Chiltern
INTERNATIONAL FIRE

Formerly part of TRADA Technology Ltd

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CONFIDENTIAL

ADDITIONAL TEST REPORT
Test Report : Chilt/RF01059B(AR1)

A fire resistance test performed on a single acting, single leaf doorset with glazing

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

Test Date: 16 July 2001

Test for : Springfarm Architectural Mouldings Ltd
Newpark Industrial Estate
Greystone Road
Antrim
BT41 2DU

The details of the sponsor of test report Chilt/RF01059B are held on file by Chiltern International Fire Ltd. This report is additional to that issued as Chilt/RF01059B and dated 26 October 2001 and the original report shall remain valid and is not replaced by the additional report.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

UKAS TESTING
No. 1762

Chiltern International Fire Limited
A member of the TTL Chiltern Group of companies
Registered Office:
Chiltern House, Stocking Lane, Hughenden Valley,
High Wycombe, Buckinghamshire HP14 4ND, UK
Registered Number 3125010 England

CONTENTS

1 Introduction

The door leaf and frame components were delivered to Chiltern International Fire Limited (CIFL) on 3 July 2001. CIFL further produced the doorset, constructed a timber stud/plasterboard clad partition and installed the doorset into the partition.

Two doorsets were tested, only one of which is the subject of this report. The other doorset is reported in test report number Chilt/RF01059A.

2. Specification

Details of the specimen are shown in Figures 1 to 4.

2.1 Door leaves

The leaf measured 2135mm high x 915mm wide x 45mm thick and was hung to open in 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 a door fitted with a latch but disengaged.

2.2 Door perimeter gaps

The gaps between the edge of the door and frame were measured prior to test. A total of 12 readings were taken. The measurements (in mm) are given in Figure 4.

2.3 Closer Forces

Measured in accordance with FTSG Resolution No 63

Opening Force (Nm)	Closing Force (Nm)
30	16

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 19°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.

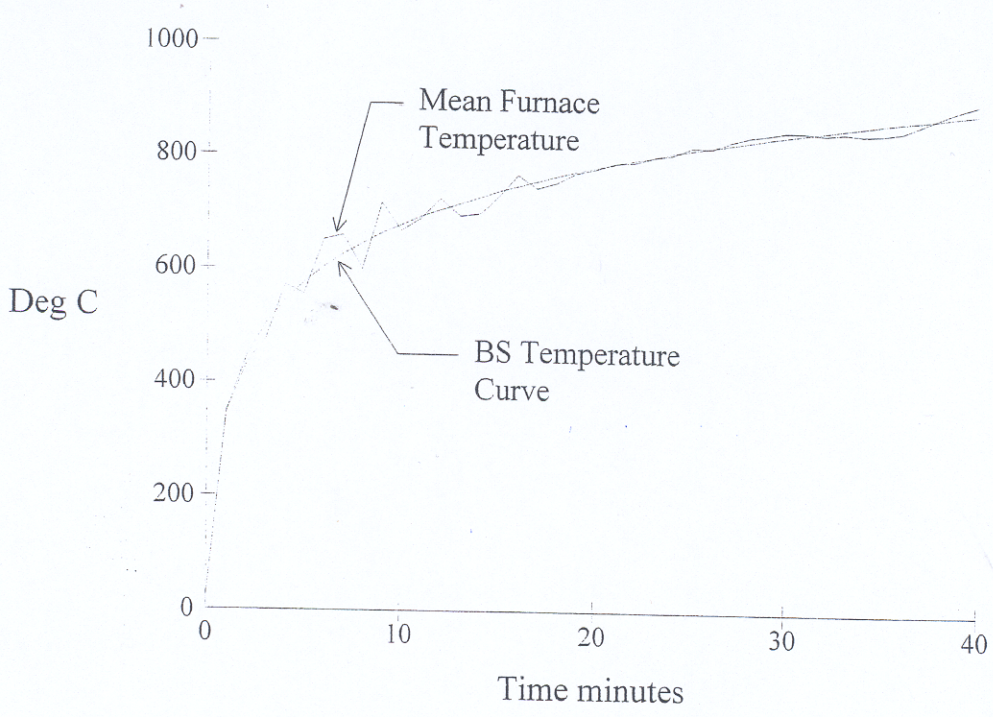
3.4 The furnace was controlled to follow the temperature/time relationship specified in BS 476: Part 20: 1987 as closely as possible, using the average of six thermocouples suitably distributed within the furnace. The temperatures recorded are shown graphically in Section 4.1.

3.5 The temperature of the unexposed face was monitored by means of five thermocouples fixed to the surface of the door leaf, and three thermocouples attached to the frame, one at midheight on each jamb, one centrally located above the leaf on the frame head. An additional two thermocouples were fitted to the glass. The thermocouple positions are shown in Figure 4. The average temperature of the door leaf and maximum temperature of the doorset are shown graphically in Section 4.2.

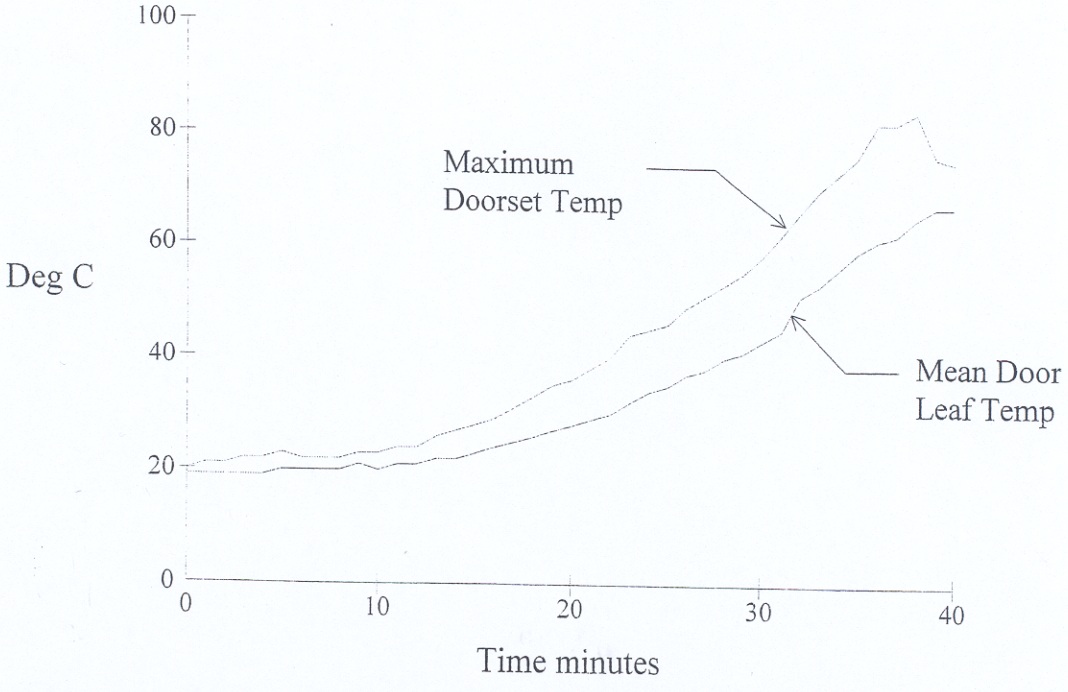
4. Test Results

The following data and observations were recorded during the test.

4.1 Furnace temperature curve

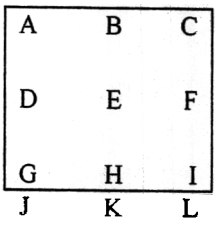


4.2 Unexposed face temperature curves



4.3 Door Distortion Data

The following tables show the distortion of the doors in 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.



Doorset (hung on the left and opening in towards the fire)

Time	A	B	C	D	E	F	G	H	I	J	K	L
10	2.5	4	11.5	0	-1.5	0	4	3	13	-0.5	-0.5	-0.5
20	7.5	4	5.5	-1	2.5	0	5	5	13	-1	-2	-1.5
30	13.5	11.5	22.5	-3	-19.5	-2	6	-3	16	-1	-3	-1.5

4.4 Observations

All comments relate to the unexposed face unless otherwise specified

Time	Comments
00.00	Test started
01.33	The glass is beginning to crack.
02.32	There is smoke issuing from around the perimeter of the leaf.
11.13	There is a decrease in the level of smoke issuing from around the perimeter of the leaf. Smoke is now only issuing from the top corners of the leaf and from the latch position.
12.59	All four corners of the leaf have distorted in towards the furnace and the intumescent strip is visible at the bottom of the closing edge of the frame.
15.49	The intumescent is reacting around the glazed aperture.
18.52	There is smoke issuing from the top hinge position.
24.13	The glass is distorting in towards the furnace.
30.51	Graphite intumescent is being expelled from around the top hinge position.
31.48	There is a glow visible at the top hinge position.
33.31	The top corners have distorted further in towards the furnace.
34.39	Graphite is being expelled from the top closing corner.
35.19	There is continuous flaming from the top glazing bead thereby constituting **INTEGRITY FAILURE.**
36.25	There is a glow visible at the top closing corner of the leaf.
37.25	There is continuous flaming from the top closing corner of the leaf thereby constituting further **INTEGRITY FAILURE.**
40.55	Test terminated.

4.5 Times to failure

When tested in accordance with BS 476: Part 22: 1987, Method 7, Determination of fire resistance of partially insulated doorsets and shutter assemblies, the requirements of the standard were satisfied for the following periods:

Integrity	35 (thirty five) minutes
Insulation	35 (thirty five) minutes *

* In accordance with the note to clause 7.6.1.1 of BS 476: Part 22: 1987, the glazing has not been evaluated for insulation.

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. 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.

R S CHAGGER
Fire Test Engineer

J J OSBORN
Laboratory Manager

Date of issue: 26/10/01

Description of Construction (refers to Figures 1 to 4)

Leaf

The leaf was identified as being of a Sentry Superlite construction (details held on file by CIFL) by CIPTA (UK) LTD (key to figures No 1).

		Species/type	Dimensions (mm)	Density (kg/m³)	Moisture (% w/w)	Key to figures
Adhesive	Lipping	Polyurethane	-	-	-	-
Lippings – all edges		Sapele	6 thick	640*	9	2

* Nominal density

Door frame

	Species/type	Dimensions (mm)	Density (kg/m³)	Moisture (% w/w)	Key to figures
Head & Jambs	SAM MDF (primed) door frame	120 wide x 25 thick	730-750*	7	3
Stops	SAM MDF (primed) planted stop (pinned)	12 deep x 32 wide	730-750*	7	4
Architrave	SAM MDF (primed) architrave	70 wide x 20 thick	730-750*	7	5
Threshold	Non combustible	-	-	-	-

* Stated density not checked by laboratory

Intumescent materials

		Make/type	Size (mm)	Location	Key to figures
Door edges		None fitted	-	-	-
Frame reveal	Head	1 No Intumescent Seals Ltd Therm-A-Seal strip	20 x 4	Centrally fitted in the frame reveal	6
	Jambs	1 No Intumescent Seals Ltd Therm-A-Seal strip	20 x 4	Centrally fitted in the frame reveal	6
Around hinges		Fully interrupted	-	Fully interrupted at the hinge positions	-
Under hinge blade		None fitted	-	-	-
Encasing latch body		None fitted	-	-	-
Under latch forend		None fitted	-	-	-
Under latch keep		None fitted	-	-	-
Glazing perimeter		Sealmaster Fireglaze intumescent mastic	2 thick	Fitted between the rear face of the beading and the glass on both faces	7

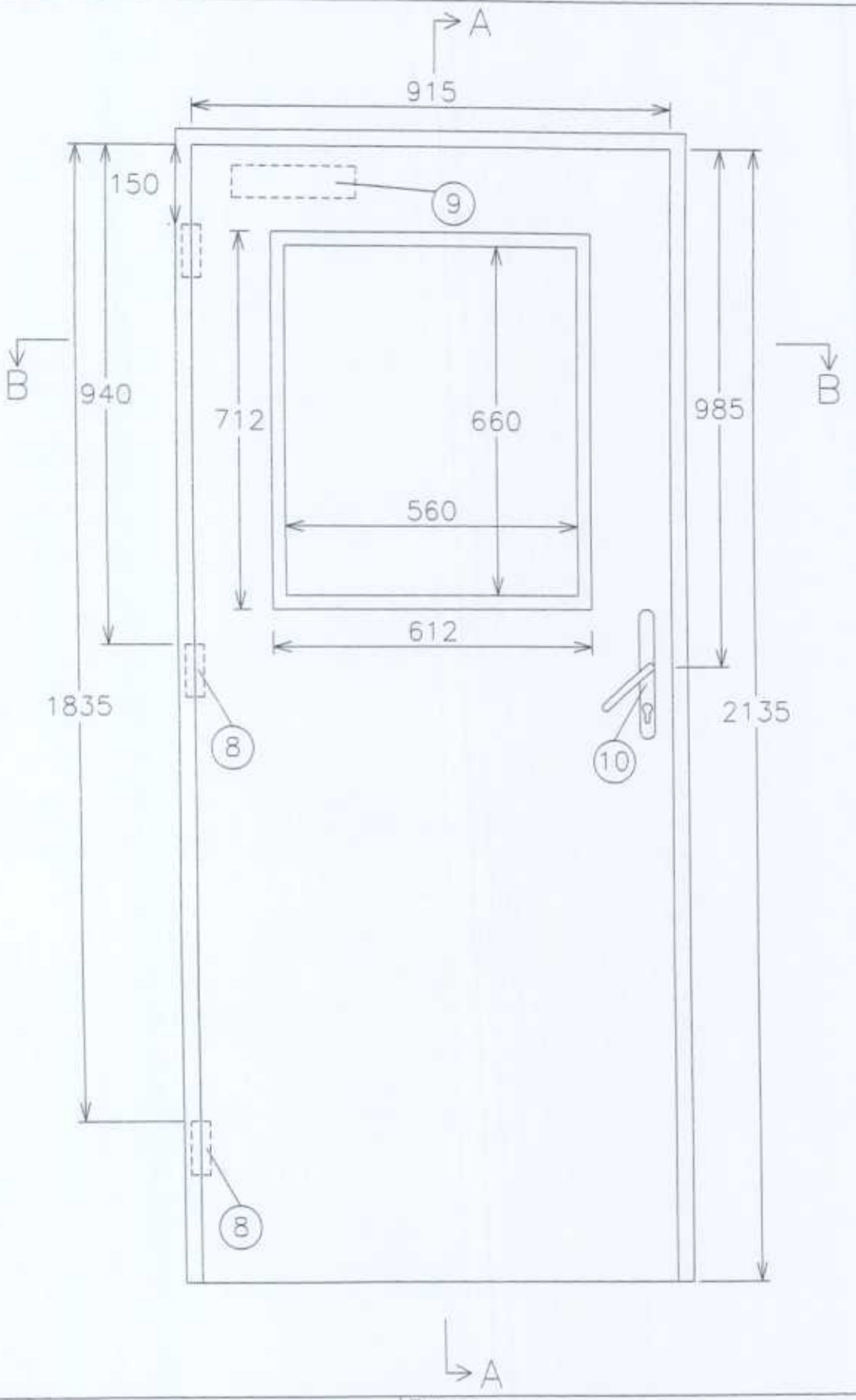
Ironmongery

	Make/type	Size (mm)	Location	Key to figures
Hinges	3 No Royde & Tucker H105 lift off hinges	100 x 35 (blade size)	Fitted 150, 940 and 1835 down from the head of the leaf	8
Closer	Dorma Door Controls Ltd TS73V	233 x 60 (footprint size)	Fitted to the exposed face as per manufacturer's instructions	9
Latch	Henderson Hardware Ltd tubular mortise latch - disengaged	57 x 26 (forend size)	Fitted 985 from the head of the leaf to the middle of the nib	-
Furniture	Aluminium lever handles	100 x 40	Fitted appropriate to the latch	10

Glazing

	Make/type	Size (mm)	Location	Key to figures
Glass type	Pilkington Pyroshield Georgian wired safety glass	6 thick	Centrally fitted into the aperture 165 from the leaf head	11
Sight size	-	560 wide x 660 high	-	-
Overall aperture size	-	604 wide x 704 high	-	-
Expansion allowance	-	2 each edge	-	-
Beading	Sapele with a 24° chamfer (MC 7%)	26 high x 27 deep including a 10 x 6 bolection return	Fitted around the perimeter of the aperture to both faces	12
Beading fixings	Steel pins	50 long	Fitted at 30° to the face of the glass at 100 centres on all edges	13

Figure 1 of 4



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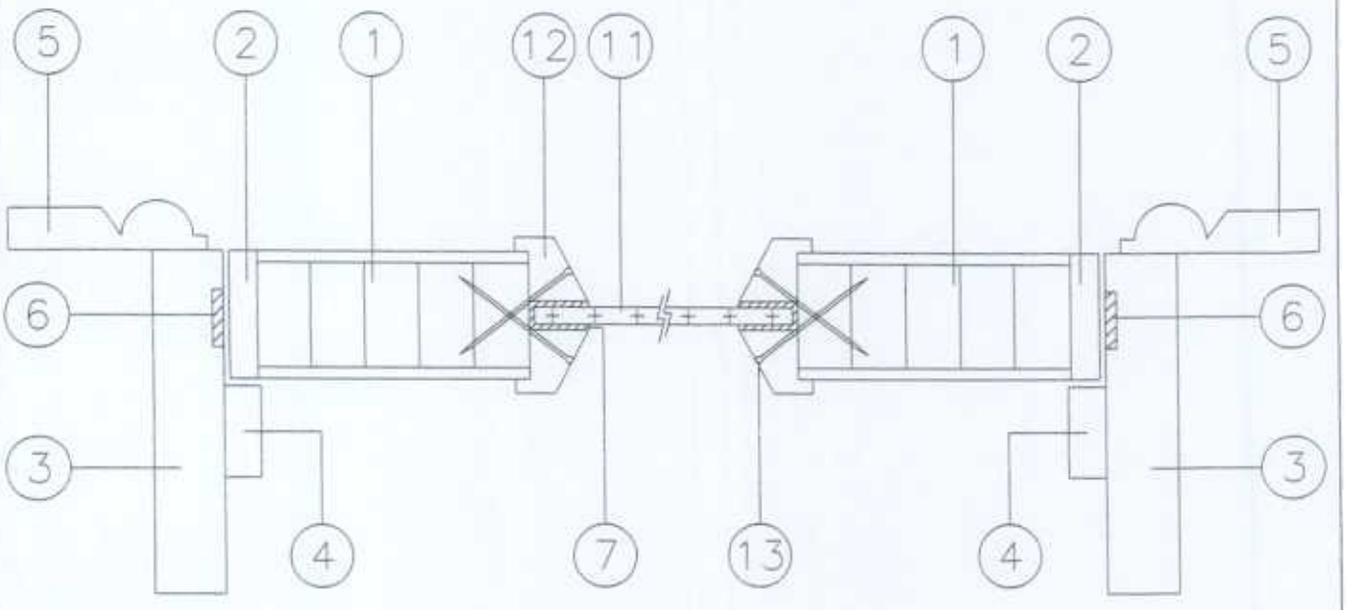
Title
Unexposed elevation showing ironmongery positions

Date Drawn	Drawn By	Scale
29/08/01	HSM	NTS

Project No.
Chilt/RF01050B

Figure 2 of 4



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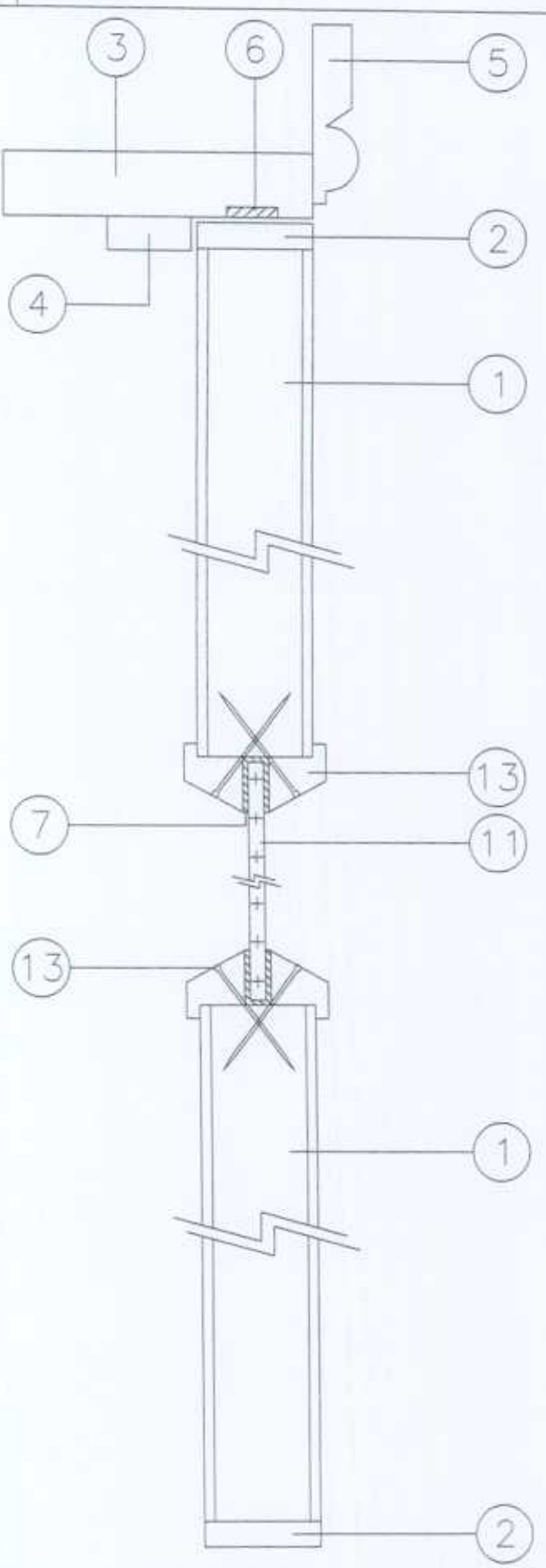
Title
Horizontal Cross Section B–B

Date Drawn	Drawn By	Scale
29/08/01	RSC	NTS

Project No.
Chilt/PF01050D

Figure 3 of 4



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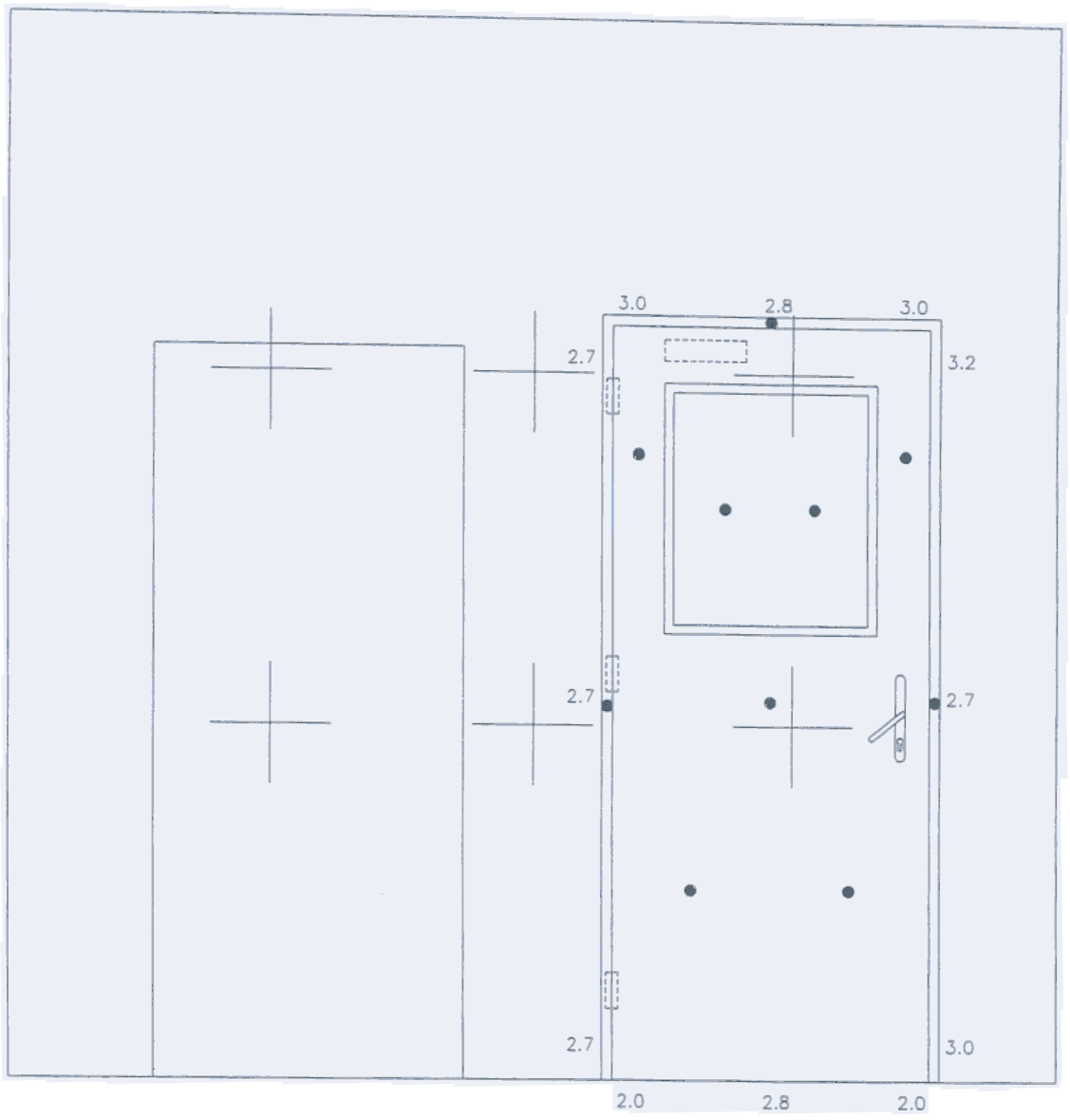
Title
Vertical Section A–A

Date Drawn	Drawn By	Scale
29/08/01	RSC	NTS

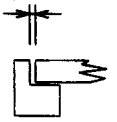
Project No



Furnace Thermocouples

Unexposed Face Thermocouples

Gaps Shown



Viewed From Unexposed Face

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Title
Thermocouple positions and door gaps (mm)

Date Drawn	Drawn By	Scale
29/08/01	RSC	NTS

Project No.
Chilt/RF01059R