories which are members of this Group.
- 3.2 The ambient temperature of the test area at commencement of test was 12°C.
- 3.3 After the first 5 minutes of the test, the furnace pressure was maintained at 0 ± 2 Pa with respect to atmosphere, at a point 1m from the notional floor level.
- 3.4 The furnace was controlled to follow the temperature/time relationship specified in BS 476: Part 20: 1987 as closely as possible, using the average of six thermocouples suitably distributed within the furnace. The temperatures recorded are shown graphically in Section 4.1.
- 3.5 The temperature of the unexposed face was monitored by means of five thermocouples fixed to the surface of each door leaf, and three thermocouples attached to each frame, one at midheight on each jamb and one centrally located above the leaf on the frame head. The thermocouple positions are shown in Figure 4 of the appendix. The average temperature of each door leaf and maximum temperature of each doorset are shown graphically in Section 4.2.

4 Test results

The following data and observations were recorded during the test.

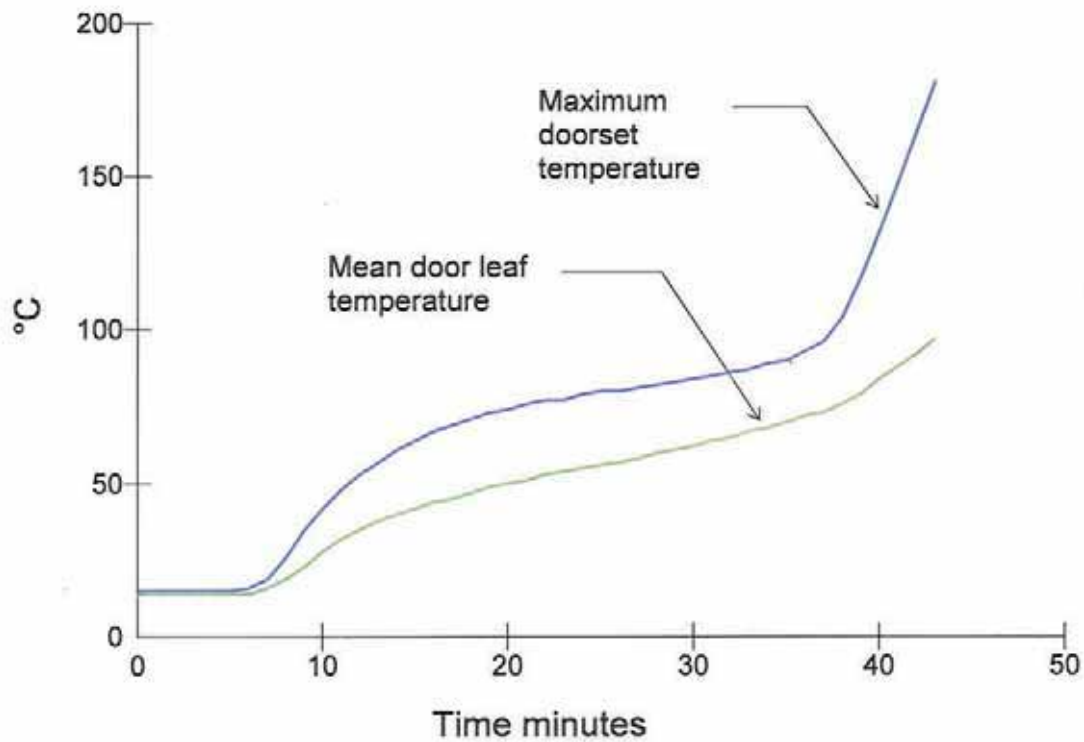
4.1 Furnace temperature curve



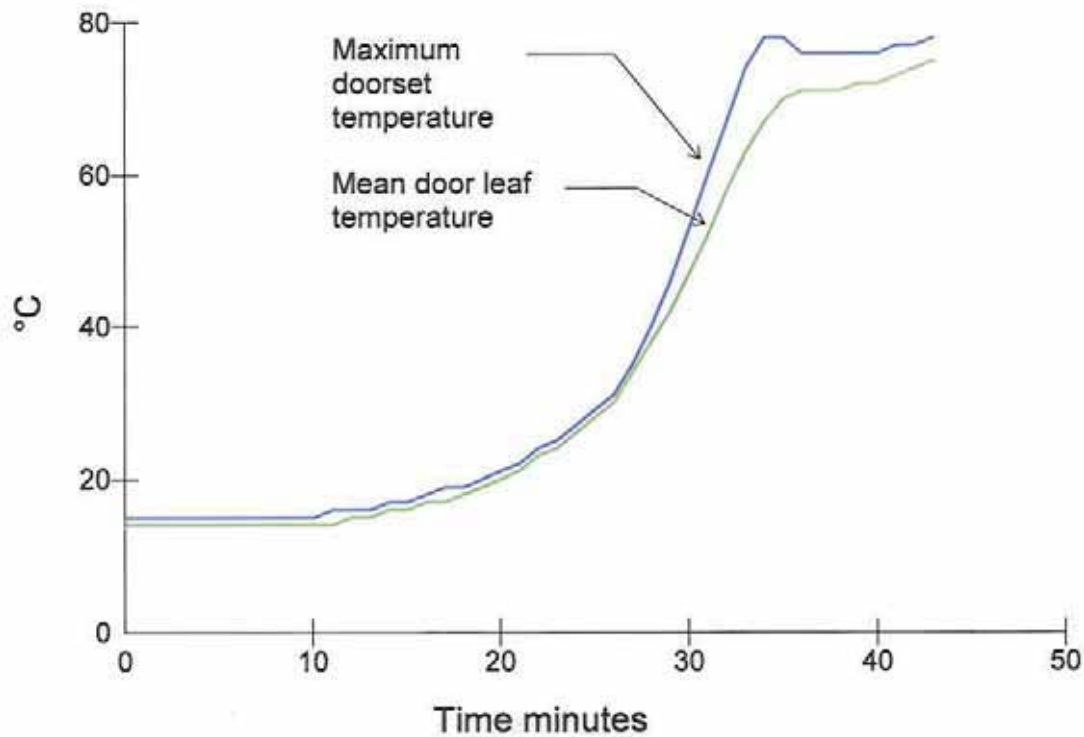
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4.2 Unexposed face temperature curves

Doorset A



Doorset B



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4.3 Door distortion data

The following tables show the distortion of the doors in mm with an accuracy of ± 1 mm.

A positive measurement indicates distortion towards the fire.

A negative measurement indicates distortion away from the fire.

J, K and L give vertical movement of the door, a negative reading indicates that the door has dropped.

A	B	C
D	E	F
G	H	I
J	K	L

Left hand leaf (hung on the left and opening towards the fire)

Time	A	B	C	D	E	F	G	H	I	J	K	L
10	1	0	1	1	1	-3	1	-3	1	0	0	0
20	3	0	3	0	1	-2	2	2	5	-1	-1	-2
30	4	0	8	2	-4	0	4	1	6	-4	-4	-3
40	4	-1	11	-8	-8	-4	4	-4	5	-1	-9	-4

Right hand leaf (hung on the left and opening towards the fire)

Time	A	B	C	D	E	F	G	H	I	J	K	L
10	1	0	1	2	4	-6	2	2	4	0	0	0
20	5	4	5	-1	3	-6	5	9	10	-1	-2	-2
30	10	6	8	-1	2	-6	11	17	21	-1	-3	-3
40	15	5	13	-	-	-	-	-	-	-4	-4	-4

* Where a dash (-) applies, a distortion measurement could not be taken

4.4 Observations

All comments relate to the unexposed face unless otherwise specified.

Time (minutes)	Comments
00.00	Test started.
08.04	Doorset B, there is discolouration at the top hanging corner and down the hanging edge of the leaf approximately 250mm long.
10.30	Doorset A, there is discolouration at the top hanging corner and down the hanging edge of the leaf approximately 150mm long.
14.49	Doorset A, there is discolouration at the top closing corner of the leaf.
19.14	Doorset B, there is discolouration and smoke issuing from across the head of the leaf.
30.10	Both doorsets, there is a glow visible approximately 100mm down from the top hanging corners of the leaves.
31.25	Doorset B, a cotton pad integrity test was performed approximately 100mm down from the top hanging corner of the leaf, no failure.
33.38	Doorset B, there is smoke issuing from the top left of the leaf where the top rail meets the right stile.
35.15	Doorset A, a cotton pad integrity test was performed approximately 100mm down from the top hanging corner of the leaf, no failure.
36.35	Doorset B, there is a glow visible in the groove where the top rail meets the left stile. Doorset A, there is discolouration and smoke issuing at the middle hinge position.
38.20	Doorset B, a cotton pad integrity test was performed approximately 100mm down from the top hanging corner of the leaf, no failure.
39.19	Doorset B, there is smoke issuing from across the bottom of the top rail in the groove.
40.20	Doorset B, a cotton pad integrity test was performed where the left stile meets the bottom of the top rail, no failure.
43.23	Doorset A, there is intermittent flaming at the middle hinge position and the top hanging corner of the leaf.
43.40	Doorset B, there is continuous flaming from across the head of the leaf originating from the groove thereby constituting integrity failure .
44.00	Test terminated.

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4.5 Times to failure

When tested in accordance with BS 476: Part 22: 1987, Method 6, determination of fire resistance of fully insulated doorsets and shutter assemblies, the requirements of the standard were satisfied for the following periods:

	Doorset A	Doorset B
Integrity	44 (forty three) minutes*	43 (forty three) minutes
Insulation	44 (forty three) minutes*	43 (forty three) minutes


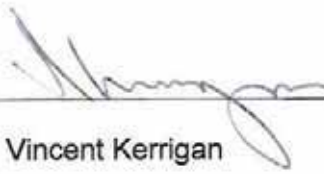
* No failure was recorded at the termination of the test

5 Limitations

The results only relate to the behaviour 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 results of this test were obtained using the door to frame gaps recorded in Figure 4 of the appendix. The fire resistance performance of doors of this design may change if substantially different gaps are employed.

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 5 years old should be considered by the user. CIFL 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.

Signature:		
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Date of issue:	9/12/08	09-12-2008

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Photographs

Start of test



After 10 minutes



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