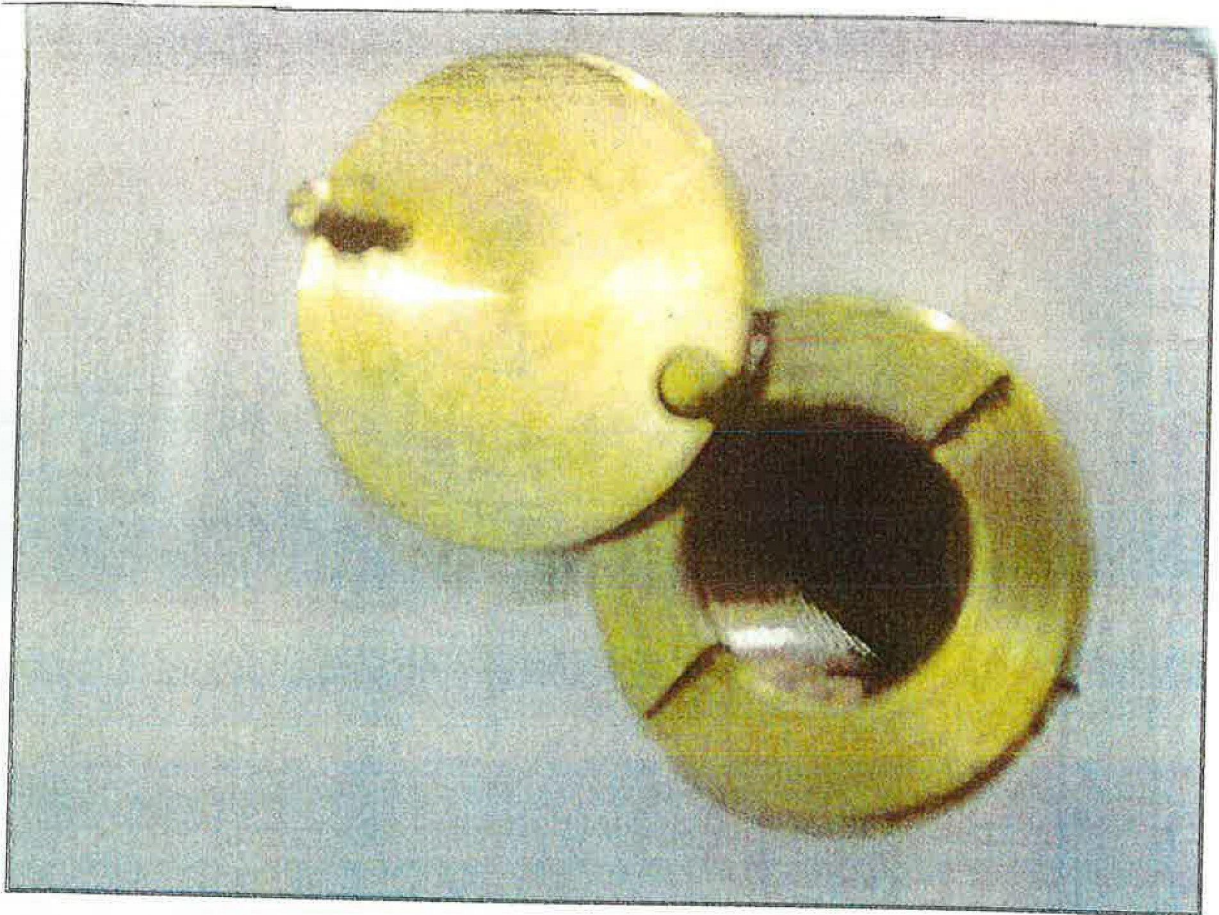




The Building Test Centre

Flow Acoustics Structures

The Building Test Centre
Flow Acoustics Structures
East side
Hampstead
London N6 6N
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]



Photograph 14. Spyhole viewed from the exposed face.

Customer: L B Plastics Limited

BTC 14434F; Page 58 of 74



0296



The Building Test Centre

Fire Resisting Structures

The Building Test Centre

Good, Right and Cheap

Test Loads

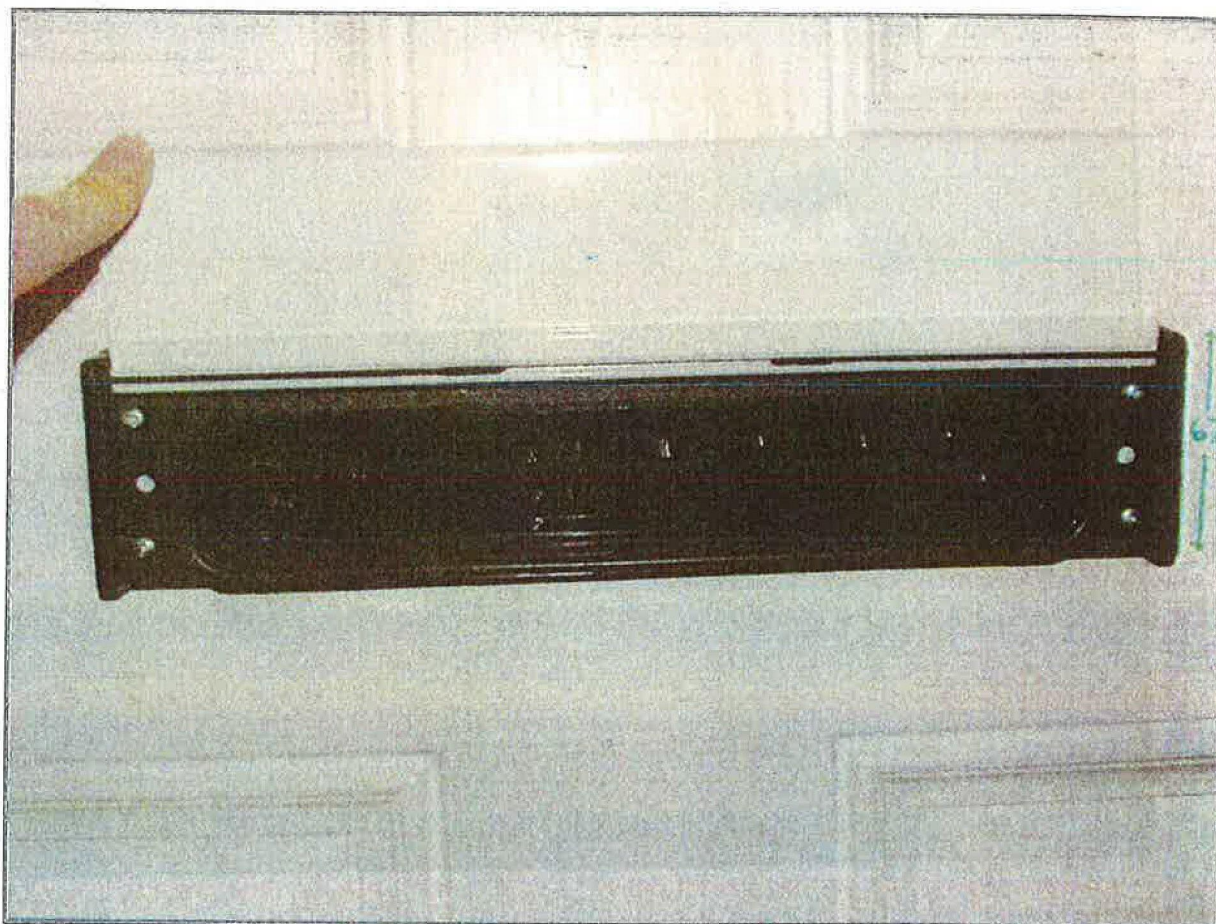
Temperature

Test Cell

Test Cell

Test Cell

Test Cell



Photograph 13. Letter plate flap held open, showing inside.

Customer: L & Plastics Limited

BTC 14434F: Page 57 of 74



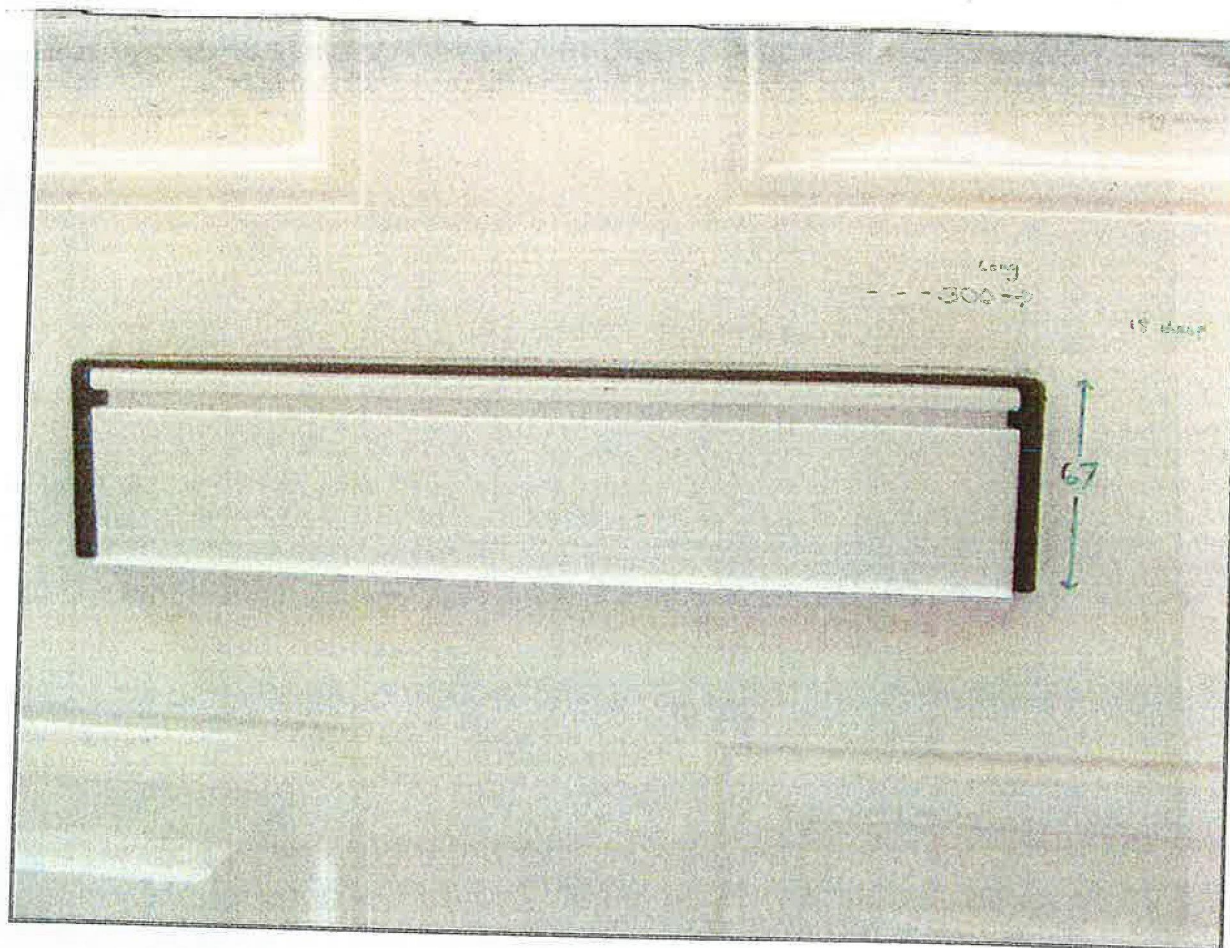
0298



The Building Test Centre

Fire Acoustic Structures

The Building Test Centre
British Gypsum Limited
80 St Leonards
Leamington Spa
CV32 3NF
Tel: [REDACTED]
Fax: [REDACTED]
Email: btcc@buildingtestcentre.co.uk



Photograph 12. Letter plate.

Customer: L B Plastics Limited

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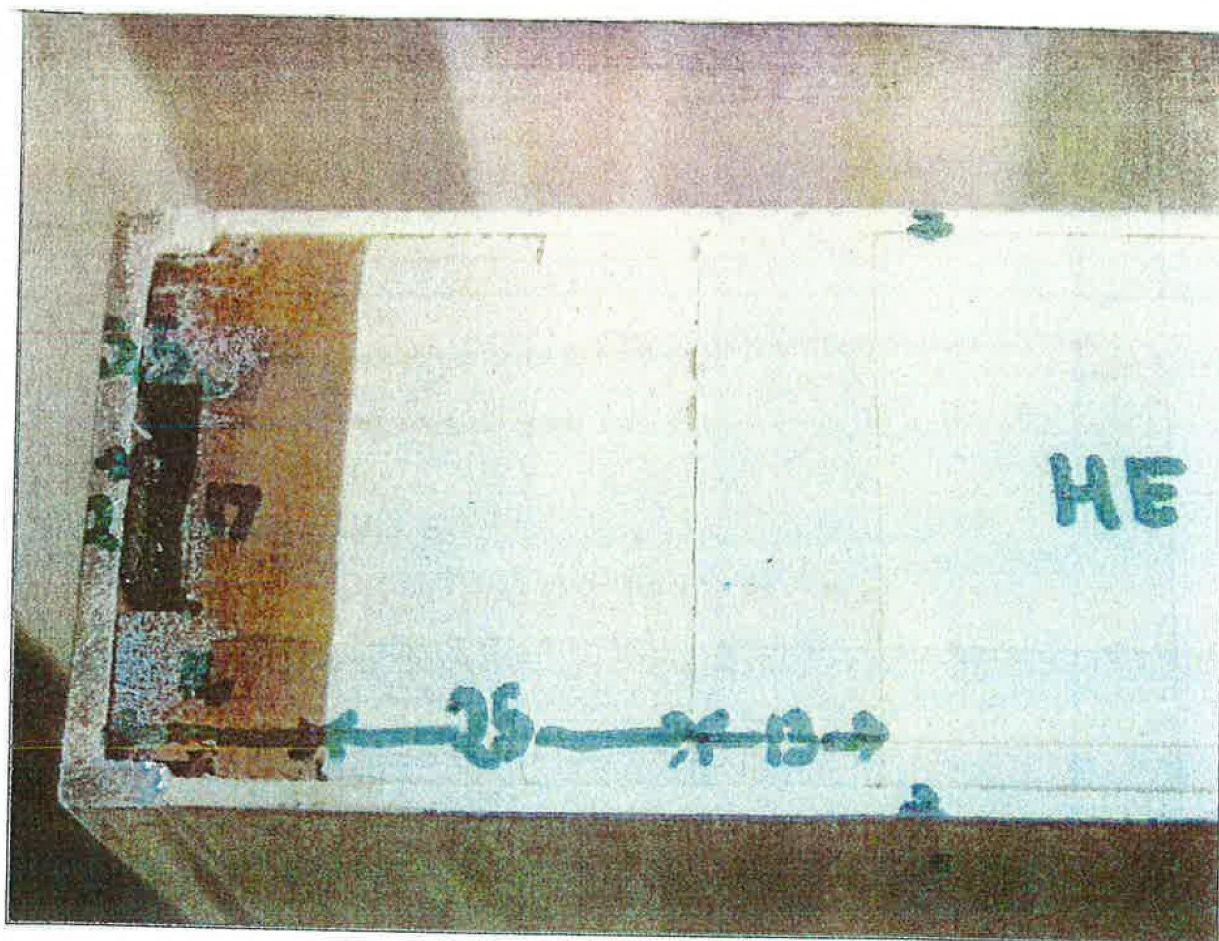




The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
Bentley Avenue Limited
East Beke
Loughborough
Leics LE12 6MT
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]



Photograph 11. Hanging edge of door leaf.

Customer: L B Plastics Limited

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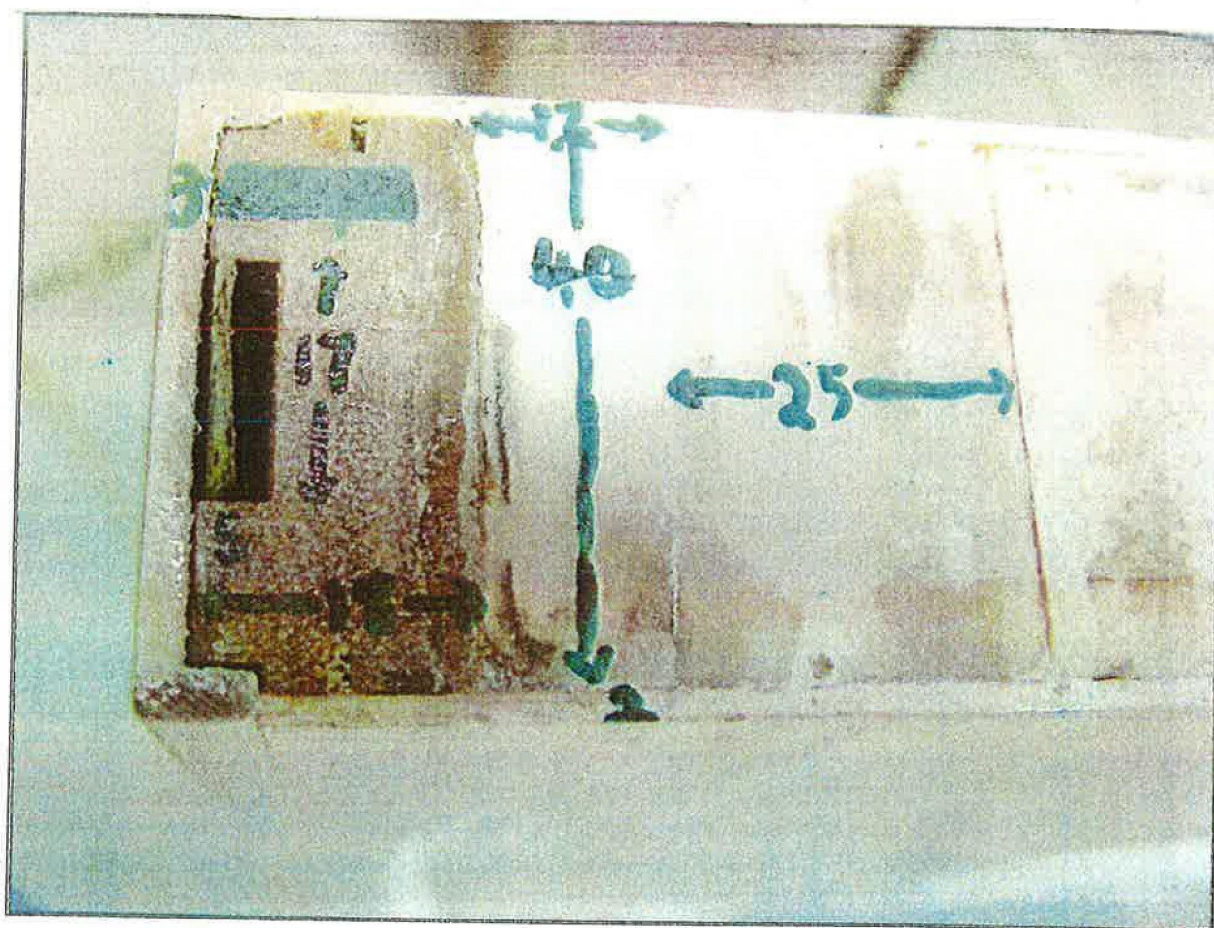
0296



The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
Building Research Establishment
Farnborough
Hampshire GU14 7PH
Tel: 01252 851111
Fax: [REDACTED]
Email: [REDACTED]



Photograph 10. Closing edge of door leaf.

Customer: L B Plastics Limited

BTC 14434F: Page 54 of 74





The Building Test Centre

Fire Acoustic Structures

The Building Test Centre
Building Test Centre Ltd
Eastleigh
Hampshire
United Kingdom
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]



Photograph 9. Door closer on exposed face of door leaf A, identical closer fitted to door leaf B.

Customer: L B Plastics Limited

BTC 14434F: Page 53 of 74



0296



The Building Test Centre

Fire Assessment Services

The Building Test Centre

Industrial Estate, Unit 10

East Brack

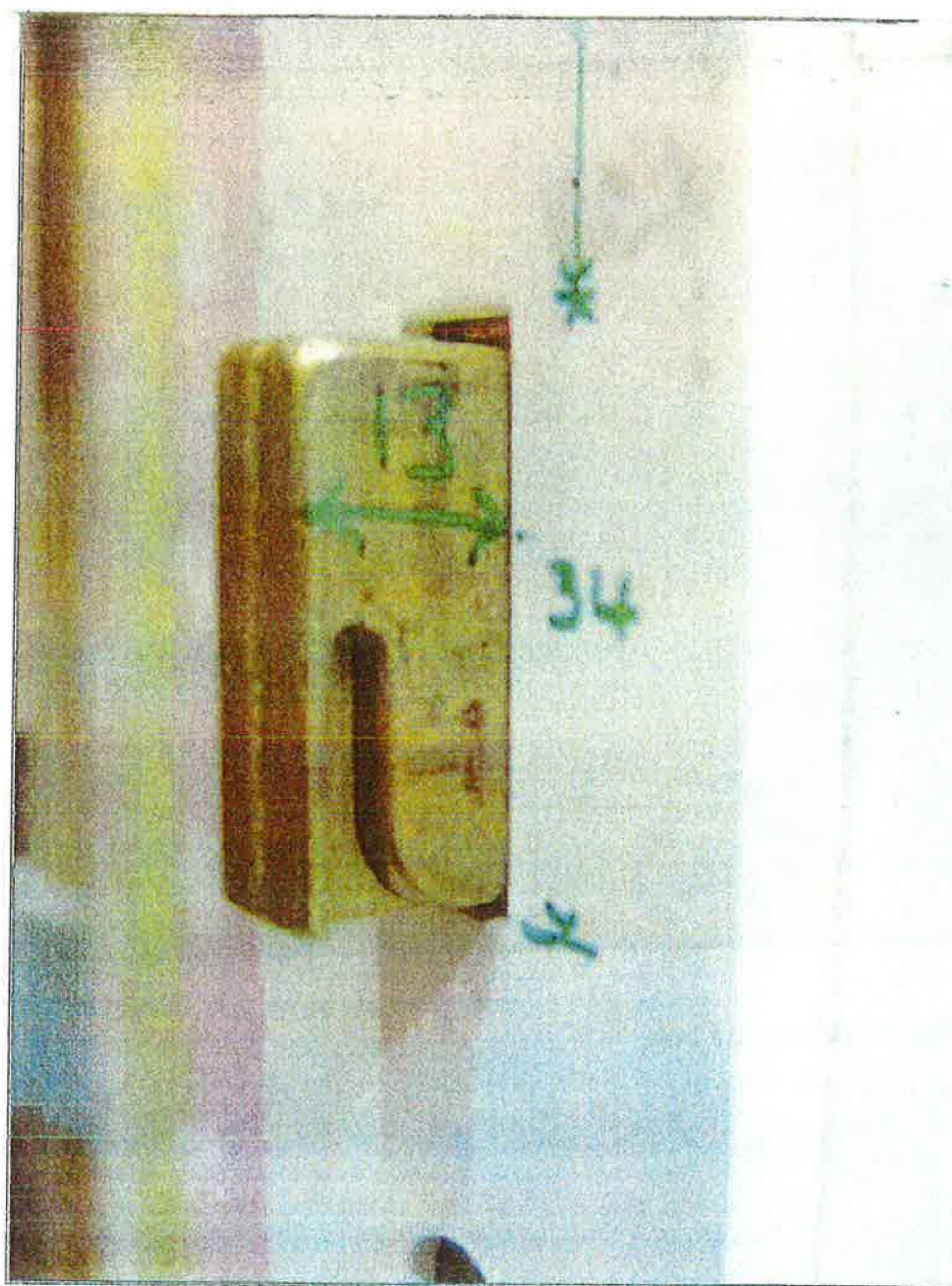
Weymouth, Dorset

DT1 1QY

Tel:

Fax:

Email: info@buildingtestcentre.co.uk



Photograph 8. Lock bolt.

Customer: L B Plastics Limited

BTC 14434F: Page 52 of 74



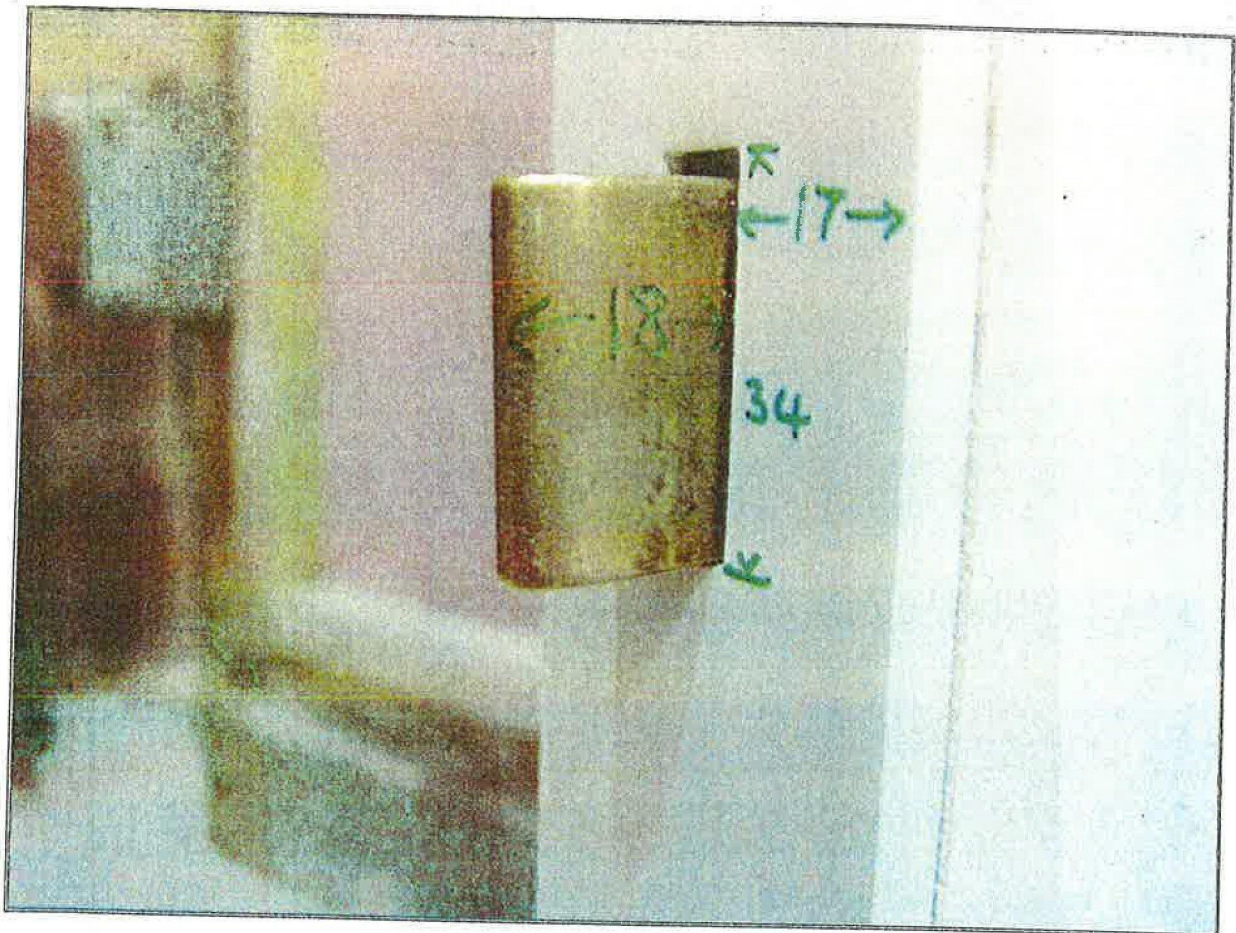
0296



The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
24 The Portland Estate
Eastleigh
Hampshire
SO50 9AB
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]



Photograph 7. Lower latch bolt.

Customer: L B Plastics Limited

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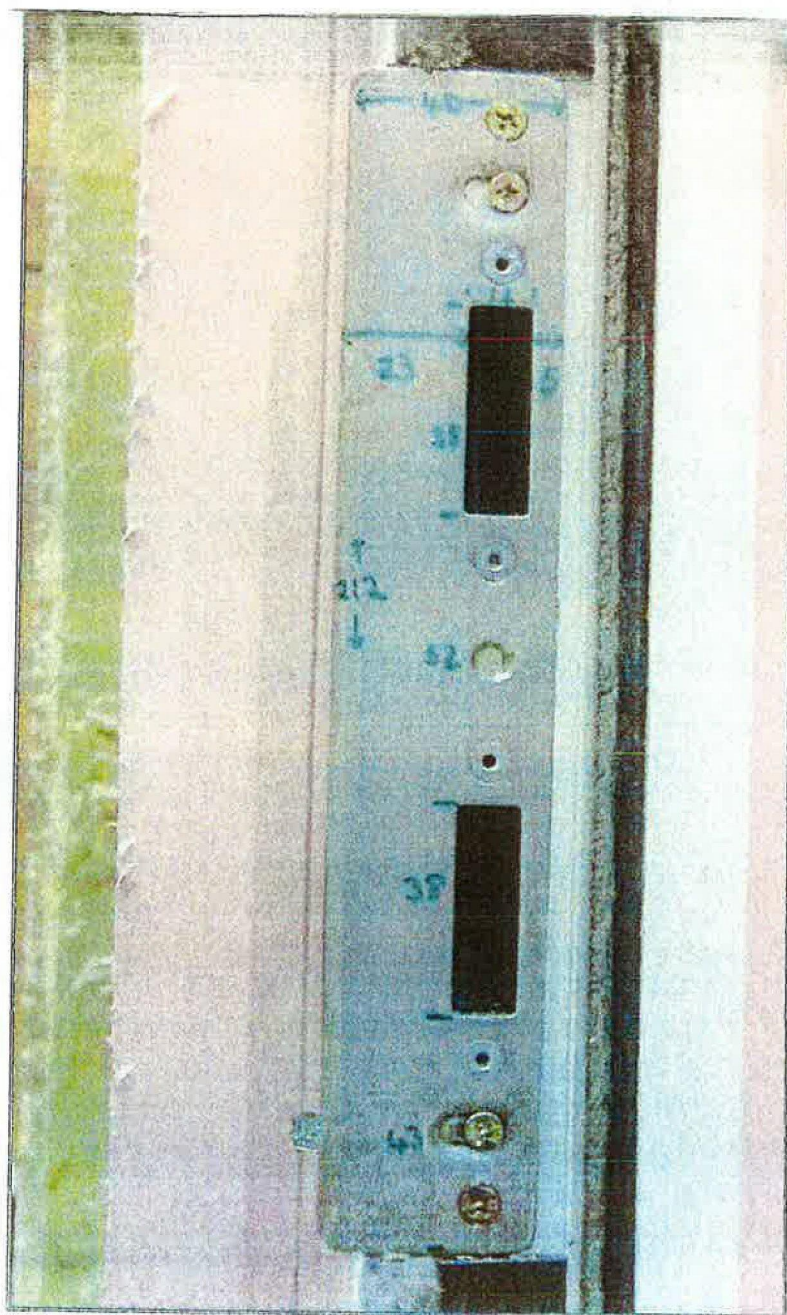
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The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
10th Floor, 10th Floor, 10th Floor
10th Floor, 10th Floor, 10th Floor
10th Floor, 10th Floor, 10th Floor
10th Floor, 10th Floor, 10th Floor
10th Floor, 10th Floor, 10th Floor
10th Floor, 10th Floor, 10th Floor
10th Floor, 10th Floor, 10th Floor



Photograph 6. Strike plate.

Customer: L B Plastics Limited

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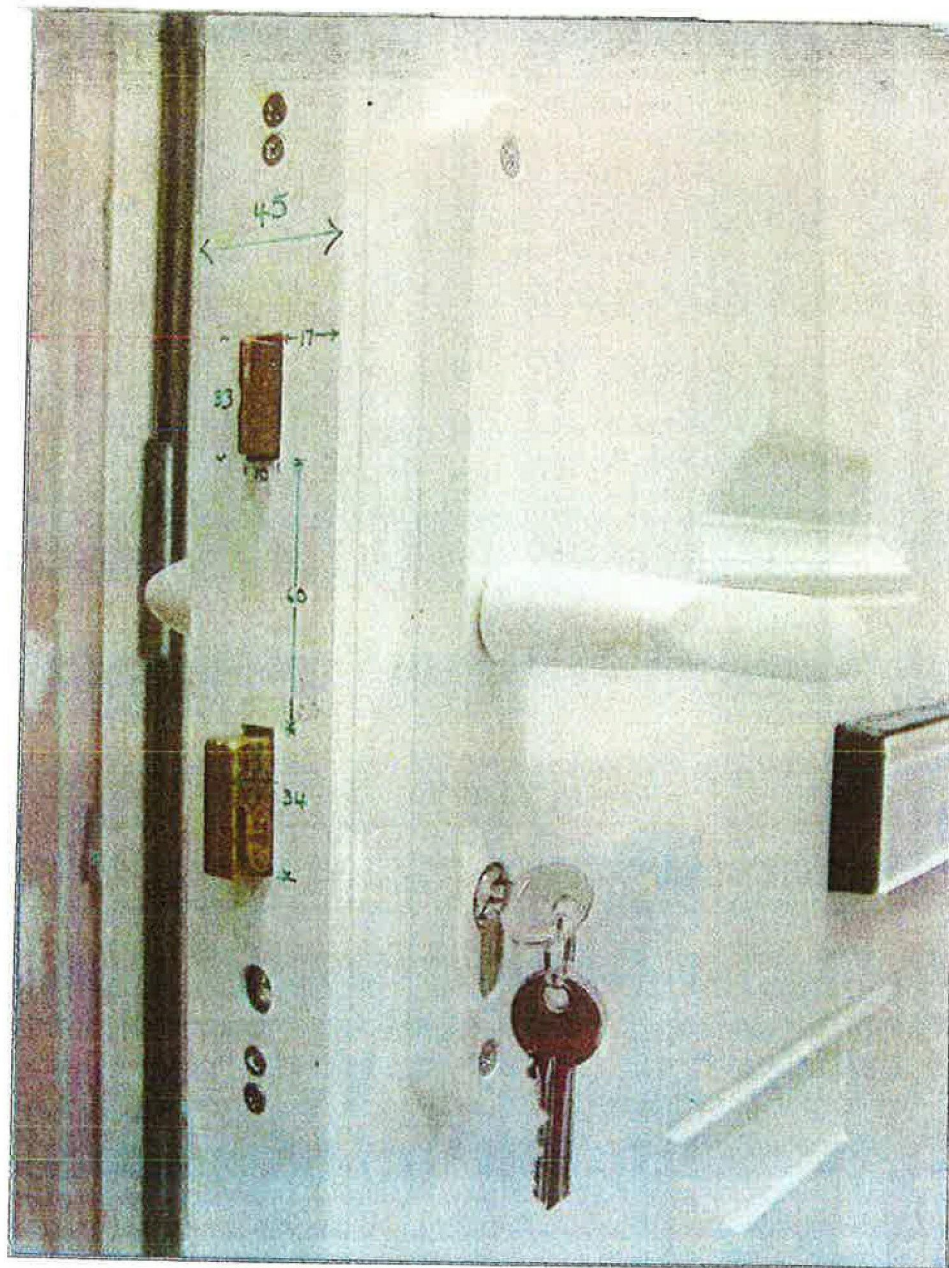




The Building Test Centre

Fire Resistant Structures

The Building Test Centre
Bosch Cymru Ltd
Bosch Cymru Ltd
Bosch Cymru Ltd
Bosch Cymru Ltd
Bosch Cymru Ltd
Bosch Cymru Ltd
Bosch Cymru Ltd
Bosch Cymru Ltd
Bosch Cymru Ltd



Photograph 5. Handle and latch.

Customer: L B Plastics Limited

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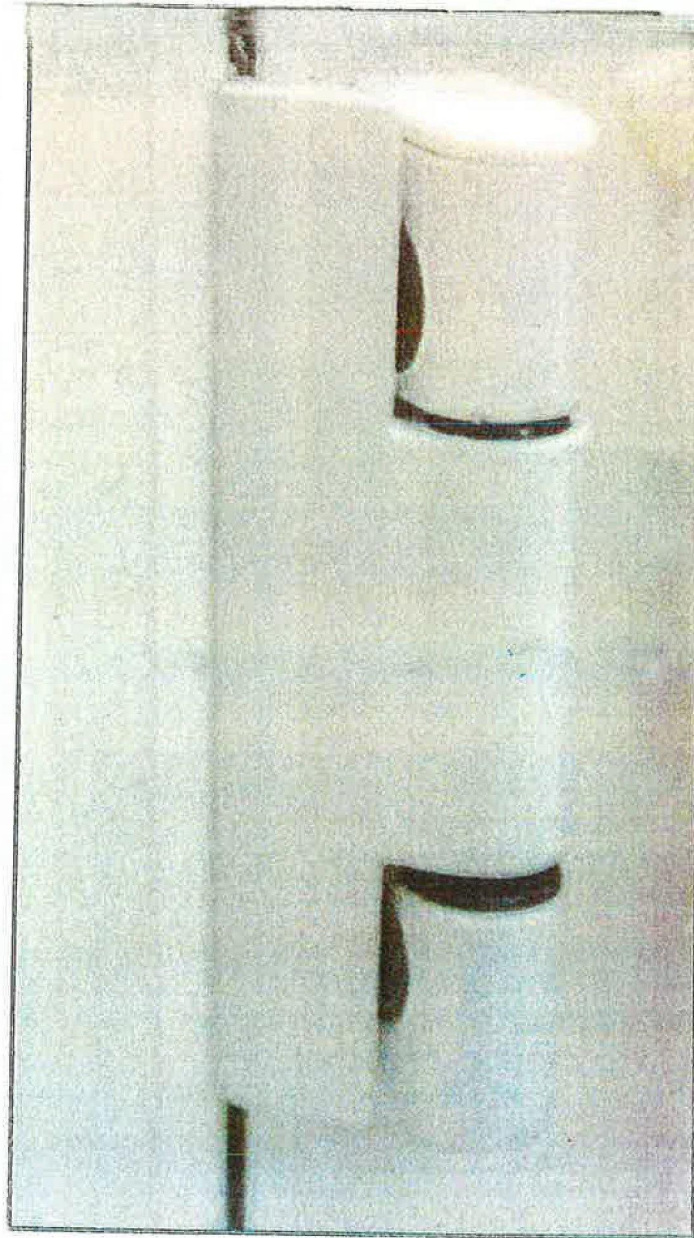
0296



The Building Test Centre

Fire Acoustic Structures

The Building Test Centre
Sole for the construction
fire testing
acoustic testing
fire testing
fire testing
fire testing
fire testing



Photograph 4. Hinge.

Customer: L B Plastics Limited

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0296



The Building Test Centre

For Acoustics Structures

The Building Test Centre

Unit 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Unit 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

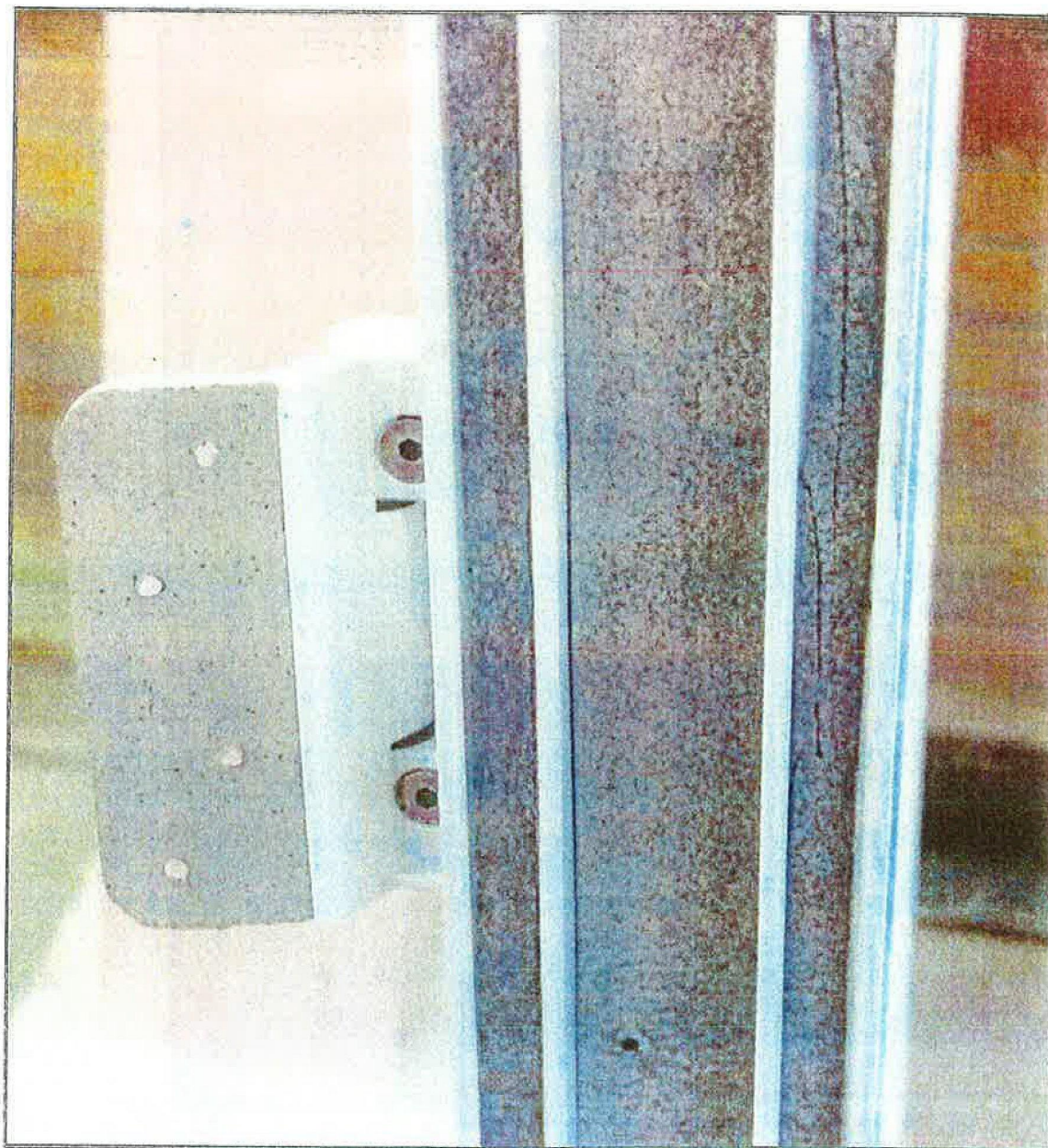
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Unit 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Unit 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Unit 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

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Photograph 3. Intumescent on outer perimeter of frame and on hinge blade.

Customer: L B Plastics Limited

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0296



The Building Test Centre

Fire, Acoustics, Structures

The Building Test Centre
Building Research Establishment
Gordon Road
Borehamham
Hertfordshire
SG8 5LN
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]



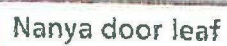
Photograph 2. Unexposed face prior to test.

Customer: L B Plastics Limited

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0296



BTC 14434F: Page 45 of 74



The Building Test Centre

Fire Acoustics Structures

The Building Test Centre

British Gypsum Limited

Felt House

Donnington

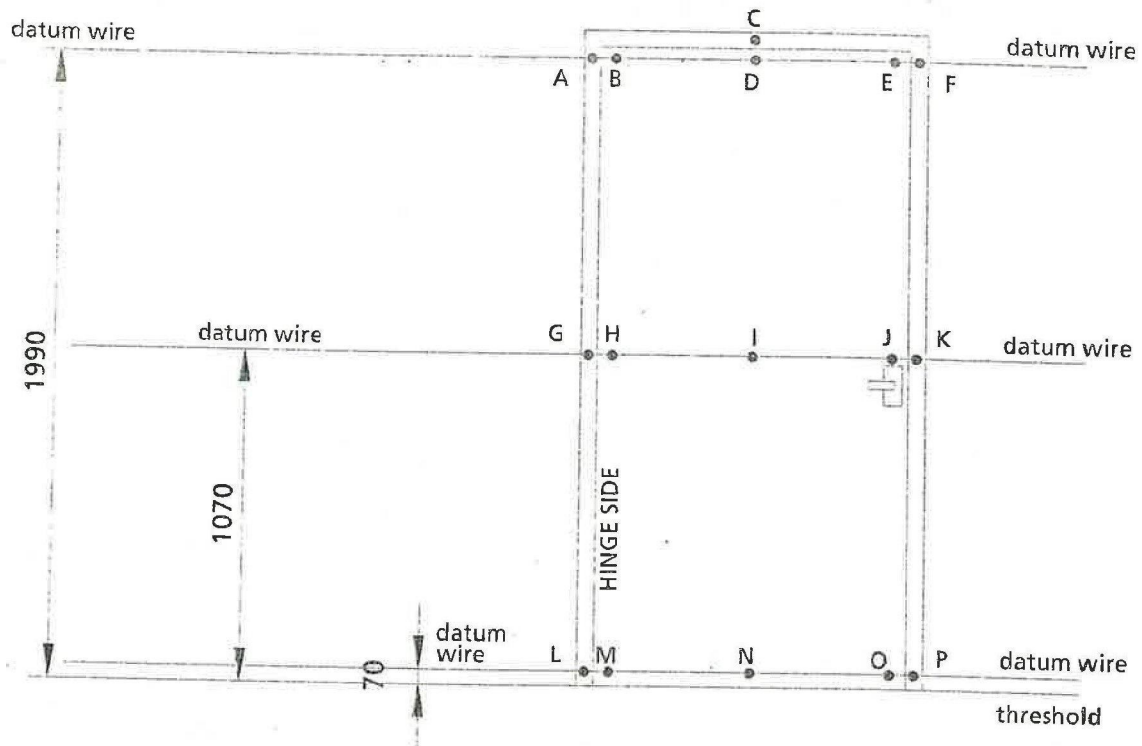
Leeds LS12 5JW

10

10

Order No. 1000000000000000

Diagram of Deflection Wires



Time	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	4	3	4	5	4	3	2	5	9	7	4	-2	0	1	-1	0
11	4	3	3	3	2	2	2	4	4	7	4	-2	-1	-1	-1	-1
17	2	37	1	19	3	0	2	25	9	15	1	-2	8	1	-1	-3
21	0	53	1	37	19	-1	2	30	11	16	-3	-3	12	2	-1	-2
27	-6	63	1	52	39	-3	2	35	9	20	-6	-4	16	2	0	-1

The measurements were in mm and the time in minutes.

Deflection readings were taken between the datum wires and the set positions on the door leaf and the frame.

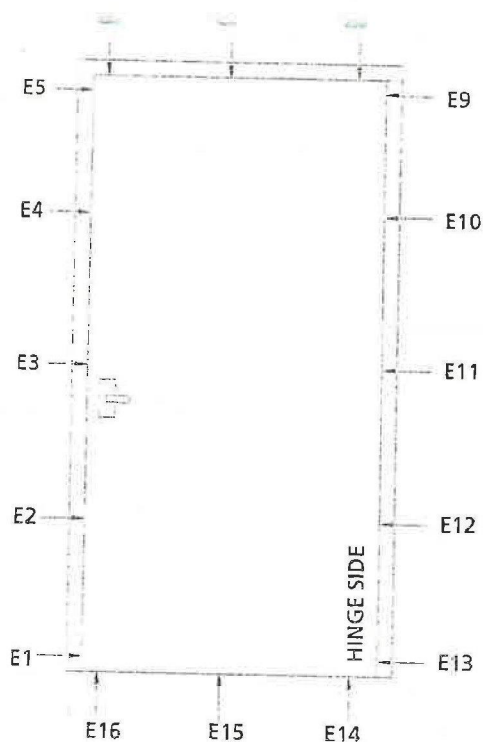
Negative readings indicate deflection out of the furnace.

Customer: L B Plastics Limited

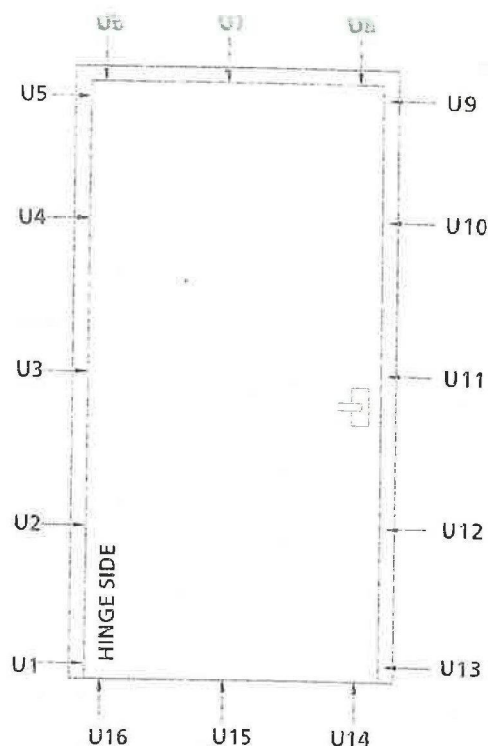
BTC 14434F: Page 44 of 74



0296



EXPOSED FACE



UNEXPOSED FACE

Position	Gap (mm)	Position	Gap (mm)	Position	Gap (mm)	Position	Gap (mm)
E1	4.0	E9	4.0	U1	4.0	U9	5.5
E2	3.8	E10	4.2	U2	4.0	U10	5.0
E3	3.6	E11	4.4	U3	4.5	U11	4.5
E4	3.2	E12	3.8	U4	4.5	U12	4.5
E5	2.5	E13	2.8	U5	4.0	U13	6.0
E6	4.7	E14	3.2	U6	4.0	U14	6.5
E7	4.0	E15	2.5	U7	4.5	U15	5.5
E8	4.4	E16	2.7	U8	5.0	U16	5.0

The exposed face gaps were measured using a taper gauge, through the brush seal.
The unexposed face gaps were measured using a steel rule, with the black seal visible.

Customer: L B Plastics Limited

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0296

	Thermocouple TID. 21	Thermocouple TID. 22	Thermocouple TID. 23	Thermocouple TID. 24
	Left Hand Side Frame	Top Frame	Right Hand Side Frame	Reduced Area on Panel
35	65	-	100	68
36	68	-	-	71
37	70	-	-	75

See figure 14 for the location of the thermocouples.

Thermocouple no. 31 fell off after 33 minutes.

Thermocouple no. 32 fell off after 35 minutes.

Customer: L B Plastics Limited

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0296

Time (mins)	Thermocouple No. 30 Left Hand Side Frame	Thermocouple No. 31 Top Frame	Thermocouple No. 32 Right Hand Side Frame	Thermocouple No. 33 Reduced Area on Panel	Thermocouple No. 34 Reduced Area on Panel
0	0	0	0	0	0
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	2	0	1	4
8	0	3	0	4	8
9	0	5	1	7	12
10	0	7	2	10	15
11	1	9	4	13	19
12	1	11	0	15	22
13	2	13	5	19	27
14	3	15	6	22	30
15	4	17	8	25	34
16	6	20	11	28	37
17	9	24	13	31	39
18	11	29	16	34	42
19	14	33	18	36	44
20	18	37	21	39	48
21	21	41	23	42	50
22	23	45	26	44	52
23	27	47	29	46	54
24	30	53	34	48	55
25	33	55	40	50	57
26	36	61	50	52	58
27	39	69	59	53	60
28	42	78	70	54	62
29	45	90	78	56	66
30	49	102	84	58	70
31	52	115	89	60	74
32	56	128	92	61	79
33	59	141	94	63	84
34	62	-	97	66	87

Customer: L B Plastics Limited

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0296



The Building Test Centre

Fire Acoustics Structures

The Building Test Centre

British Standard BS 476

Part 1: Fire

Part 2: Acoustics

Part 3: Fire

Part 4: Fire

Part 5: Fire

Part 6: Fire

Thermocouple	Thermocouple	Thermocouple	Thermocouple	Thermocouple	Thermocouple	Thermocouple
36	73	76	57	60	55	64
37	78	77	58	61	55	66

See figure 14 for the location of the thermocouples.

Customer: L B Plastics Limited

BTC 14434F; Page 40 of 74



0296



The Building Test Centre

Fire Acoustic Structures

The Building Test Centre

Brick, System Testing

Fire Loads

Long-Duration

Test, LEI, etc.

Test, LEI, etc.

Test, LEI, etc.

Test, LEI, etc.

Time (mins)	Thermocouple No. 25	Thermocouple No. 26	Thermocouple No. 27	Thermocouple No. 28	Thermocouple No. 29	Mean
0	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	1	0	1	0	0
9	0	3	2	3	0	2
10	0	6	4	5	1	3
11	1	9	8	7	2	5
12	2	13	12	10	5	8
13	4	17	18	14	11	13
14	5	20	23	17	17	16
15	7	23	27	20	22	20
16	9	25	30	23	27	23
17	12	27	33	26	30	26
18	14	29	35	28	32	28
19	16	33	36	31	34	30
20	19	37	39	33	36	33
21	22	40	40	35	37	35
22	24	42	42	37	39	37
23	27	46	43	39	40	39
24	30	47	45	41	41	41
25	34	52	46	43	42	43
26	37	55	48	45	43	46
27	40	58	49	47	45	48
28	44	59	51	48	45	49
29	48	64	52	51	47	52
30	51	65	53	52	49	54
31	55	66	54	54	50	56
32	59	69	55	55	51	58
33	63	70	56	57	52	60
34	67	71	56	58	53	61
35	70	73	57	59	54	63

Customer: L B Plastics Limited

BTC 14434F: Page 39 of 74



0296

MET00040103/20
MET00040103/20



The Building Test Centre

Fire Protection Structures

The Building Test Centre
British Standards Limited
2000-2000
London, UK
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]

Time	Thermocouple No. 20	Thermocouple No. 21	Thermocouple No. 22	Thermocouple No. 23	Thermocouple No. 24	Thermocouple No. 25
36	50	56	55	48	54	53
37	52	57	56	50	54	54

See figure 14 for the location of the thermocouples.

Customer: L B Plastics Limited

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Q296



The Building Test Centre

Fire & Acoustics Structures

The Building Test Centre
Bentley Road, Lutterworth
Leicestershire
LE17 4BQ
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]

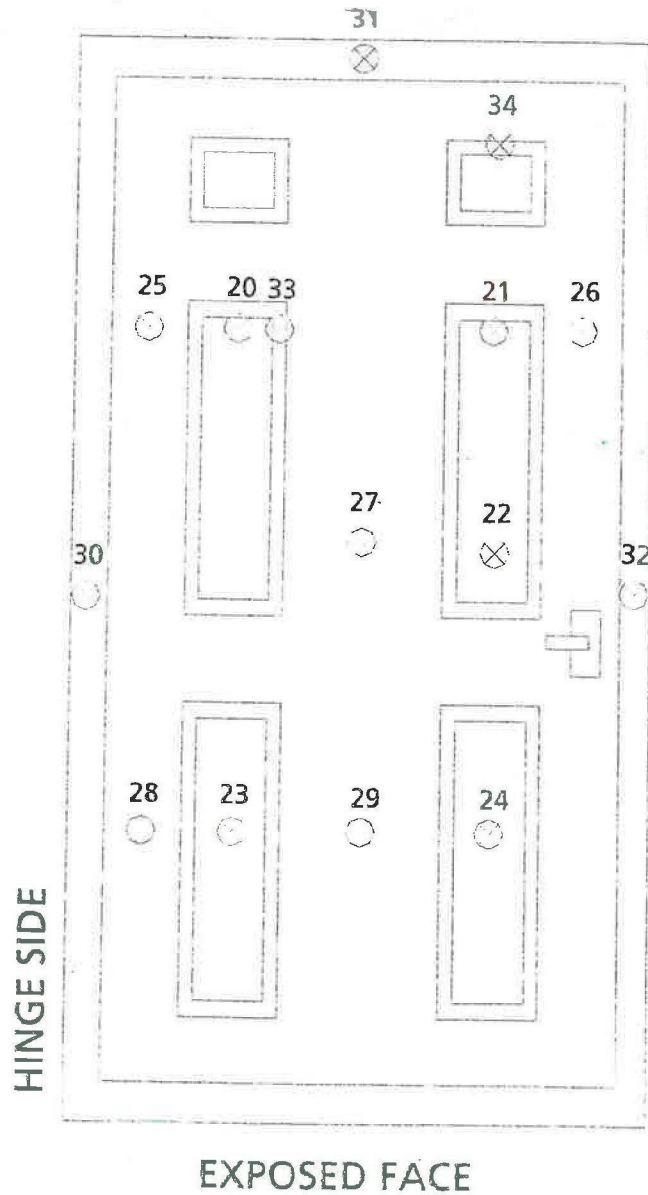


Figure 14. Thermocouple layout. (Not to scale)

Customer: L B Plastics Limited

BTC 14434F: Page 36 of 74



0299



The Building Test Centre

Fire - Acoustics Structures

The Building Test Centre

Building Research Establishment

11000000000000000000

01253 817100

01253 817100



Temperature (°C)

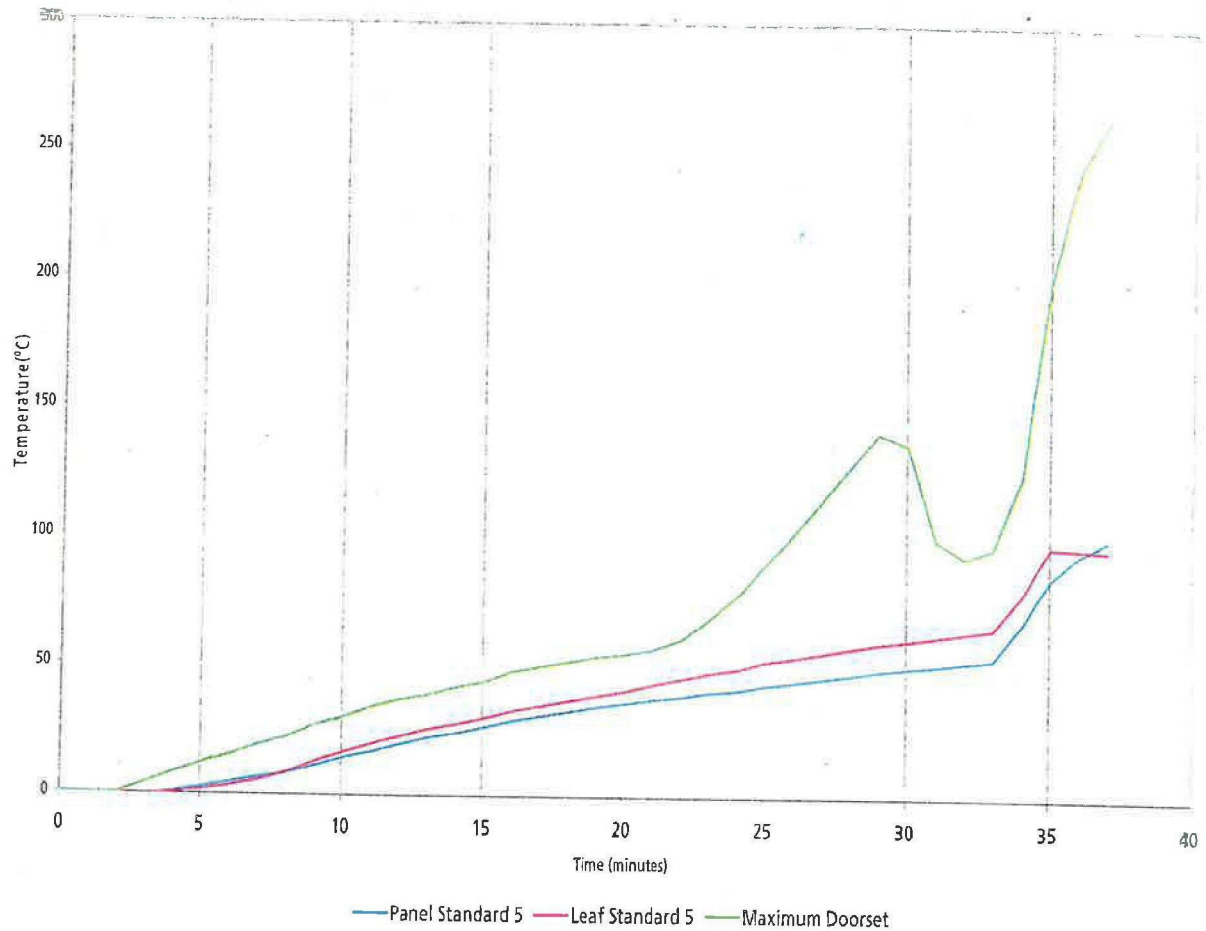


Figure 13. Doorset temperature graph.

Customer: L B Plastics Limited

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0298

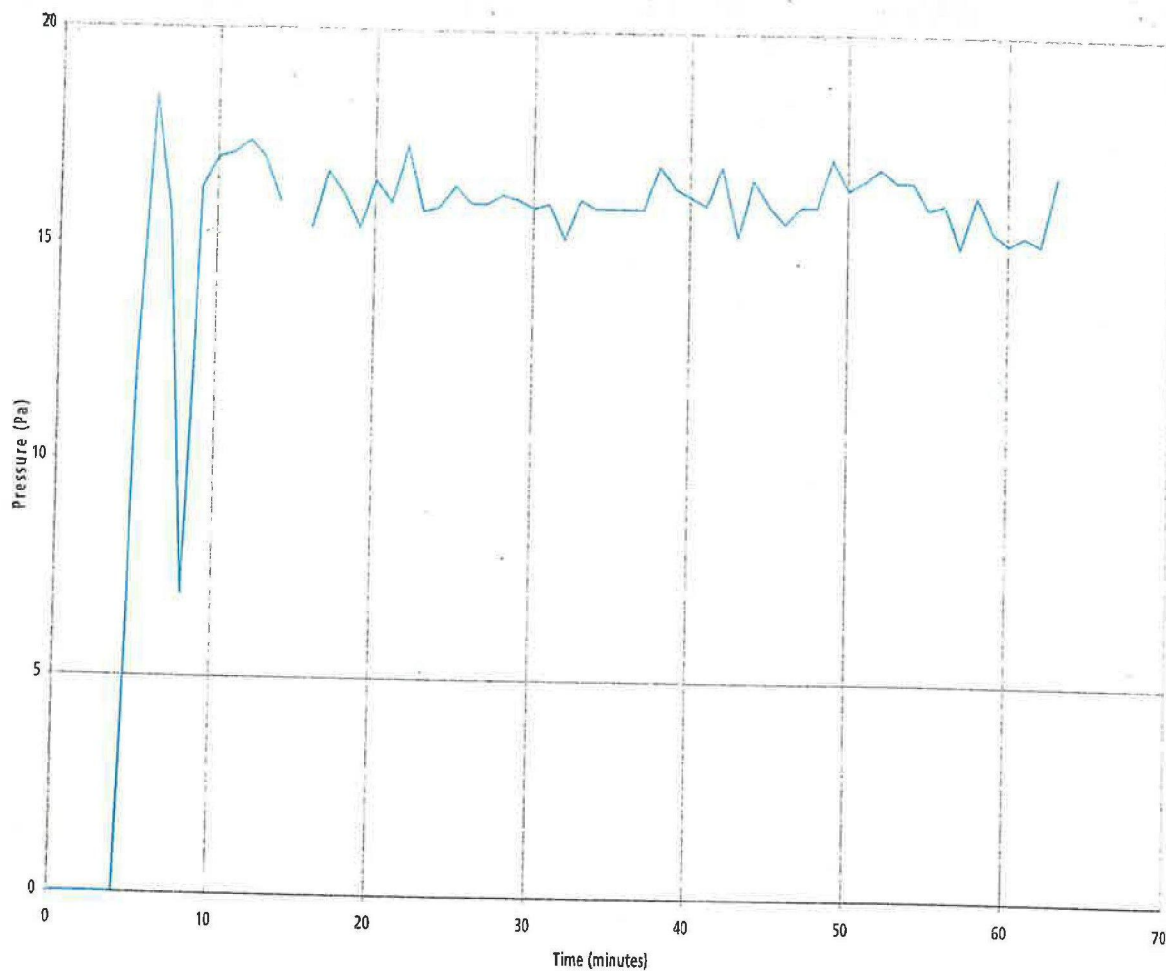


Figure 12. Furnace pressure graph.

Customer: L B Plastics Limited

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0298



Figure 11. Furnace temperature graph.

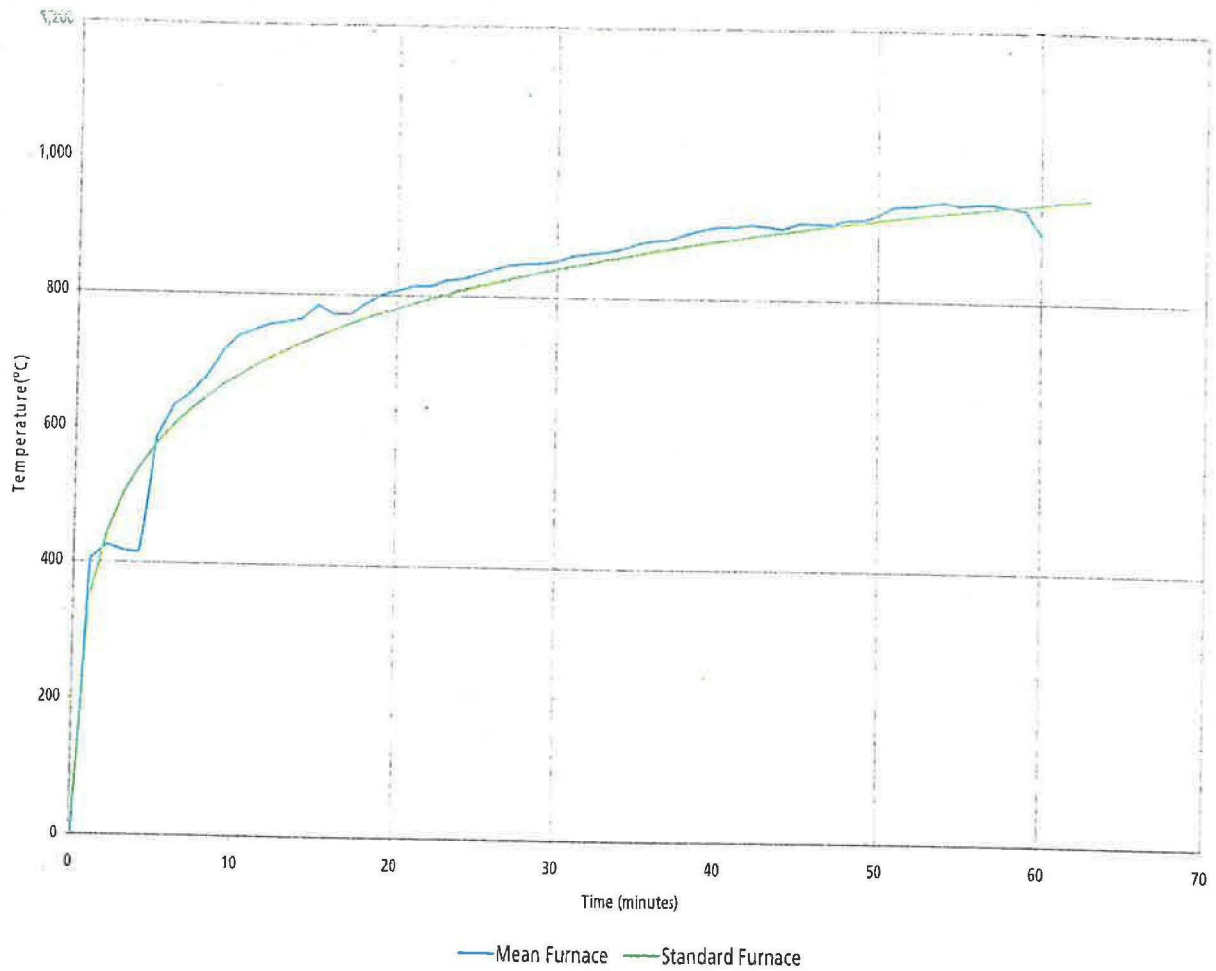


Figure 11. Furnace temperature graph.

Customer: L B Plastics Limited

BTC 14434F: Page 33 of 74



0296



The Building Test Centre

Fire Acoustic Structures

Test Building: 1st Floor
Test Cell: 101
Test Date: 10/10/2017
Test No: 14434F
Test Name: [REDACTED]

Hours	Mins	All observations refer to the exposed face unless otherwise stated
	37	Top section of outer layer of door leaf had fallen into the furnace. <i>Unexposed face</i> The doorset was boarded over and the test was continued to observe the additional elements of the test specimen. This was carried out at the request of the customer.
1	03	TEST TERMINATED at the request of the customer.

Door Closer Moments

The door opening and closing moments were measured following the methodology of FTSG Resolution No.63, and the maximum recorded as follows:

Opening moment: 63.5 Nm

Closing moment: 19.7 Nm

Customer: L B Plastics Limited

BTC 14434F: Page 32 of 74



0298



The Building Test Centre

Fire Assessed Structures

The Building Test Centre
 Bolton Regeneration
 Bolton
 Lancashire
 UK
 Tel: [REDACTED]
 Fax: [REDACTED]
 Email: [REDACTED]

Time		Observations
Hours	mins	All observations refer to the exposed face unless otherwise stated.
	8	<i>Unexposed face</i> Smoke increased.
	10	View into furnace obscured by smoke.
	13	<i>Unexposed face</i> Discolouration visible at the vertical edges of the letter plate and the closing edge of the door leaf.
	16	<i>Unexposed face</i> Intumescent visible at top hanging edge corner of door leaf. Door leaf bowed into the furnace.
	17	<i>Unexposed face</i> White material visible in the head of door frame.
	19	<i>Unexposed face</i> Glow visible at latch and top hanging edge of door leaf. Temperature rise around the top of the door leaf was due to hot gases.
	21	Face of door frame expanded but was leaving gaps. <i>Unexposed face</i> Letter plate started to pull away from surface of door leaf.
	22	<i>Unexposed face</i> Flash flaming at closing edge of door leaf, between $\frac{1}{4}$ and mid-height.
	23	<i>Unexposed face</i> Black intumescent visible behind letter plate.
	24	<i>Unexposed face</i> Silver foil visible behind letter plate.
	25	Door leaf bowed into furnace at top hanging edge corner by approximately 10-15mm.

Customer: L B Plastics Limited

BTC 14434F: Page 30 of 74



0296



The Building Test Centre

Fire Acoustic Structures

The Building Test Centre

Unit 1, Gifford Drive

Eastleigh

Hampshire

SO50 1E12 5AP

Tel:

Fax:

01703 600444/01703 600445

TEST REPORT

Observations

Observers: Unexposed face L H Cooper/ M Fountain
Exposed face S Belt

Time		Observations
hours	mins	
		<i>All observations refer to the exposed face unless otherwise stated.</i>
	0	Test started.
	1	Plastic covers on door closers started to melt.
	3	Charring in top centre of frame. <i>Unexposed face</i> Crunching and banging noises were heard from the specimen.
	4	<i>Unexposed face</i> Smoke issued from letter plate.
	5	Plastic cover of door closer dripped onto door. <i>Unexposed face</i> Smoke issued from closing edge of door leaf at approximately $\frac{3}{4}$ height.
	6	Door frame blackened on frame top and down both sides. <i>Unexposed face</i> Condensation had formed and was running down the closing edge of the door leaf, adjacent to the frame.
	7	Door closer was leaking oil, bright blue flames visible in furnace. <i>Unexposed face</i> Discolouration visible at closing edge of door leaf, adjacent to the frame at approximately $\frac{1}{4}$ height. Smoke issued from letter plate.

Customer: L B Plastics Limited

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0296



The Building Trust Center
 1000 Pennsylvania Avenue, N.W.
 Washington, D.C. 20004-6008
 Tel: 202/462-6000
 Fax: 202/462-6001

The requirements of the standard were satisfied for the following periods:

Insulation: 35 minutes (by virtue of integrity failure)

The doorset was boarded over at 37 minutes, and the test continued until 63 minutes, at the request of the customer.

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. 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.

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The Building Test Centre

The Acoustic Structures

The Building Test Centre
British Telecom Centre
Bentley
Warrington
Cheshire, CH1 1 1 1
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]

Horizontal Section Through Hanging Edge of Doorset at Lower Hinge Position - Section E-E

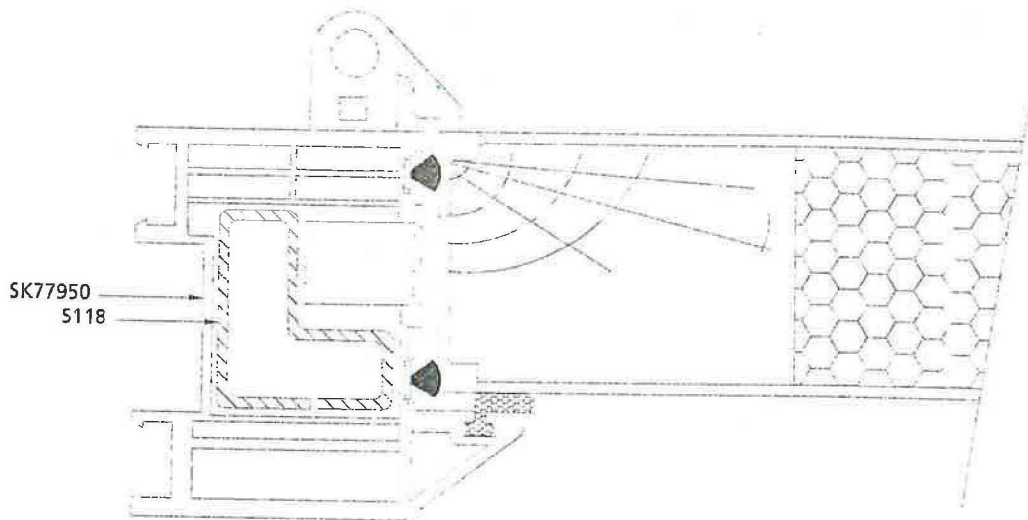


Figure 10. Horizontal Section E-E.
Note that dimensions are nominal.

Customer: L B Plastics Limited

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Fire-Acoustics Structures

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Building Test Centre
Fire-Acoustics Structures
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Horizontal Section Through Closing Edge of Doorset at Latch Position - Section D-D

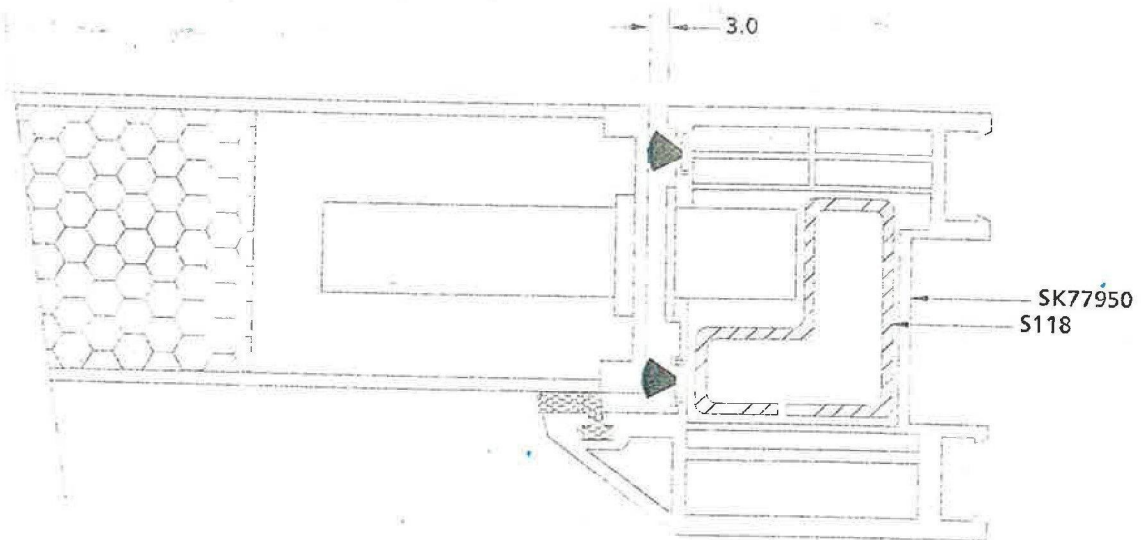


Figure 9. Horizontal Section D-D.
Note that dimensions are nominal.

Customer: L B Plastics Limited

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The Building Test Centre

Fire Resistant Structures

The Building Test Centre
Rotham, East Sussex TN31 2YU
Tel: 01323 810000
Fax: 01323 810001
Email: info@buildingtestcentre.co.uk

Horizontal Section Through Closing Edge of Doorset at Upper Latch Position - Section C-C

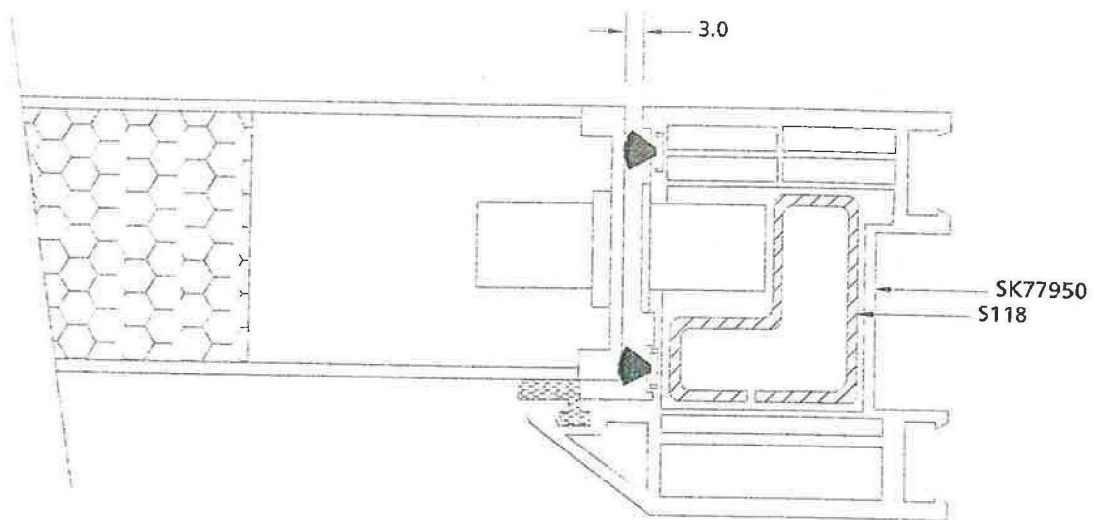


Figure 8. Horizontal Section C-C.
Note that dimensions are nominal.

Customer: L B Plastics Limited

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Fire Abatement Structures

The Building Test Centre

Unit 1, The Test Centre

Warrington

Cheshire, England

WA9 6NU

Tel:

Fax:

Website: www.btc.co.uk

Vertical Section Through Doorset - Section A-A

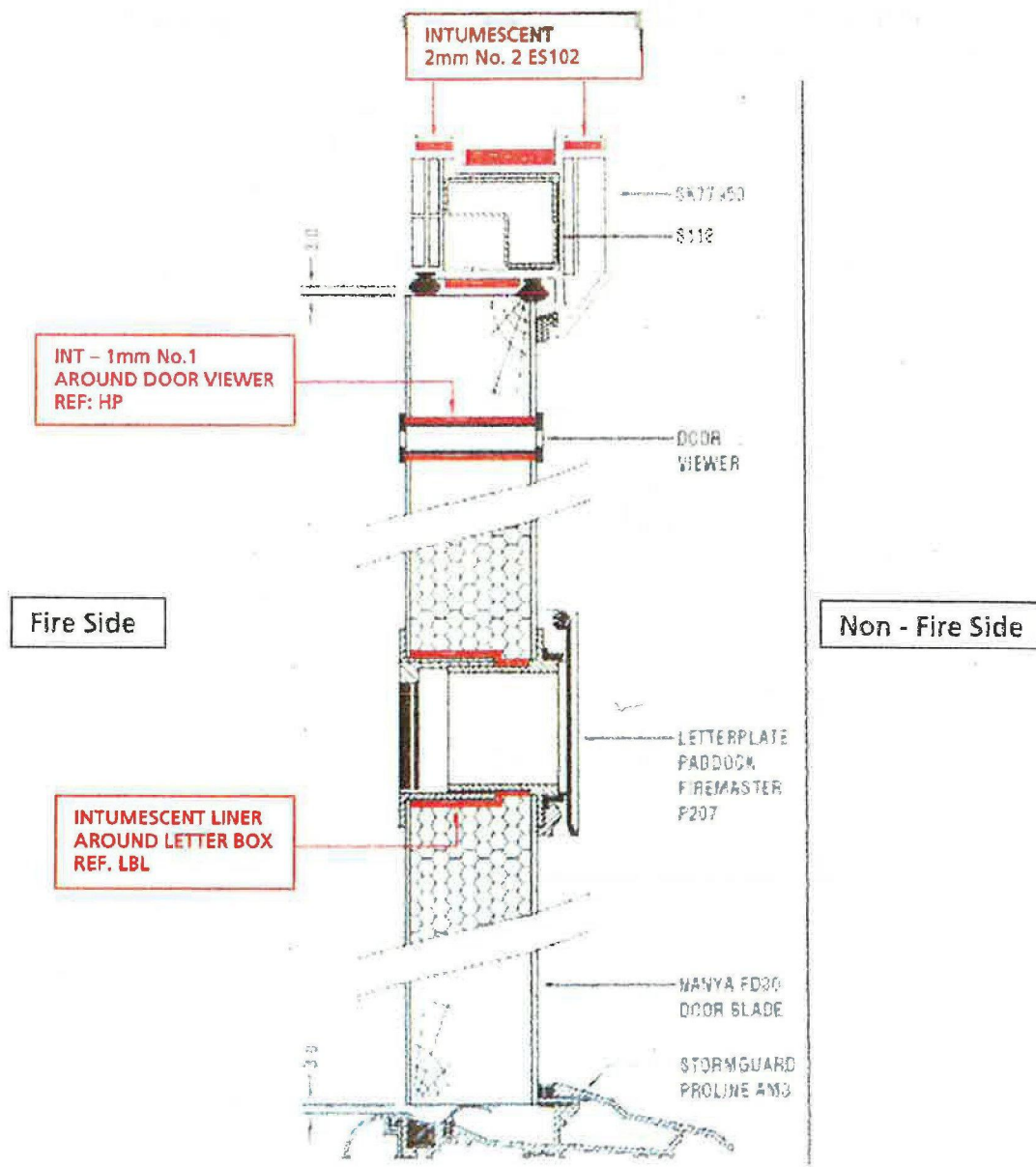


Figure 6. Horizontal Section A-A.

Note that dimensions are nominal.

Customer: L B Plastics Limited

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Unexposed Face Elevation

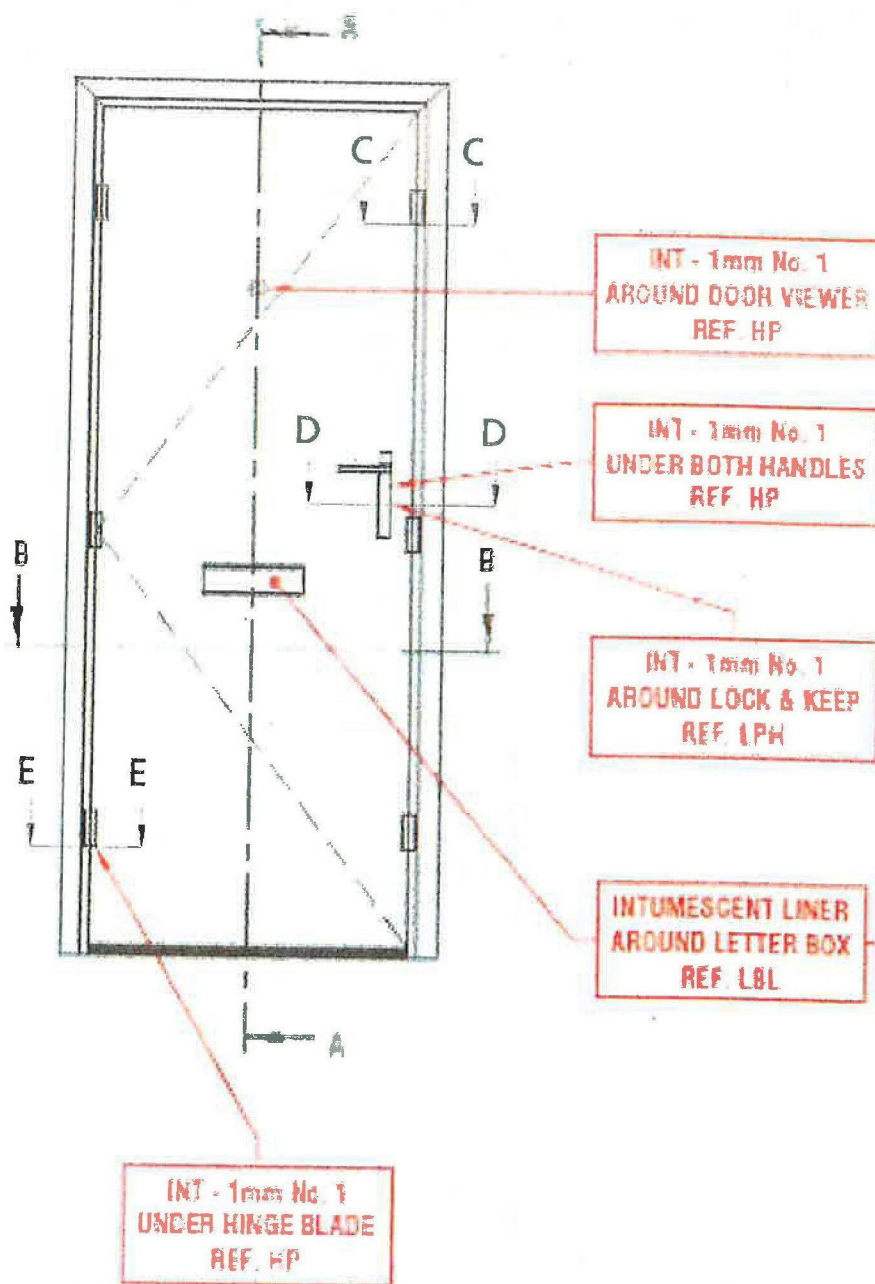


Figure 5. Vertical and horizontal cross sections.

Customer: L B Plastics Limited

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The Building Test Centre

Fire And Test Structures

The Building Test Centre

Structural Engineering Ltd

Test House

Longbridge

Birmingham

Unit 10

Edgbaston

0121 717 1000

Outer Frame General Assembly Details

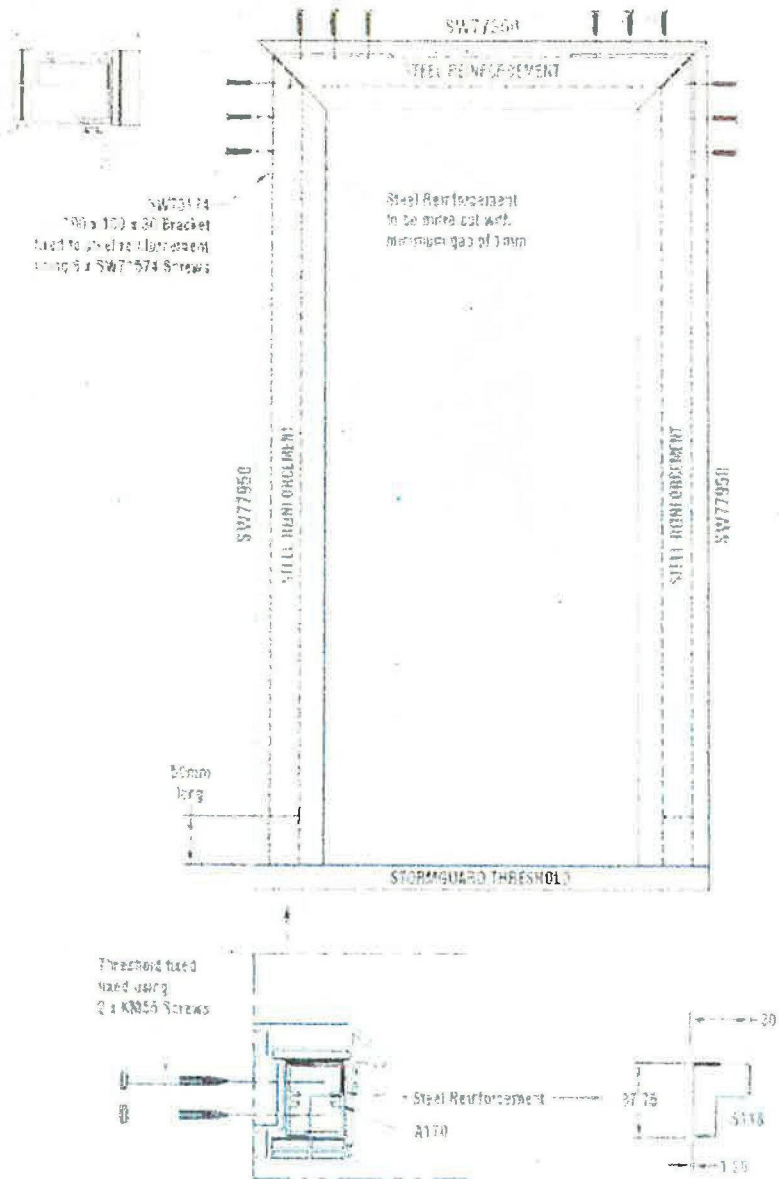


Figure 4. Outer frame general assembly details.

Customer: L B Plastics Limited

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The Building Test Centre

Fire & Acoustic Structures

The Building Test Centre
Briarwood Road
Eastleigh
Hampshire
GU8 1EP
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]

General Description of Parts

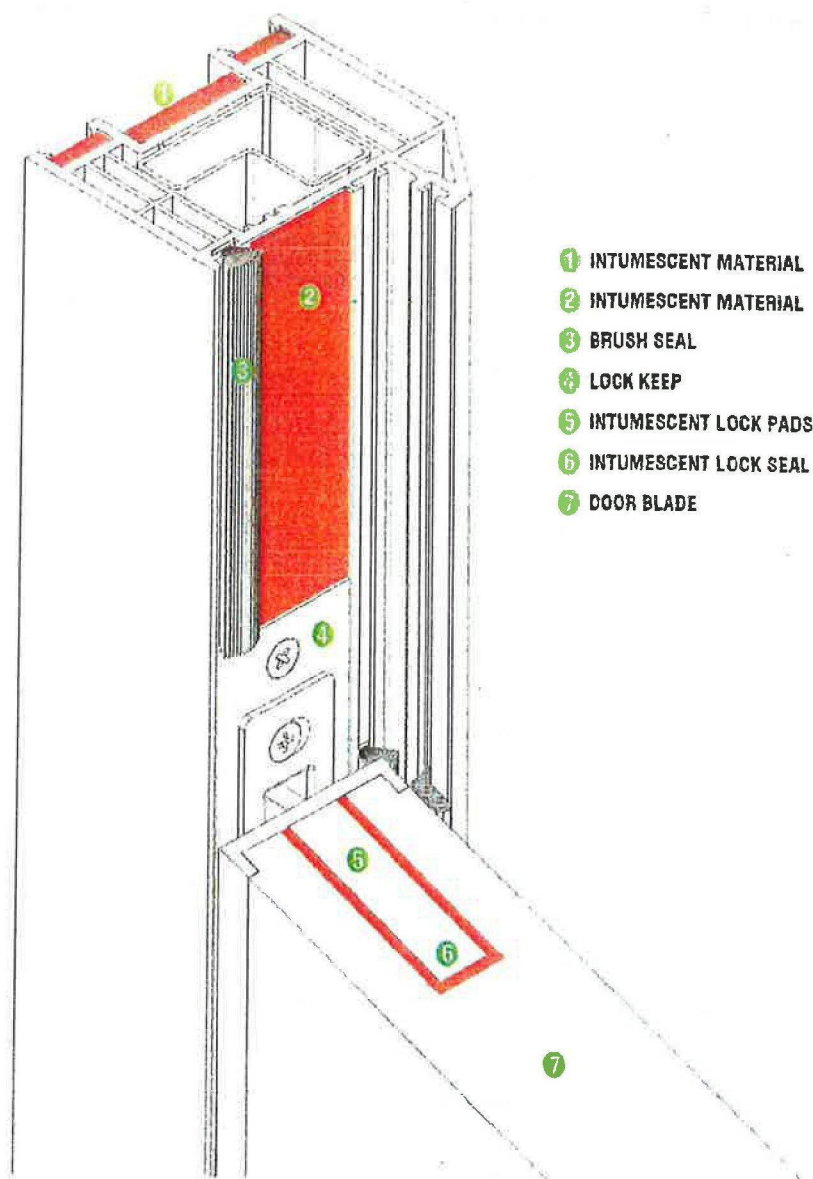


Figure 3. General description of parts.

Customer: L B Plastics Limited

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Fire Protection Structures

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Composite Fire Door

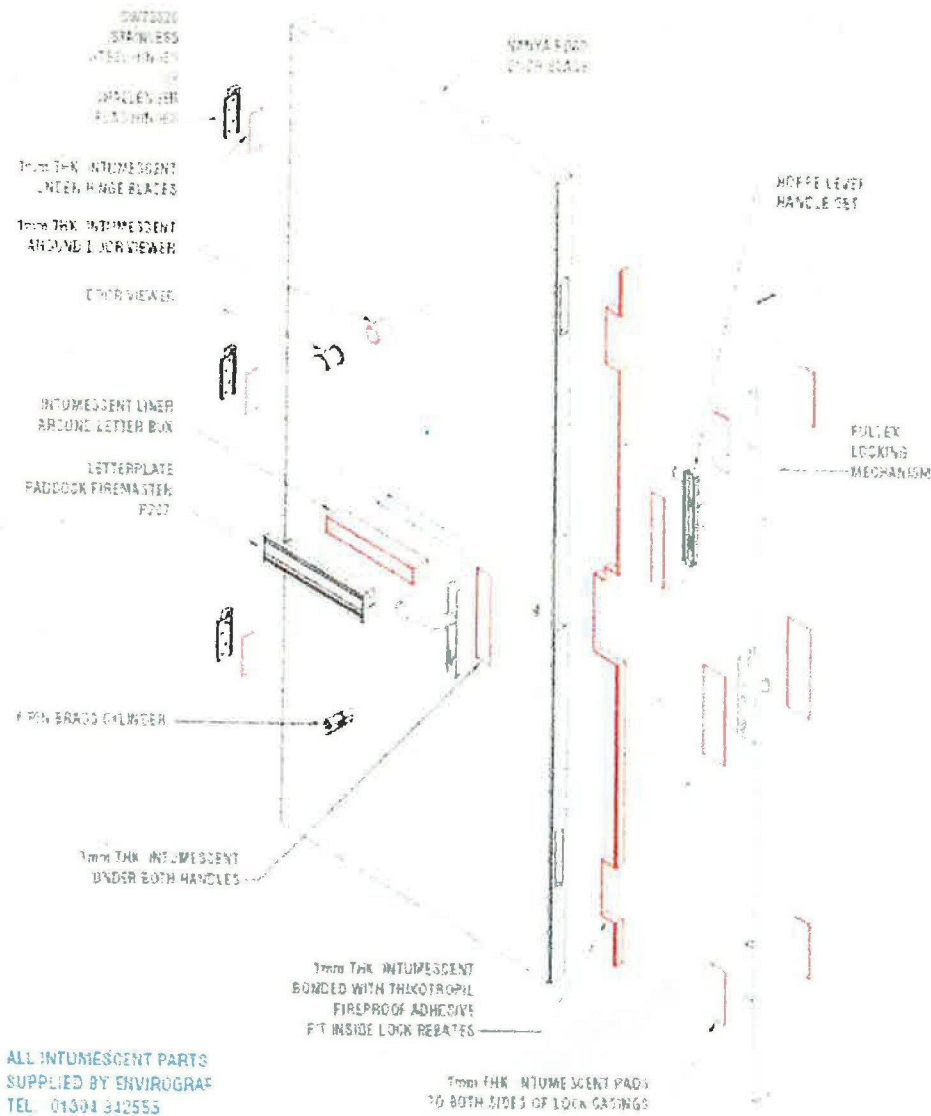


Figure 2. Pictorial view of door blade with component descriptions.

Customer: L B Plastics Limited

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The Building Test Centre

Fire & Acoustic Structures

The Building Test Centre
Grouped under the name
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2265, 2266, 2267, 2268, 2269
2270, 2271, 2272, 2273, 2274
2275, 2276, 2277, 2278, 2279
2280, 2281, 2282, 2283, 2284
2285, 2286, 2287



The Building Test Centre

For Acoustic Structures

The Building Test Centre
 Unit 15, The Old Mill
 100, The Old Mill
 100, The Old Mill
 100, The Old Mill
 100, The Old Mill
 100, The Old Mill

25	Latch & Associated Furniture	
C	Manufacturer	Fuller
C	Reference	Fullex Crimebeater SL16
C	Primary material	Mild Steel
C	Latch bolt material	Mazak 5
C BTC	Latch bolt throw	11mm latch (C, BTC) 13mm key (BTC) 20mm top and bottom (BTC)
C/BTC	Latch operation	Disengaged
C	Lock body bedding material manufacturer	Environmental Seals Limited
C	Lock body bedding material	1mm No.1 LPH intumescent
C	Bedding material thickness	1mm
C	Lock forend bedding material manufacturer	Environmental Seals Limited
C	Lock forend bedding material	1mm No.1 LPH intumescent
C	Bedding material thickness	1mm
C	Lever handle manufacturer	Hoppe
C	Lever handle material	Aluminium
C	Lever handle bedding material	1mm No.1 HP intumescent
C	Bedding material thickness	1mm
BTC	Lever handle size	1105mm
BTC	Handle spindle centred at (from base of door leaf)	1000mm
C BTC	Size of strike plate	Height 212mm Width 40mm
C	Strike plate bedding material manufacturer	Environmental Seals Limited
C	Strike plate bedding material	1mm No.1 LPH intumescent
C	Bedding material thickness	1mm
C	Size of keep	120mm x 30mm
C	Keep lining material	1mm No.1 LPH intumescent
C	Keep lining material thickness	1mm

Customer: L B Plastics Limited

BTC 14434F: Page 14 of 74



0206



The Building Test Centre

For Accurate Structures

The Building Test Centre
 1400 High Street
 1400 High Street
 1400 High Street
 1400 High Street
 1400 High Street
 1400 High Street
 1400 High Street
 1400 High Street

22	Hinge	
BTC	Size of Knuckle	Approximately 16mm diameter
BTC	Size of Blades	100mm x 37mm x 4mm thick
C BTC	Fixing Size and Type	Door leaf - 50mm no.10 screws (BTC) Door frame - 25mm M4 self-drilling machine screws (C)
BTC	Number of Fixings Per Flap.	4 to door leaf 3 (visible) to door frame
C	Bedding Material Manufacturer	Environmental Seals Ltd
C	Bedding Material	1mm No.1 HP
C BTC	Bedding Material Thickness	1mm
BTC	Colour	grey speckled

23	Hinge bolts	NOT APPLICABLE
----	-------------	----------------

24	Door closer	
BTC	Manufacturer	Dorma
BTC	Reference	TS72 Silver
N/S	Material	N/S
BTC	Overall size	Length 230mm Height 65mm Depth 44mm
BTC	Fitting	Exposed face
BTC	Distance from Hanging Edge	Centred at 230mm

Customer: L B Plastics Limited

BTC 14434F: Page 13 of 74



0296



The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
 2010 Ayr Road
 Test Centre
 Doughton
 Lincs LN12 8NP
 Tel: [REDACTED]
 Fax: [REDACTED]
 Email: [REDACTED]

15	Overpanel outer facings	NOT APPLICABLE
16	Overpanel lippings	NOT APPLICABLE
17	Overpanel Intumescent	NOT APPLICABLE
18	Glass	NOT APPLICABLE
19	Glazing aperture lining	NOT APPLICABLE
20	Glass edge seal / lining	NOT APPLICABLE
21	Glazing beads	NOT APPLICABLE
22	Hinges	
C	Manufacturer	Laird
C	Reference	DNCADG0008/DNCBDG001A
C BTC	Quantity	3
BTC	Position	230mm from base 1020mm from base 230 mm from head Measured to centre of hinge
C	Primary Material	Zinc alloy
C	Bearing Material	Acetal

Customer: L B Plastics Limited

BTC 14434F: Page 12 of 74



Q296



The Building Test Group
 11500 Glenmont Avenue
 Dayton, OH 45424
 1-800-368-5859
 FAX 937/233-1500
 Tel. 937/233-1500
 Fax 937/233-1500
 Web: <http://www.bldg-test.com>

11	Overpanel	NOT APPLICABLE
12	Overpanel perimeter framework	NOT APPLICABLE
13	Overpanel core	NOT APPLICABLE
14	Overpanel inner facings	NOT APPLICABLE

BTC 14434F: Page 11 of 74





The Building Test Centre

Fire Assemblies Structures

The Building Test Centre
Brunel University
Uxbridge
Middlesex
UB8 3PH
Tel: [REDACTED]
Fax: [REDACTED]
E-mail: [REDACTED]

9	Door frame (jambs & head)	
C	Door Stop	Width 20mm
BTC	Integral – part of folded steel section	Depth 20mm
N/A	Fixing for door stops (type, size and position)	N/A
N/A	Architrave	N/A
C	Threshold	Stormguard AM3 110mm x 25mm

10	Intumescent to frame head & jambs	
C	<u>OUTER head & jambs</u>	See figures 1, 3, 6 & 7
C	Manufacturer	Environmental Seals Limited
C	Reference	ES302 2mm thick No.2 ES102 2mm thick No.2
C	Size and Quantity	Length Full
BTC	<u>ES302</u> <u>2mm No.2</u>	Width 30mm
		Thickness 2mm
		Quantity 1
C	Fixing method	Self-adhesive
BTC	Position	Centrally in frame
BTC	Colour	Speckled grey
C	Size and Quantity	Length Full
BTC	<u>ES102</u> <u>2mm No.2</u>	Width 10mm
		Thickness 2mm
		Quantity 2
C	Fixing method	Self-adhesive
BTC	Position	One positioned at either side of ES302 intumescent
BTC	Colour	Speckled grey

Customer: L B Plastics Limited

BTC 14434F: Page 10 of 74



0290



The Building Test Centre

Fire Appliances Structures

The Building Test Centre
 10, Old Barn Road, Lutterworth
 Leicestershire, LE17 4BQ
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 Fax: [REDACTED]
 Email: [REDACTED]

8	Intumescent to door leaf	
	<u>Closing Edge</u>	
C	Manufacturer	N/S
C	Reference	N/S
BTC	Size and Quantity	Length Full Width 10mm Thickness 2mm Quantity 1
BTC	Fixing method	loose
BTC	Position	Behind steel edge lipping (lipping size:- 45mm x 8mm x 3mm thick)
BTC	Colour	Grey speckled

9	Door frame (jambs & head)	
C	Manufacturer (if non-timber)	L B Plastics Ltd
C	Material (species if timber)	PVC / steel
C	Reference (if non-timber)	SK 77950/S118 Steel reinforced
N/A	Density	N/A
N/A	Average moisture content (test lab)	N/A
C	Frame size	Width 70mm
BTC	- door stop included	Thickness 70mm
C	Overall frame dimensions	Height 2115mm Width 1050mm
C	Jambs to head jointing method	Fusion Welded
BTC	Frame fixings	100mm no.10 screws.
C	Number of frame fixings & positions	4 fixings per jamb, at 150mm from the head and base of the door frame and at 500mm centres.
BTC	- Countersunk	

Customer: L B Plastics Limited

BTC 14434F: Page 9 of 74



0298



The Building Test Centre

Fire Acoustic Structures

The Building Test Centre
 Building Engineering Services
 1st Floor
 100, Grosvenor Street
 London, E1C 7JN
 Tel: [REDACTED]
 Fax: [REDACTED]
 Email: [REDACTED]

7	Door leaf lippings	
BTC	Material (species if timber)	Timber
C	Density	400kg/m ³ (minimum)
C	Thickness – measure & identify all	12mm - 22mm hanging edge 16mm (BTC) closing edge 18mm (BTC)
C	Adhesive manufacturer	Nan Ya Company
C	Adhesive Type	Polyurethane
C	Adhesive Curing Method	Pressing 30 minutes

8	Intumescent to door leaf	
C BTC	<u>Head</u>	None
	<u>Hanging Edge</u>	
C	Manufacturer	N/S
C	Reference	N/S
BTC	Size and Quantity	Length Full Width 16mm Thickness 1mm Quantity 1
BTC	Fixing method	loose
BTC	Position	Behind steel edge lipping (lipping size:- 45mm x 8mm x 3mm thick)
BTC	Colour	Grey speckled

Customer: L B Plastics Limited

BTC 14434F: Page 8 of 74



0296



The Building Test Centre

Fire Resistant Structures

The Building Test Centre
British Standards Institute
Eastleigh
Hants. PO15 5NU
Tel: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]

3	Door leaf internal framework	
C	Manufacturer	Nan Ya Company
C	Material (species if timber)	Plasterboard
C	Reference (if non-timber)	N/A
C	Density	800kg/m ³
C	Sizes – Muntins	Top
N/C	(specify quantity & position)	Width 36mm Depth 41mm
C	Sizes – Rails	Width 36mm
N/C	(specify quantity & position)	Depth 41mm
C	Jointing method	Adhesive with polyurethane

4	Door leaf core	
C	Manufacturer	Nan Ya Company
C	Material (species if timber)	Phenolic foam
C	Reference (if non-timber)	N/A
C	Density	150kg/m ³ (minimum)

5	Door leaf inner facings	NOT APPLICABLE
---	-------------------------	----------------

6	Door leaf outer facings	
C	Manufacturer	Nan Ya Company
C	Material (species if timber)	SMC Skin
C	Reference (if non-timber)	It is similar to FRP
C	Density	1700kg/m ³ (minimum)
C	Thickness	1.7mm (minimum)
C	Adhesive manufacturer	N/A

Customer: L B Plastics Limited

BTC 14434F: Page 7 of 74



0290



Doors		
BTC	Actual leaf mass Including: Hinges Latch Handles Letterbox Spy hole/cover	42.5kg
C	Door leaf finish	See section 6

2	Door leaf perimeter framework	
C	Manufacturer (if non-timber)	N/A
C	Material (species if timber)	European Redwood
C	Reference (if non-timber)	N/A
C	Density	510kg/m ³
C N/C	Sizes – Muntins (specify quantity & position)	Head & Jambs Width 90mm Depth 40mm
C N/C	Sizes – Rails (specify quantity & position)	Stop Width 25mm Depth 12mm
C	Jointing method	Steel wood screws at 600-800mm centres

Customer: L B Plastics Limited

BTC 14434F: Page 6 of 74



0296



The Building Test Centre

Fire Appliances Structures

The Building Test Centre
 6th Floor, 100 Broad Street
 Bristol, BS1 4TA
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 Fax: 0117 925 1001
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TEST CONSTRUCTION

The doorset consisted of a single acting, composite door leaf, hung in a PVC / steel frame and supported in a lightweight timber stud partition.

The doorset was manufactured and supplied by L B Plastics Limited.

Information Status Key

N/C	Not checked / cannot be checked
N/A	Not Applicable
N/S	Not Supplied
BTC	Checked by BTC
C	Checked or supplied by Customer
()	Nominal dimensions

Doorset

The doorset comprised the following:

Info Status	Description. (The laboratory has checked component details marked with BTC in the 'info status' column).
-------------	---

1	Doorset	
C	Reference	Nanya FD30 Door Leaf
C	Nominal door leaf size	Height 2030mm Width 940mm Thickness 45mm
BTC	Actual door leaf size	Height 2030mm Width 940mm Thickness 45mm
C	Stated leaf mass	N/S

Customer: L B Plastics Limited

BTC 14434F: Page 5 of 74



0296



The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
British Gas Fire Research
Eastleigh
Hampshire
SO50 8LJ
Tel: [REDACTED]
Fax: [REDACTED]
Email: info@buildingtestcentre.co.uk

FOREWORD

This test report details a fire resistance test conducted on a single acting, single leaf composite door, hung in a PVC / steel frame. The doorset was constructed in a lightweight supporting construction comprising a timber stud partition. The test sponsor was L B Plastics Limited.

The Building Test Centre built the supporting construction and installed the test specimen between 8th and 9th February 2006. The Building Test Centre played no role in the design or selection of the materials comprising the test specimen.

The following personnel witnessed the test: -

Mr Jim Duncan of L B Plastics Ltd
Mr Derek Ward of Environmental Seals Ltd
Mr Ray James of Environmental Seals Ltd
Mr Gary Wadey of Environmental Seals Ltd

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.

REPORT AUTHORISATION

Report Author

Donna Thornton
Technologist

Authorised by

Steve Harms
BEng (Hons.), MIFireE
Fire Test Laboratory Manager

The Building Test Centre will not discuss the content of this report without written permission from the test sponsor. The Building Test Centre retains ownership of the test report content but authorises the test sponsor to reproduce the report as necessary in its entirety only.

Customer: L B Plastics Limited

BTC 14434F: Page 4 of 74



0298



The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
 British Gyproc Division
 Edgware
 Middlesex
 HA8 7EP
 Tel: [REDACTED]
 Fax: [REDACTED]
 E-mail: [REDACTED]

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Customer: L B Plastics Limited

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0298



The Building Test Centre

Fine Acoustics Structures

The Building Test Centre

Building Test Centre Ltd

Unit 10/11

Longbridge

Birmingham B15 2TA

Tel: [REDACTED]

Fax: [REDACTED]

Website: www.btc-test.co.uk



Photograph 28. Unexposed face at 34 minutes.

Customer: L B Plastics Limited

BTC 14434F: Page 72 of 74



0209



The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
 British Standards Institute
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A FIRE RESISTANCE TEST ON A SINGLE ACTING, SINGLE LEAF COMPOSITE DOOR
 CONSTRUCTED IN A PVC / STEEL FRAME, CONDUCTED IN ACCORDANCE WITH
 BS 476: PART 22: 1987: CLAUSES

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Customer: L B Plastics Limited

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0206

MET00040103/58
 MET00040103/58



The Building Test Centre

Fire Acoustic Structures

The Building Test Centre
British Standards Approved
Test House
Leighton Buzzard
Bedfordshire LU17 6NH
Tel: [REDACTED]
Fax: [REDACTED]
Email: info@buildingtestcentre.com

Report Number BTC 14434F

A FIRE RESISTANCE TEST ON A SINGLE ACTING, SINGLE
LEAF COMPOSITE DOOR, CONSTRUCTED IN A PVC /
STEEL FRAME, CONDUCTED IN ACCORDANCE WITH
BS 476: PART 22: 1987: CLAUSE 6.

Test Date: 16th February 2006

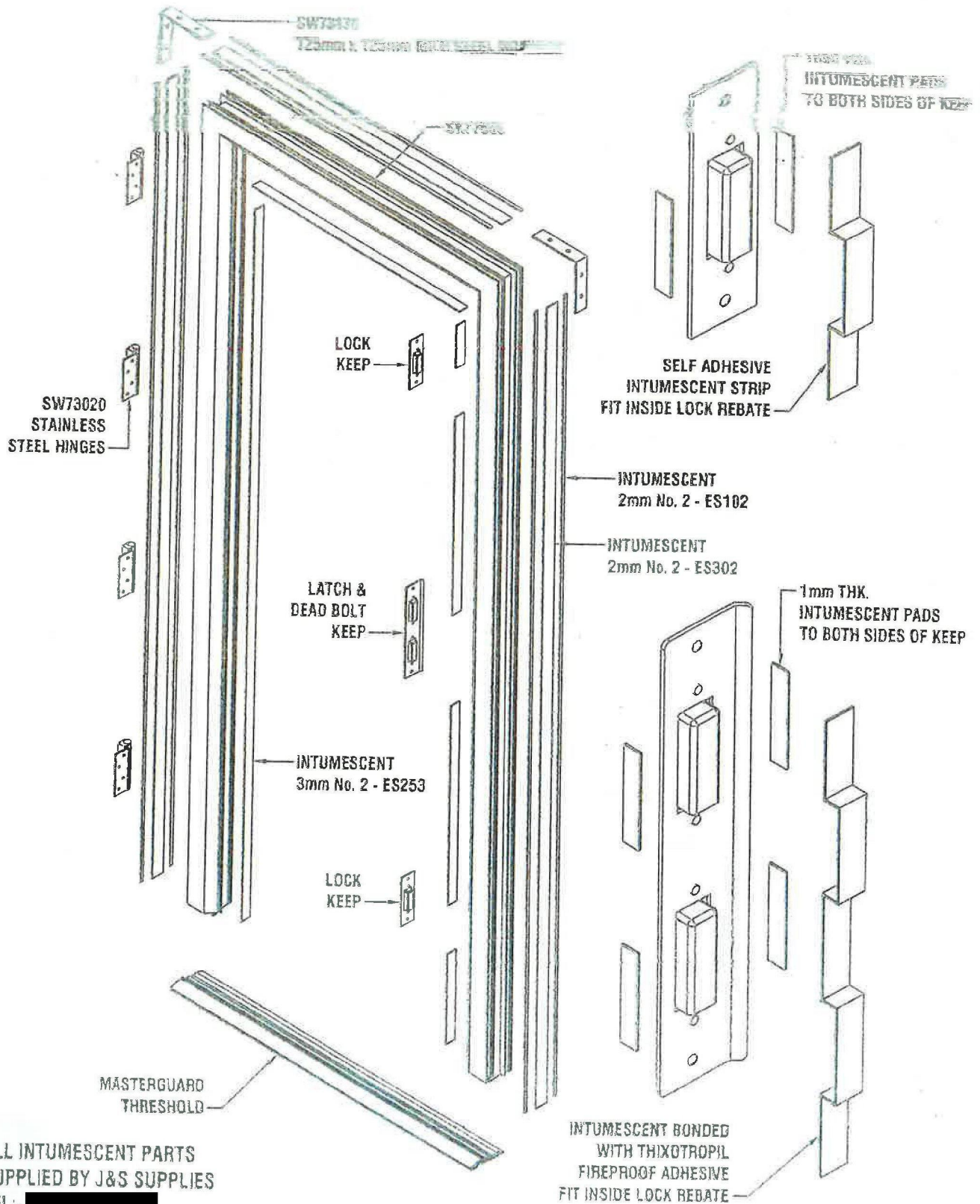
www.btconline.co.uk

Customer: L B Plastics Limited
Firs Works
Nether Heage
Derby
DE56 2JJ

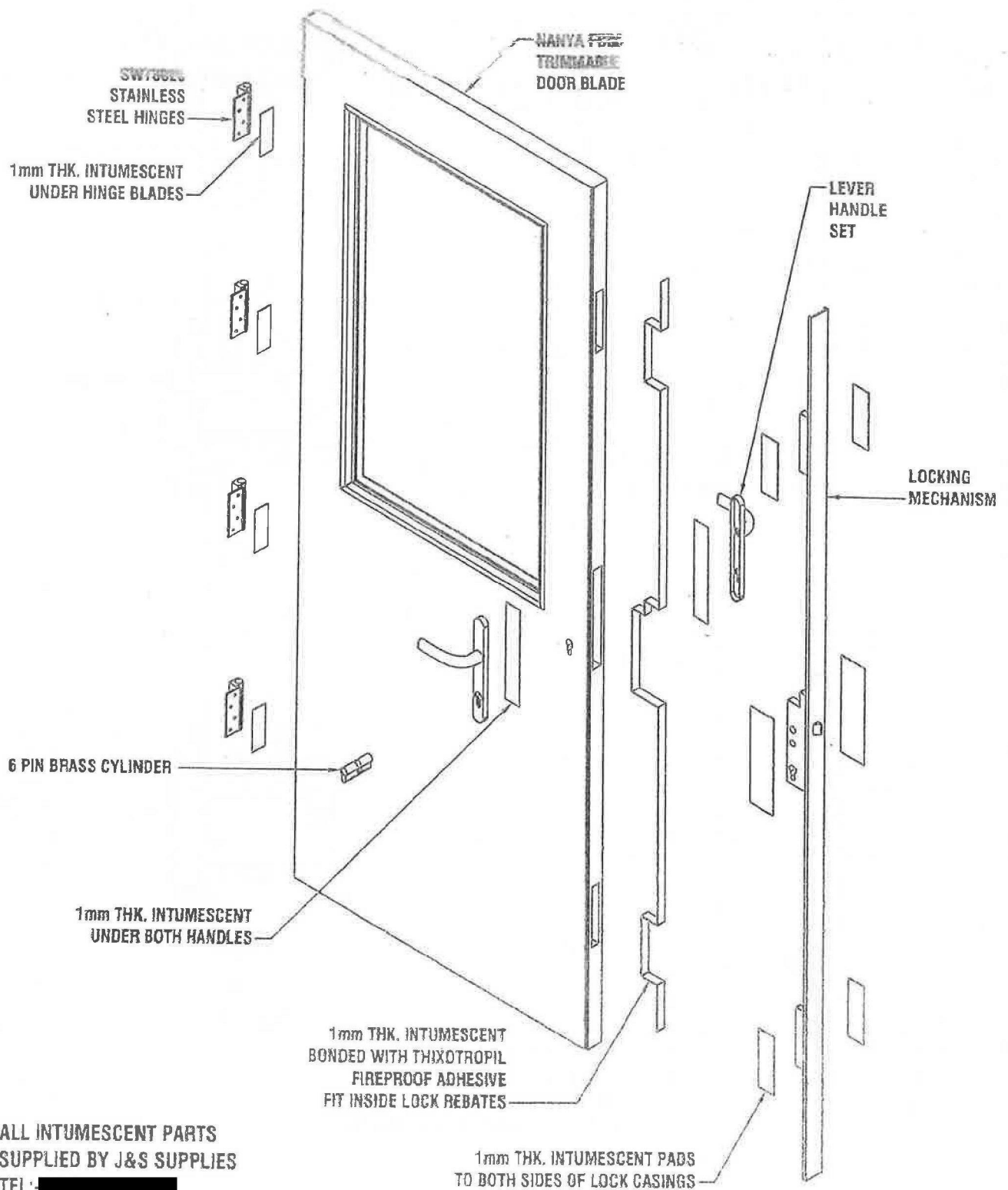
Customer: L B Plastics Limited

BTC 14434F: Page 1 of 74

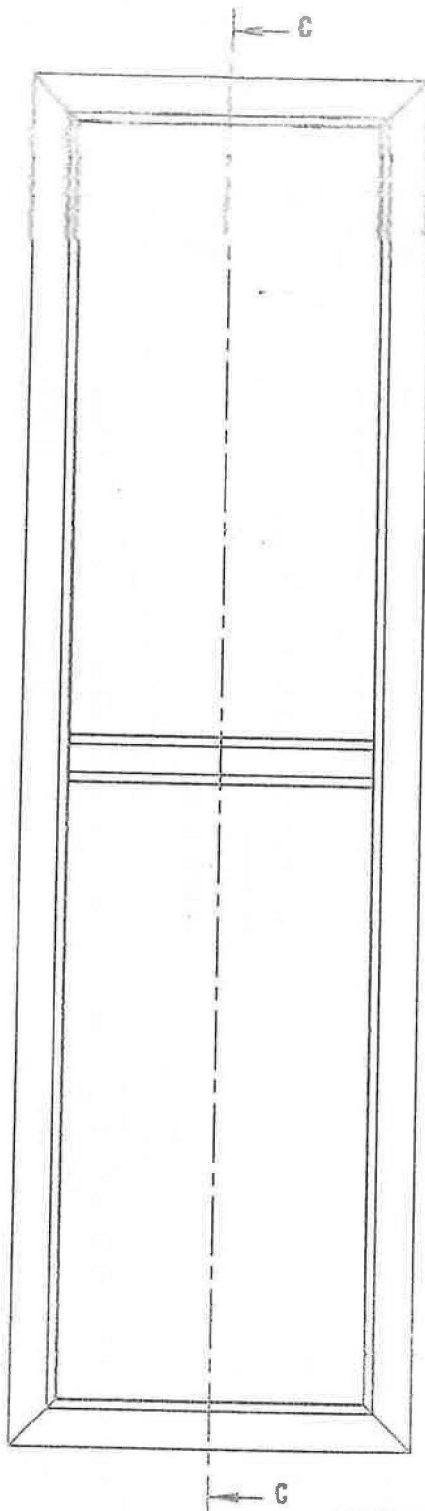




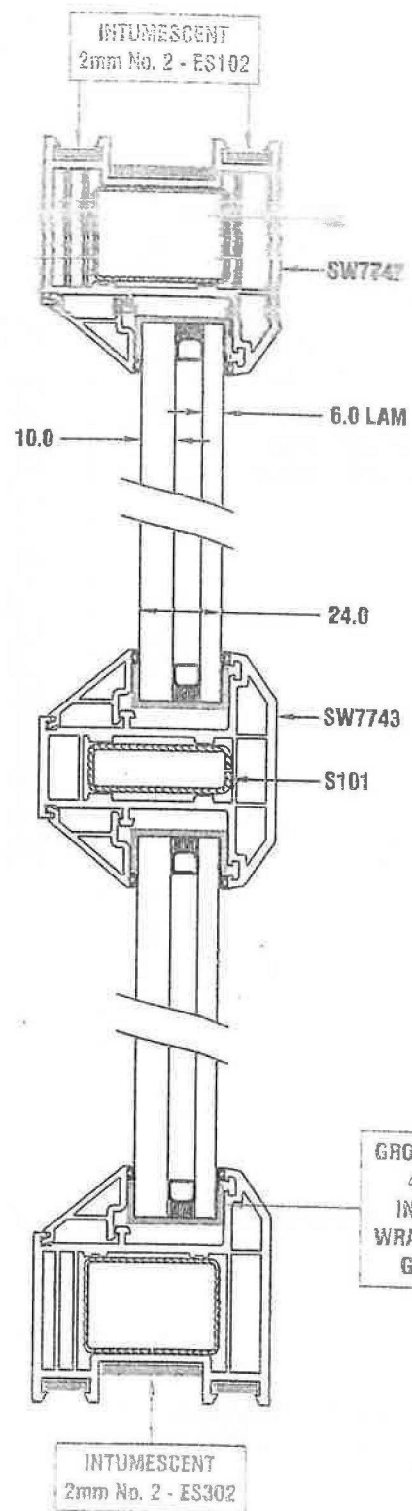
ALL INTUMESCENT PARTS
SUPPLIED BY J&S SUPPLIES
TEL:- [REDACTED]



**COMPOSITE FIRE DOOR PANEL
VERTICAL CROSS SECTION**

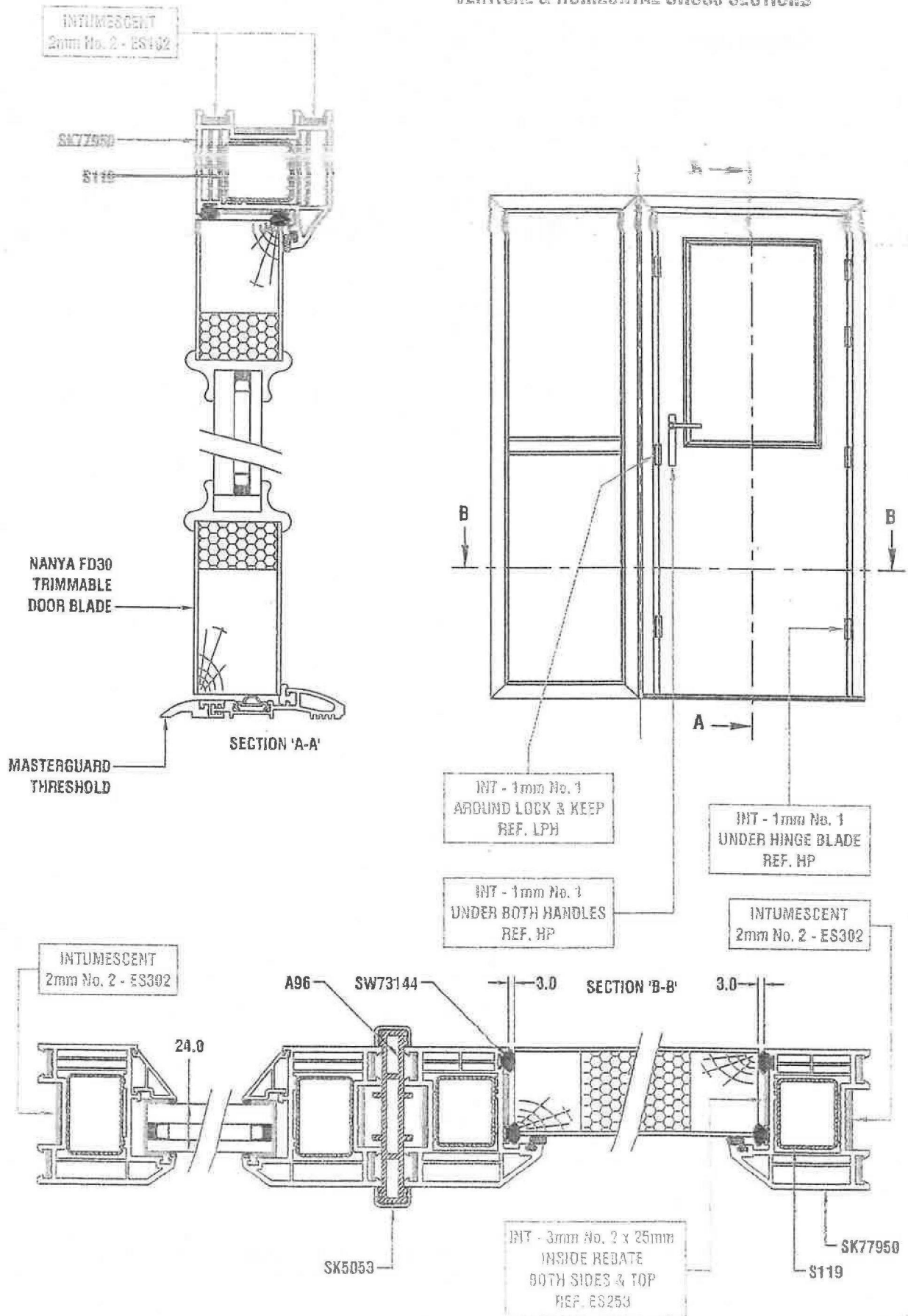


GLASS SPECIFICATION
 6.4mm PILKINGTON 'K' LAMINATED
 8mm STEEL SPACER
 10mm PILKINGTON PYRODUR EW30-201



SECTION C-C

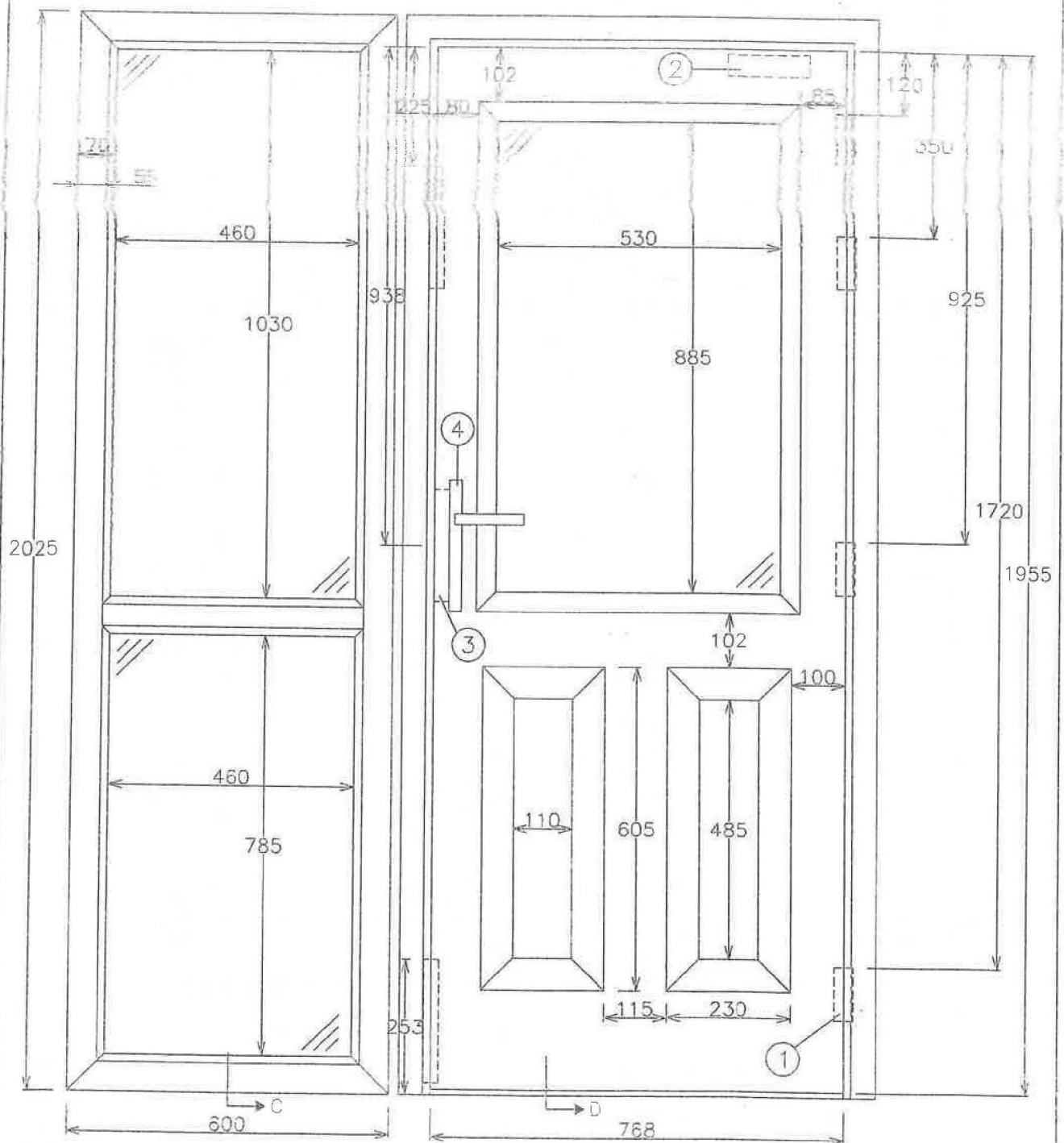
COMPOSITE FIRE DOOR
VERTICAL & HORIZONTAL CROSS SECTIONS



Appendix

Drawings of specimen provided by LB Plastics Ltd

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Chiltern House, Stocking Lane, Hughenden Valley
High Wycombe, Buckinghamshire, HP14 4ND, UK.

Tel: [REDACTED] Fax: [REDACTED]

Title: Unexposed face elevation
showing ironmongery positions
(All dimensions in mm)

Date Drawn: 16/03/07

Drawn By: SP

Scale: NTS

Project No.: Chilt/RF07024

Page 15 of 17

Intumescent materials - side panel

	Make/type	Size (mm)	Location
Panel edges	Environmental Seals Ltd Envirograf ES302	30 x 2	Centrally fitted in the outer edge of the panel
	2No Environmental Seals Ltd Envirograf ES110	10 x 2	Fitted at ead edge of the outer edge of the panel
Glazing perimeter	Environmental Seals Ltd Group 77 Spec	3 thick	Fitted around the perimeter of the aperture between glass and beading

Ironmongery - doorset

	Make/type	Size (mm)	Location	Key to figures
Hinges	4No Seley Engineering Asia Masterdor HNG 133 stainless steel hinges	100 x 35 (blade size)	Fitted 120, 350, 925 and 1720 from the head of the leaf	1
Closer	Laidlaw B2W aluminium and steel surface mounted overhead closer	150 x 40 (footprint size)	Fitted to the exposed face as per manufacturer's specification	2
Latch	Winkhaus STV-F2070 3 point lock - centre point only engaged	1770 x 20 (forend size)	Fitted 938 from the head to the centre of the latch nib	3
Furniture	Hoppe aluminium lever handles	27 x 245 (footprint size)	Fitted appropriate to the latch	4

Glazing - doorset

	Make/type	Size (mm)	Location
Glass type	Double glazed unit comprising 10mm Pilkington Pyrodur (exposed face), 8mm steel spacer and 6.4mm Pilkington Optilam laminated glass (unexposed face)	24.4 thick	Fitted 85 from the hanging edge and 102 from the head of the leaf
Sight size	-	885 high x 530 wide	-
Overall aperture size	-	939 high x 588 wide	-
Expansion allowance	-	2 all round	-
Beading	Nan Ya Plastics ABS glazing cassette snap together fitting	Overall 16 deep x 37 high	Fitted on both faces around the perimeter of the aperture
Beading fixings	Steel 'U' channel	65 long x 35 high x 18 high	Perimeter edge - 3 per edge, equally spaced, fitted as inserts within phenolic foam

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Side panel

		Species/type	Dimensions (mm)	Density (kg/m ³)	Moisture (% w/w)
Stiles		UPVC with steel reinforcement and a 19 wide x 28 deep push fit loose bead fitted to the exposed face	Overall 70 deep x 68 thick	-	-
Rails	Top & bottom	UPVC with steel reinforcement and a 19 wide x 28 deep push fit loose bead fitted to the exposed face	Overall 70 deep x 68 thick	-	-
	Mid	UPVC with steel reinforcement and 2No 20 wide x 28 deep push fit loose beads fixed to the exposed face	Overall 70 deep x 70 thick	-	-
Glass type		2No double glazed apertures comprising 10mm Pilkington Pyrodur (exposed face), 8mm steel spacer and 6.4mm Pilkington Optilam laminated glass (unexposed face)	24.4 thick	-	-
Sight size	Top aperture	-	1030 high x 460 wide	-	-
	Bottom aperture	-	785 high x 460 wide	-	-
Overall aperture size	Top aperture	-	1072 high x 501 wide	-	-
	Bottom aperture	-	827 high x 501 wide	-	-

* Stated density, not checked by laboratory

** Nominal density

Intumescent materials - doorset

		Make/type	Size (mm)	Location
Door edges	Head & hanging edges	None fitted	-	-
	Closing edge	Environmental Seals Ltd Envirograf HP paper	1 thick	Fitted under the aluminium fast fit
Frame reveal - head & jambs		Environmental Seals Ltd Envirograf ES253 vinyl covered adhesive strip	25 x 3	Centrally fitted in the frame reveal
		SW73144 brush seals	-	Fitted either side of the 25 x 3 seal
Around hinges		Fully interrupted	-	Hinge blade fully interrupts the intumescent seal
Under hinge blade		Environmental Seals Ltd Envirograf HP	1 thick	Fitted under the hinge blade on both leaf and frame
Encasing latch body		Environmental Seals Ltd Envirograf LHP	1 thick	Wrapped around the latch body
Under latch forend		Environmental Seals Ltd Envirograf LHP	1 thick	Fitted under the latch forend
Under latch keep		Environmental Seals Ltd Envirograf LHP	1 thick	Fitted under the latch keep
Glazing perimeter		Environmental Seals Ltd Envirograf Group 37 Special	3 thick	Fitted around the perimeter of the aperture between glass and beading

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Description of construction (refers to Figures 1 to 2 and the Appendix)

Door leaf

The door leaf was identified as a Nan Ya FD30 Trimmable doorblank

	Species/type	Dimensions (mm)	Density (kg/m ³)	Moisture (% w/w)
Slits	Sapele	69 wide x 40 thick	640**	-
Rails - top & bottom	Sapele	100 wide x 40 thick	640**	-
Core	Phenolic foam	Maximum 40 thick Minimum 15 thick at the mock panel perimeters	150-180*	-
Facings	SMC (glass reinforced polyester)	2 thick	-	-
Adhesive	Facings	Polyurethane	-	-
Lippings - vertical edges	Sapele	32 wide x 40 thick	640**	-

* Stated density, not checked by laboratory

** Nominal density

Door frame

(see Appendix for construction details and product references)

	Species/type	Dimensions (mm)	Density (kg/m ³)	Moisture (% w/w)
Head & jambs	UPVC with steel reinforcement as supplied by Sheerframe SR77950	Overall 69 thick x 70 deep including 18 deep stop	-	-
Head to jamb jointing detail	Mitred fusion welded and mild steel angle	-	-	-
Stops	Integral	18 deep	-	-
Frame to supporting construction fire stopping detail	Tightly packed mineral fibre	Nominally 15 thick	-	-
Frame to supporting construction fixing detail	3No steel wood screws per jamb	100 long	-	-
Architrave	None fitted	-	-	-
Threshold	Stormguard - Masterguard 15	94 wide x 8.6 (minimum), 15.5 (maximum) deep	-	-

* Stated density not checked by laboratory

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4.5 Times to failure

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



Integrity	30 (thirty) minutes
Insulation	30 (thirty) minutes

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 2. 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. CIFI 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:		
Name:	Mark Cummings	Vincent Kerrigan
Title:	Senior Test Engineer	Deputy Technical Manager
Date of issue:	23 May 2007	23 May 2007

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- 30.10 Doorset, a cotton pad integrity test was performed at the top hanging corner of the leaf which resulted in ignition of the cotton pad thereby constituting **integrity failure**
- 30.45 Doorset, there is continuous flaming from the top glazing bead ignited from the bottom of the hanging edge of the leaf thereby constituting further **integrity failure**.
- 33.40 Test terminated.

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4.4 Observations

All comments relate to the unexposed face unless otherwise specified.

Time (minutes)	Comments
00.00	Test started.
02.10	Side panel, top glazing aperture, there is smoke issuing from the left side, centre and top. Doorset, the glass has cracked.
02.40	Side panel, the glass in both glazing apertures has cracked.
03.00	Side panel, there is smoke issuing from the mid rail.
03.20	Side panel, the glazing intumescent is reacting.
03.50	Side panel, bottom glazing aperture, there is smoke issuing from the top hanging corner and the intumescent is reacting.
05.00	Doorset, there is smoke issuing from the latch position and top closing corner of the leaf.
06.20	All glass intumescent has reacted.
11.30	Doorset, there is an increase in the level of smoke issuing from the top closing corner of the leaf.
13.22	Doorset, there is discolouration at the top hanging corner of the leaf, latch position, top rail and top of the closing and hanging edges of the leaf.
15.20	Doorset, there is an increase in the level of smoke issuing from the top of the closing edge of the leaf. The joint between the side panel and door is distorting.
17.20	Doorset, the top glazing bead has distorted away from the leaf.
21.30	Side panel, the frame is distorting around both glazing panels.
23.00	There is an increase in the level of smoke issuing from the whole specimen.
25.30	Doorset, there is intermittent flaming from the middle hinge position.
26.15	There is a glow visible through the frame gap.
28.59	Doorset, a cotton pad integrity test was performed at the top hanging corner of the leaf, no failure.
30.00	Specimen satisfactory.

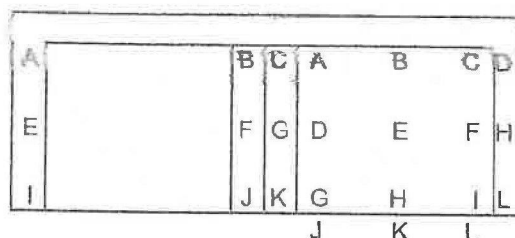
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4.3 Door distortion data

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.



Leaf (hung on the right and opening in towards the fire)

Time	A	B	C	D	E	F	G	H	I	J	K	L
10	-1.5	-1.5	-1.5	0	-	-8.5	0	-0.5	0.5	0.5	0.5	5.5
20	13	2	-4	22.5	-	2.5	5	2	0.5	1	2	7.5
30	-	-	-	22.5	-	3.5	5	2	1.5	1	-	-

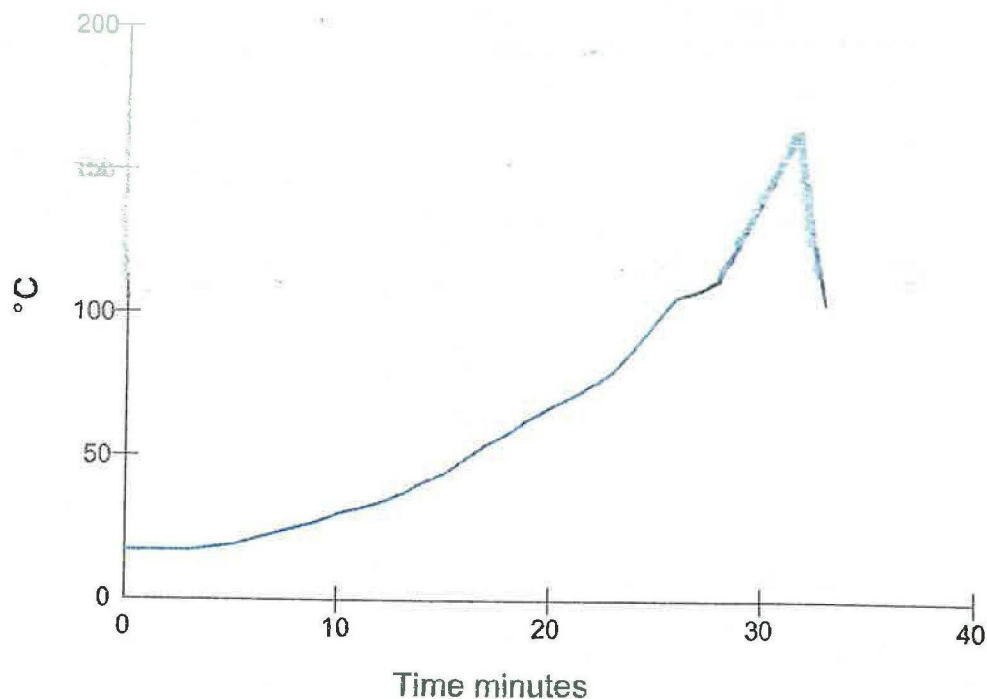
Frame

Time	A	B	C	D	E	F	G	H	I	J	K	L
10	-1.5	0.5	-0.5	-3.5	0.5	7.5	8.5	10	-0.5	1	-0.5	0
20	-9.5	-11.5	-1.5	-13.5	-2	-2.5	5	6	-1.5	0	-0.5	-1
30	-20.5	-40.5	16.5	-	-	-	-	-	-	-	-	-

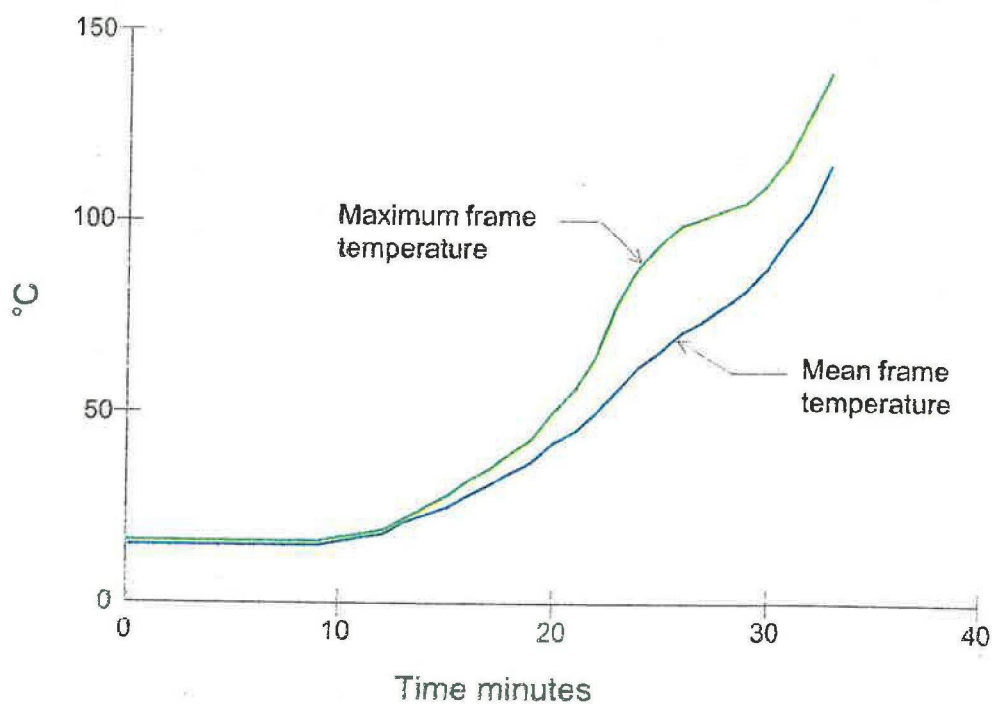
Where a dash (-) applies, a distortion reading could not be taken

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Mean temperature of glass - bottom aperture of side panel

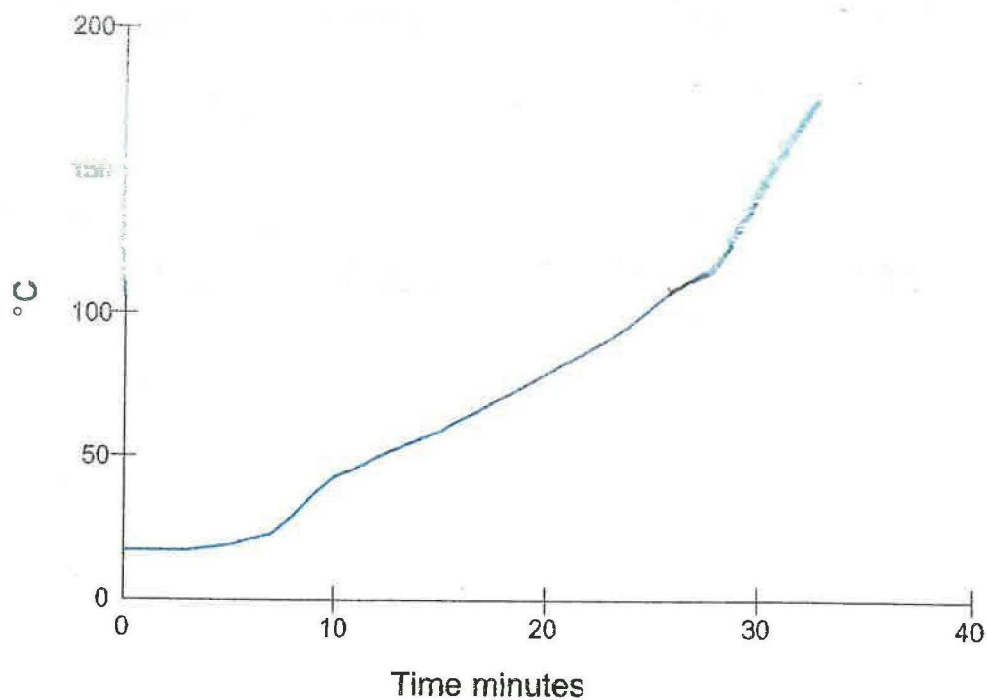


Mean and maximum temperatures of door frame

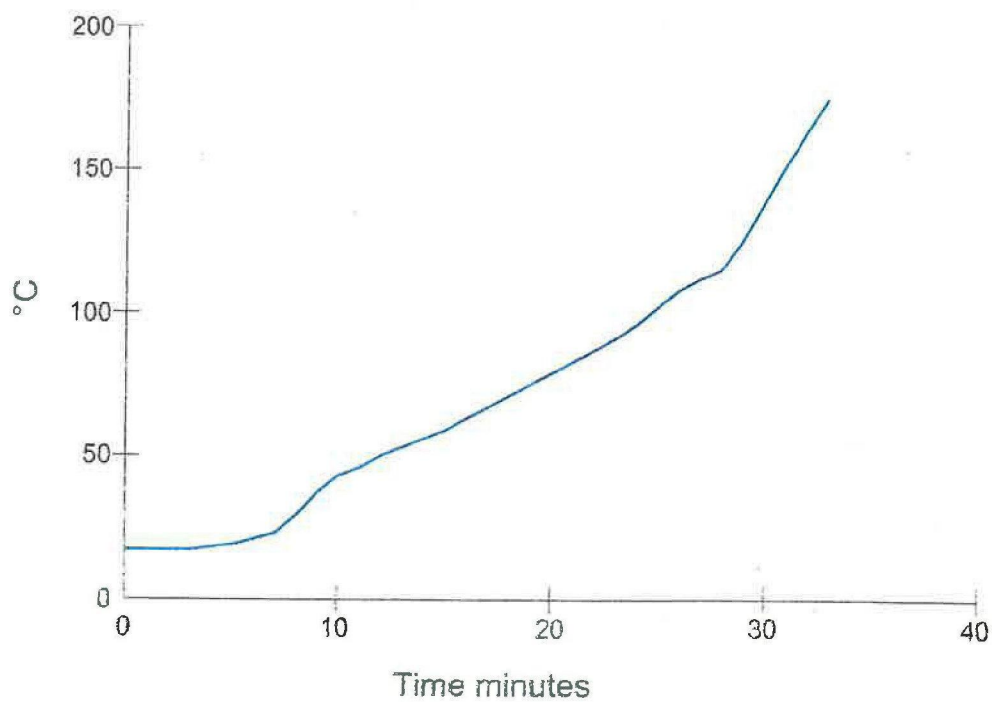


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Mean temperature of glass - leaf



Mean temperature of glass - top aperture of side panel

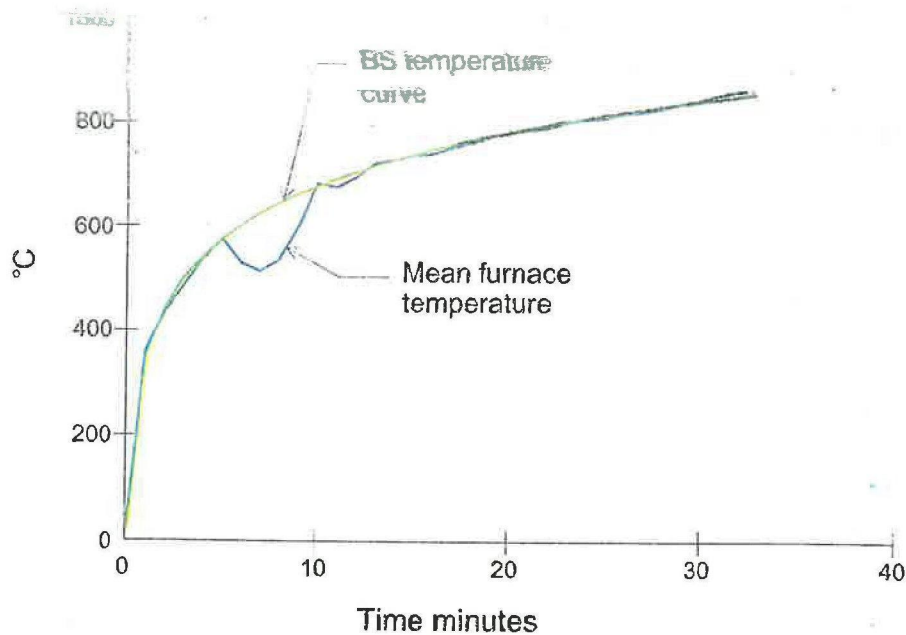


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4 Test results

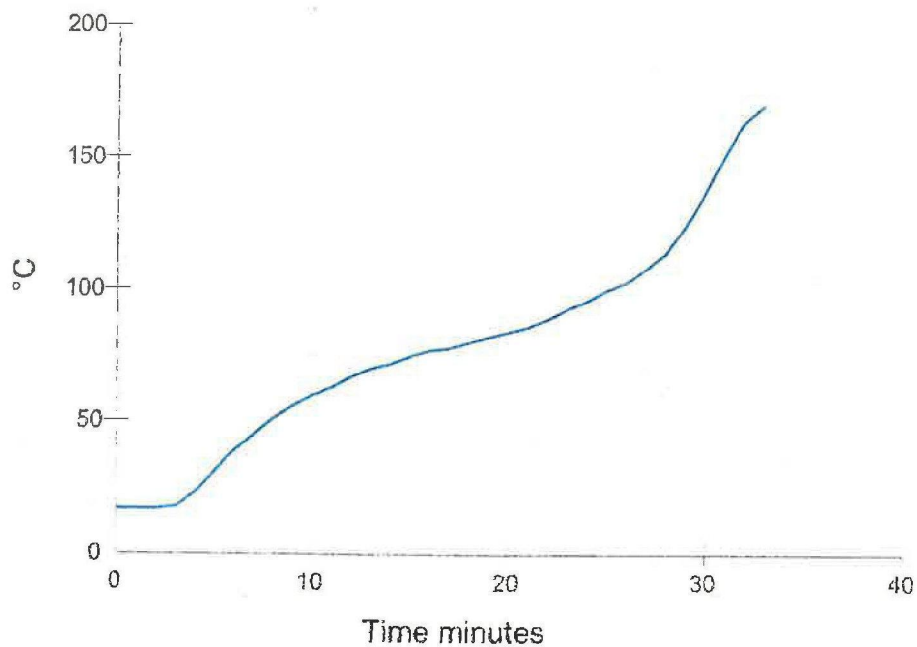
The following data and observations were recorded during the test.

4.1 Furnace temperature curve



4.2 Unexposed face temperature curves

Mean temperature of leaf



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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 the Group.
- 3.2 The ambient temperature of the test area at commencement of test was 16°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 specimen, and four thermocouples attached to each frame, one at midheight on each jamb and one centrally located above the leaf and side panel on the frame head. Two additional thermocouples were fixed to the glass of each aperture. The thermocouple positions are shown in Figure 2. The average temperature of the door leaf and maximum temperature of the doorset are shown graphically in Section 4.2.

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1 Introduction

The doorset and side panel were manufactured and supplied for test by the client and delivered during February 2007. Chiltern International Fire Limited (CIFL) constructed a timber stud/plasterboard clad partition and installed the specimen into the partition.

2 Specification

Details of the specimen are shown in Figures 1 and 2 and the Appendix.

2.1 Door leaf

The leaf measured 1955mm high x 768mm wide x 44mm thick. The leaf 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 doorset fitted with an engaged latch.

2.2 Side panel

The side panel measured overall 2025mm high x 600mm wide x 70mm thick and included two glazed apertures with sight sizes of 1030mm high x 460mm wide for the top aperture and 785mm high x 460mm wide for the bottom aperture.

2.3 Door perimeter gaps

The gaps between the edge of the doors and frame were measured prior to test. A total of 12 readings were taken. The measurements (in mm) are given in Figure 2.

2.4 Closer forces

Measured in accordance with FTSG Resolution No 63.

Opening force (Nm)	Closing force (Nm)
36	17

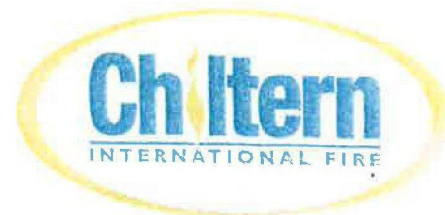
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CONFIDENTIAL

Test Report : Chilt/RF07024

**A fire resistance test performed on
a single leaf, single acting doorset with glazing and a
glazed side panel**

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

Test Date: 27 February 2007

Test for :
LB Plastics Ltd
Firs Works
Neather Heage
Derby
DE56 2JJ

Page 1 of 17

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

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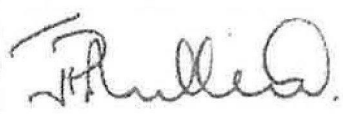

7 Limitations

The following limitations apply to this assessment:

- 1) This ~~assessment addresses itself solely~~ to the elements and subjects discussed and does not cover any other criteria. All other details not specifically referred to should remain as tested or assessed.
- 2) This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available, Cif reserves the right to withdraw the assessment unconditionally but not retrospectively.
- 3) This assessment has been carried out in accordance with Fire Test Study Group Resolution No 82: 2001.
- 4) Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
- 5) This assessment relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this assessment, the element is suitable for its intended purpose.

8 Validity

- 1) The assessment is valid for a period of 5 years from the date of issue, after which it must be submitted to Cifl for revalidation.
- 2) This assessment report is not valid unless it incorporates the declaration given in Section 6 duly signed by the applicant.

	Prepared by:	Checked by:
Signature:		
Name:	J P Mullett	P N Barker
Title:	Principal Consultant	Consultant

The legal validity of this report can only be claimed on presentation of the complete report



6 Declaration by the Applicant

- 1) We the undersigned confirm that we have read and comply with obligations placed on us by FTSG Resolution No 62, 2001
- 2) We confirm that the component or element of structure, which is the subject of this assessment, ~~has not to our knowledge been subjected to a fire test to the~~ Standard against which this assessment is being made.
- 3) We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made
- 4) We are not aware of any information that could adversely affect the conclusions of this assessment
- 5) If we subsequently become aware of any such information we agree to ask the assessing authority to withdraw the assessment.

Signed

Name:

J. DUNCAN.

For and on behalf of LB Plastics Ltd

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4 Analysis

4.1 General

Unless stated otherwise, all other details must remain as tested in Chiltern RF07024

4.2 Glazing Options

Test RF07024 evaluated the performance of the doorset and side screen design when fitted with a double glazed unit comprising the following:

- 10mm Pilkington Pyrodur glass (exposed face), 8mm steel spacer and 6.4mm Pilkington Optilam laminated glass (unexposed face)

Test IF07049 evaluated the performance of a representative section of side screen when fitted with a double glazed unit comprising the following:

- 7mm Pilkington Pyroshield cast wired glass (exposed face), 11mm steel spacer and 6mm Pilkington clear wired glass (unexposed face)

Based on the successful results obtained by both specimens, it is acceptable that either specification of double glazed unit defined above may be fitted in to the tested design of doorset and side screen

If the 10mm Pyrodur option is used, the Pyrodur must be fitted on the dwelling or fire risk side. If the Pyroshield cast and clear option is used, the unit may be orientated in either direction as required.

5 Conclusion

It is our opinion that, if the doorset and side design detailed in this assessment were to be tested in accordance with BS 476: Part 22: 1987, the construction would provide a minimum of 30 minutes integrity, subject to the provisos stated.

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1 Introduction

This assessment has been commissioned by LB Plastics Ltd and relates to the fire resistance of a UPVC composite doorset and side screen design. The assessment is conducted in terms of the fire resistance test standard for non-loadbearing elements, BS476 Part 22: 1987.

2 Proposal

The proposal is to address modification to the doorset and side screen tested in fire resistance test Chilt/RF07024, which is summarised as follows:

- Substitution of 10mm Pyrodur glass with 6mm Pyroshield glass

The modified construction is required to maintain a minimum of 30 minutes integrity in terms of the current testing standard, BS476 Part 22: 1987.

3 Test Evidence

The following test evidence is cited in support of this assessment:

3.1 Fire Resistance Test Chilt/RF07024

The test was conducted on an unlatched, single leaf, single acting doorset and side screen. The assembly contained a UPVC composite doorset with a leaf 1955mm high x 768mm wide x 44mm thick and a steel framed, UPVC clad side screen 2025mm high x 600mm wide.

The door and screen were fitted with double glazed units comprising 10mm thick Pyrodur and 6mm thick laminated glass.

When tested in accordance with BS476: Part 22: 1987, the specimen achieved the following fire resistance performance:

Integrity	30 minutes
Insulation	30 minutes

3.2 Fire Resistance Test Chilt/IF07049

This test was performed on a section of side screen 1060mm high x 610mm wide, comprising a UPVC frame with steel reinforcement, essentially similar to the full size screen tested in RF07024.

The screen was fitted with a double glazed unit comprising 7mm Pyroshield cast and 6mm Pyroshield wired glass.

When tested in accordance with the principles of BS476: Part 22: 1987, the specimen achieved the following fire resistance performance:

Integrity	31 minutes
Insulation	0 minutes

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Unit 10, The Mill, 1000 Mill Lane
1000 Mill Lane, 1000 Mill Lane
1000 Mill Lane, 1000 Mill Lane

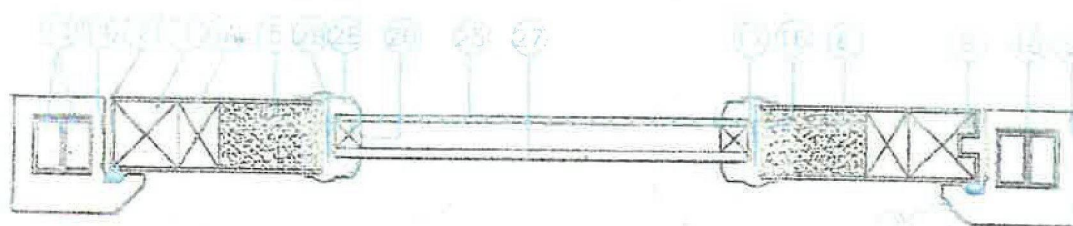
Addendum to Fire Resistance Test Report Chilt/RF07024

Report reference: Chilt/VA07180
Issue date: 26 September 2007
Prepared for: LB Plastics Ltd
Firs Works
Neather Heage
Derby
DE56 2JJ

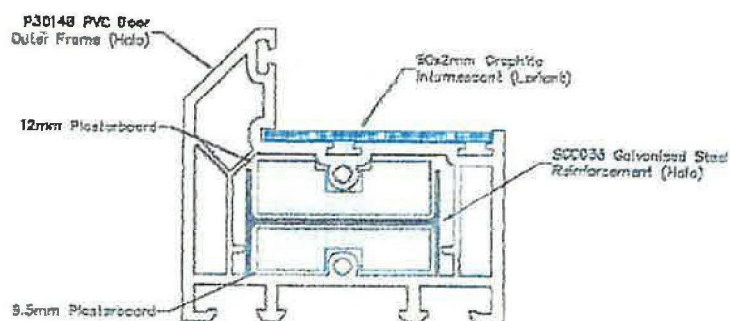
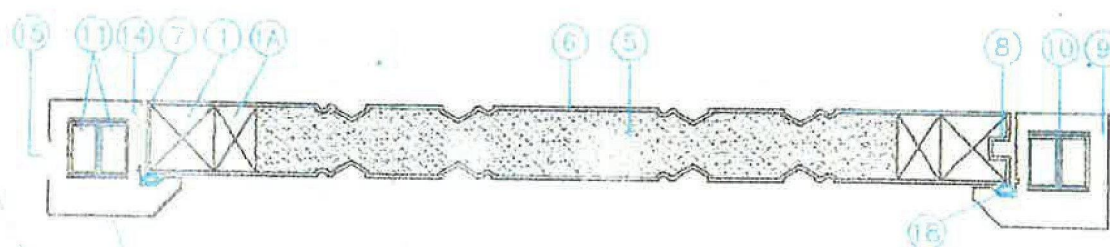
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Section A-A



Section B-B



Chiltern House, Stocking Lane, Hughenden Valley
High Wycombe, Buckinghamshire, HP14 4ND, UK.

Tel: [REDACTED] Fax: [REDACTED]

Title

Horizontal cross sections

Date Drawn
27/05/08

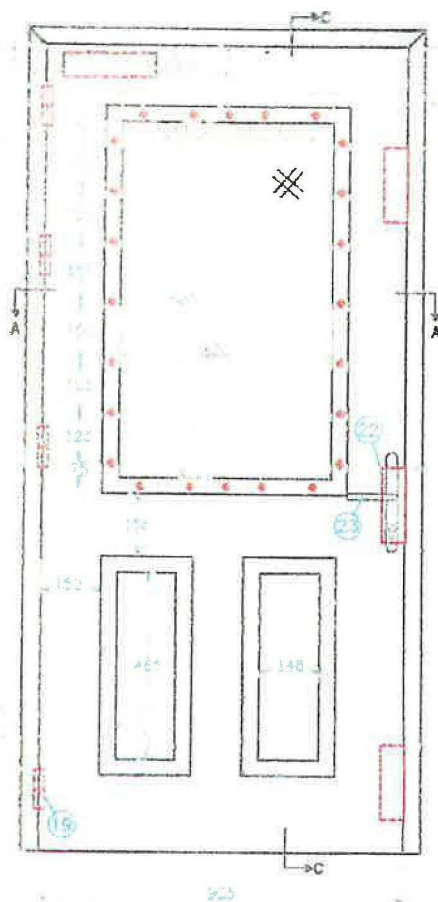
Drawn By
ARD

Scale
NTS

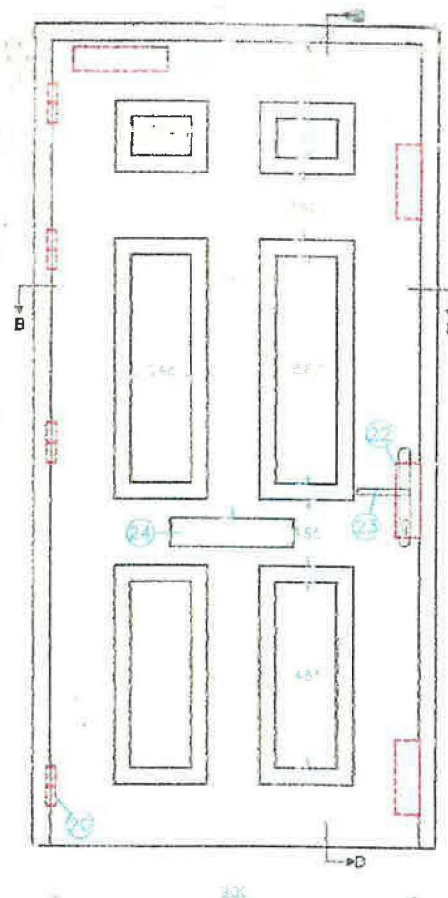
Project No.
Chilt/RF08031

Appendix

Doorset A



Doorset B



Chiltern House, Stocking Lane, Hughenden Valley
High Wycombe, Buckinghamshire, HP14 4ND, UK.

Tel: [REDACTED] Fax: [REDACTED]

Title Unexposed face elevation
showing hardware positions
(All dimensions in mm)

Date Drawn
27/05/08

Drawn By
ARD

Scale
NTS

Project No.
Chilt/RF08031

Appendix

Appendix - figures 1 to 4

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Test for Entrance doors and Warmseal Windows Ltd
Ref: Chiltern/F03031

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Glazing – doorset A only

	Make/type	Size (mm)	Location	Key to figures
Glass type – double glazed unit	Exposed face Toughened glass	6 thick	Fitted 160mm from the leaf head and 160mm from the leaf edge	25
	Steel spacer	16 thick	-	26
	Pyrobel	4 thick	-	27
Sight size	-	885 high x 530 wide	-	-
Overall aperture size	-	936 high x 559 wide	-	-
Expansion allowance	-	11.5 - 12.5 all round	-	-
Beading	Auto-plas K3 glazing cassette	35 high x 24 deep	Fitted both sides of the glazing aperture	28
Beading fixings	Auto-plas screws	40 long	Fitted 75mm from corners, 90mm, 125mm and 150mm apart, fitted from the exposed face (see figure 1)	29
Glazing clips	Folded profile galvanised steel (Details held in confidence on file by CIFL)	0.9 thick	Screw fixed to the unexposed face 100mm from corners (horizontal), 225mm, 530mm and 775mm from the head of the aperture (vertical) under glazing cassette	-

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Intumescent materials – both doorsets continued

Glazing perimeter	Left leaf	Lorient Polyproducts Ltd GP4003	40 x 3	Fitted around the glazing aperture	16
		Lorient Polyproducts Ltd GP2502	25 x 2	Fitted around the perimeter of the glass	17
Smoke seal		Q – Lon buffer type seal	15 (blade size)	Fitted to the upstand of the stop	18

Hardware both - doorsets

		Make/type	Size (mm)	Location	Key to figures
Hinges	Doorset A	Cooke Bothers CDBH100 steel butt type hinges	100 x 35 (blade size)	Fitted 101mm, 473mm, 950mm and 1800mm from the head of the leaf	19
	Doorset B	Cooke Bothers CDBH100 steel butt type hinges	100 x 35 (blade size)	Fitted 105mm, 470mm, 950mm and 1805mm from the head of the leaf	20
Closer		Dorma Door Controls Ltd TS73	233 x 60 (footprint)	Fitted on the exposed face as per the manufacturers instructions	21
Latch - engaged		Winkhaus Av2 multipoint auto latching lock/latch	25 x full leaf height (forend size)	Lock/latch points fitted 250mm, 1045mm and 1735mm from the head of the leaf	22
Furniture		Hoppe PAS 24 aluminium lever type handle	240 x 25 (footprint)	Fitted appropriate to the lock/latch	23
Doorset B only		Lorient Polyproducts Ltd Firemaster aluminium letterplate	302 x 70 (footprint)	Fitted 1150mm from the head of the leaf	24

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Door frame (both doorsets) – identified as a WHS Halo 3014S PVC frame (9) with 'H' section steel reinforcement (10) and plasterboard (11)

	Species/type	Dimensions (mm)	Density (kg/m ³)	Moisture (% w/w)	Key to figures
Head to jamb jointing detail	Doorset A	Mitre – PVC hot melt welded	-	-	-
	Doorset B	Mitre – PVC hot melt welded with steel brackets screwed to outside of frame	25 wide	-	-
Stops	Integral	23 deep	-	-	-
Frame to supporting construction fire stopping detail	Mann McGowan Fabrications Ltd Pyromas intumescent acrylic mastic	Nominally 5-10mm wide x 10-15 deep	-	-	-
Frame to supporting construction fixing detail	3No wood screws per jamb	80 long	-	-	-
Architrave	None fitted	-	-	-	-
Threshold	Exitex MDS 83 profiled aluminium threshold	82 deep	-	-	12

Intumescent materials – both doorsets

	Make/type	Size (mm)	Location	Key to figures
Door edges – doorset B threshold	Lorient Polyproducts Ltd GP4002	40 x 4	Centrally fitted in the threshold of the leaf	13
Frame reveal	Head and jambs	Lorient Polyproducts Ltd GP5002	Fitted in the frame reveal	14
	Doorset B only	Lorient Polyproducts Ltd GP2804	Fitted around the back of the frame	15
Around hinges	Continuous	-	Hinge blades planted on intumescent strip	-
Under hinge blade	Lorient Polyproducts Ltd MAP paper	1 thick	Fitted under the hinge blade of the leaf only	-
Encasing latch body	Lorient Polyproducts Ltd MAP paper	1 thick	Fitted around all lock/latch bodies	-
Under latch forend	Lorient Polyproducts Ltd MAP paper	1 thick	Fitted behind the Fast Fit Eurogroove	-
Under latch keep	Lorient Polyproducts Ltd MAP paper	1 thick	Fitted under the lock/latch keeps	-

Continued overleaf..

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