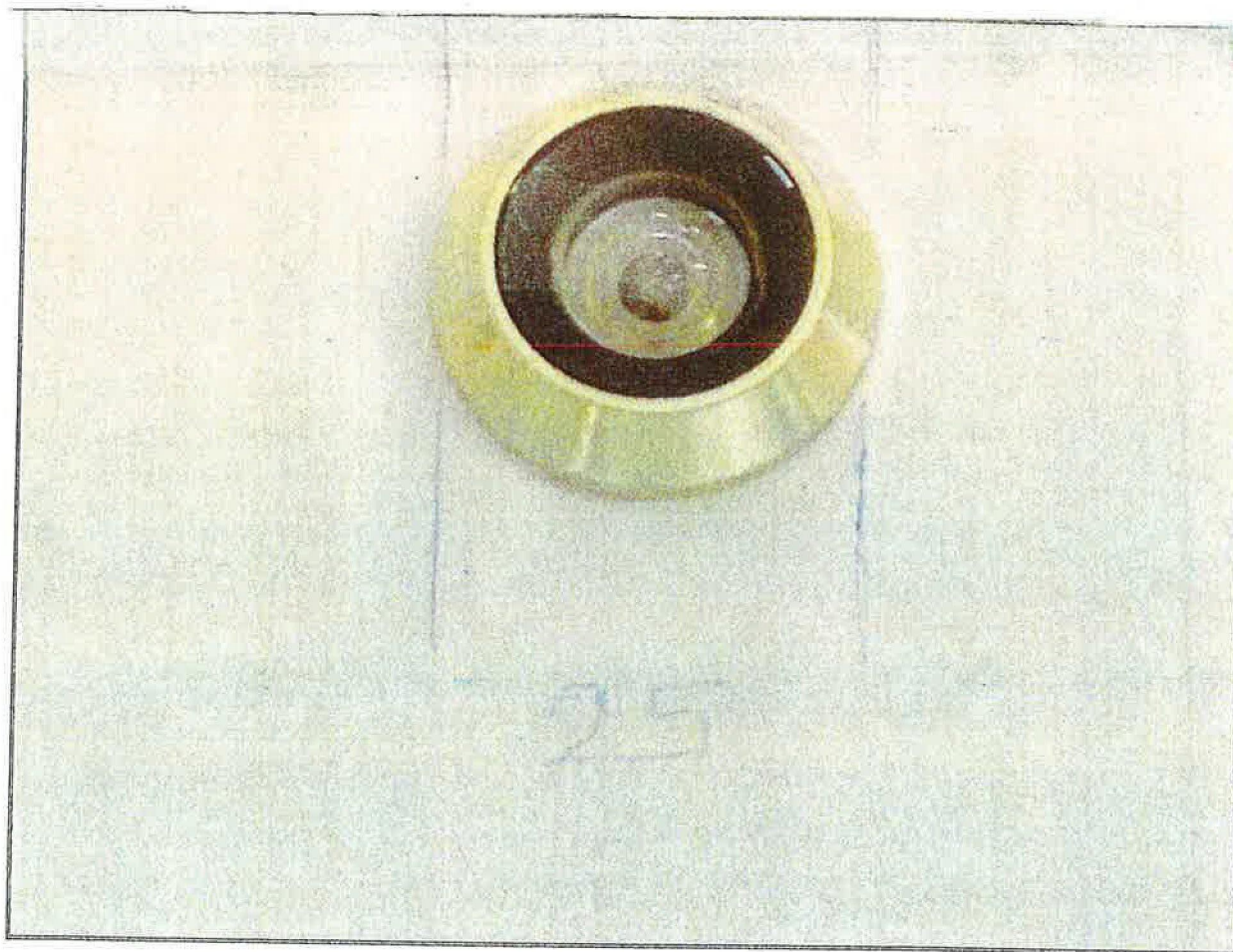




# The Building Test Centre

Fine Acoustic Structures

The Building Test Centre  
British Gypsum Limited  
East Leake  
Lincolnshire  
LN11 8NR  
Tel: [REDACTED]  
Fax: [REDACTED]  
Email: [REDACTED]



Photograph 15. Spyhole from the unexposed face.

Customer: L B Plastics Limited

BTC 14434F: Page 59 of 74



0296

MET00040102/1







# The Building Test Centre

Fire Acoustics Structures

The Building Test Centre  
Building Systems (Test 1)  
Fire Load  
Toughness  
Loss (LEI) 600  
The [REDACTED]  
Pa [REDACTED]  
Page 61 of 74 (Page 61 of 74)



Photograph 17. Outer perimeter of frame, showing intumescent strips.

Customer: L B Plastics Limited

BTC 14434F: Page 61 of 74



0296

MET00040102/3

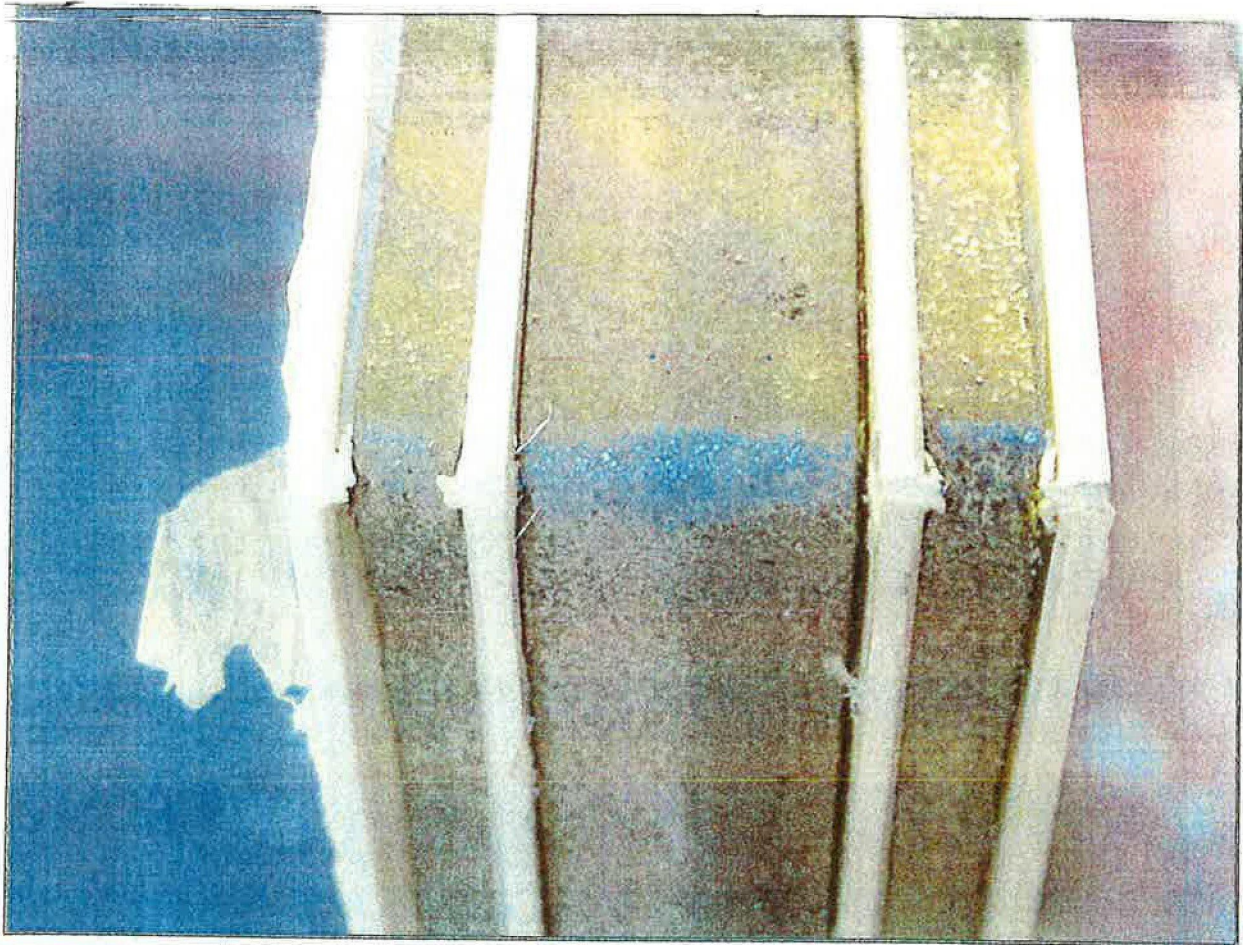




# The Building Test Centre

Fire Acoustic Structures

The Building Test Centre  
Bristol Pyro Limited  
Bristol  
www.pyro.co.uk  
Tel: 01274 811111  
Fax: [REDACTED]  
e-mail: sales@pyro.co.uk



Photograph 18. Top corner of outer perimeter of frame.

Customer: L B Plastics Limited

BTC 14434F: Page 62 of 74



MET00040102/4





# The Building Test Centre

For Acoustic Structures

The Building Test Centre  
British Gyproc Limited  
Salford  
Cheshire  
M6 6PP  
Tel: [REDACTED]  
Fax: [REDACTED]  
Email: [REDACTED]



Photograph 19. intumescent in door frame, adjacent to strike plate

Customer: L B Plastics Limited

BTC 14434F: Page 63 of 74



0296

MET00040102/5

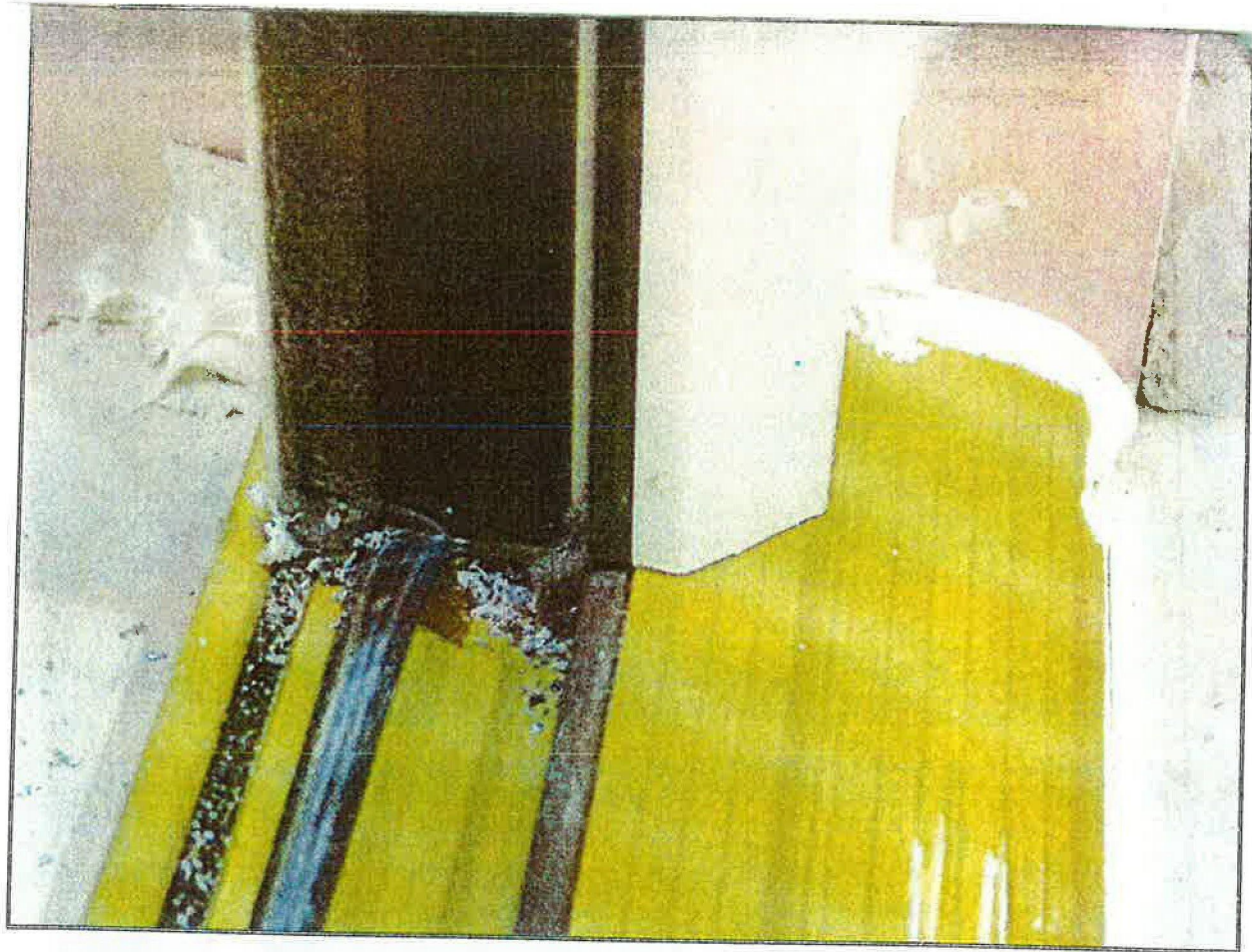




# The Building Test Centre

Fire Acoustics Structures

The Building Test Centre  
Bentley Gyratory Limited  
East Leake  
Loughborough  
Leics. LE12 5AE  
Tel: [REDACTED]  
Fax: [REDACTED]  
Email: [REDACTED]



Photograph 20. Threshold at base of doorframe.

Customer: L B Plastics Limited

BTC 14434F: Page 64 of 74



0296

MET00040102/6

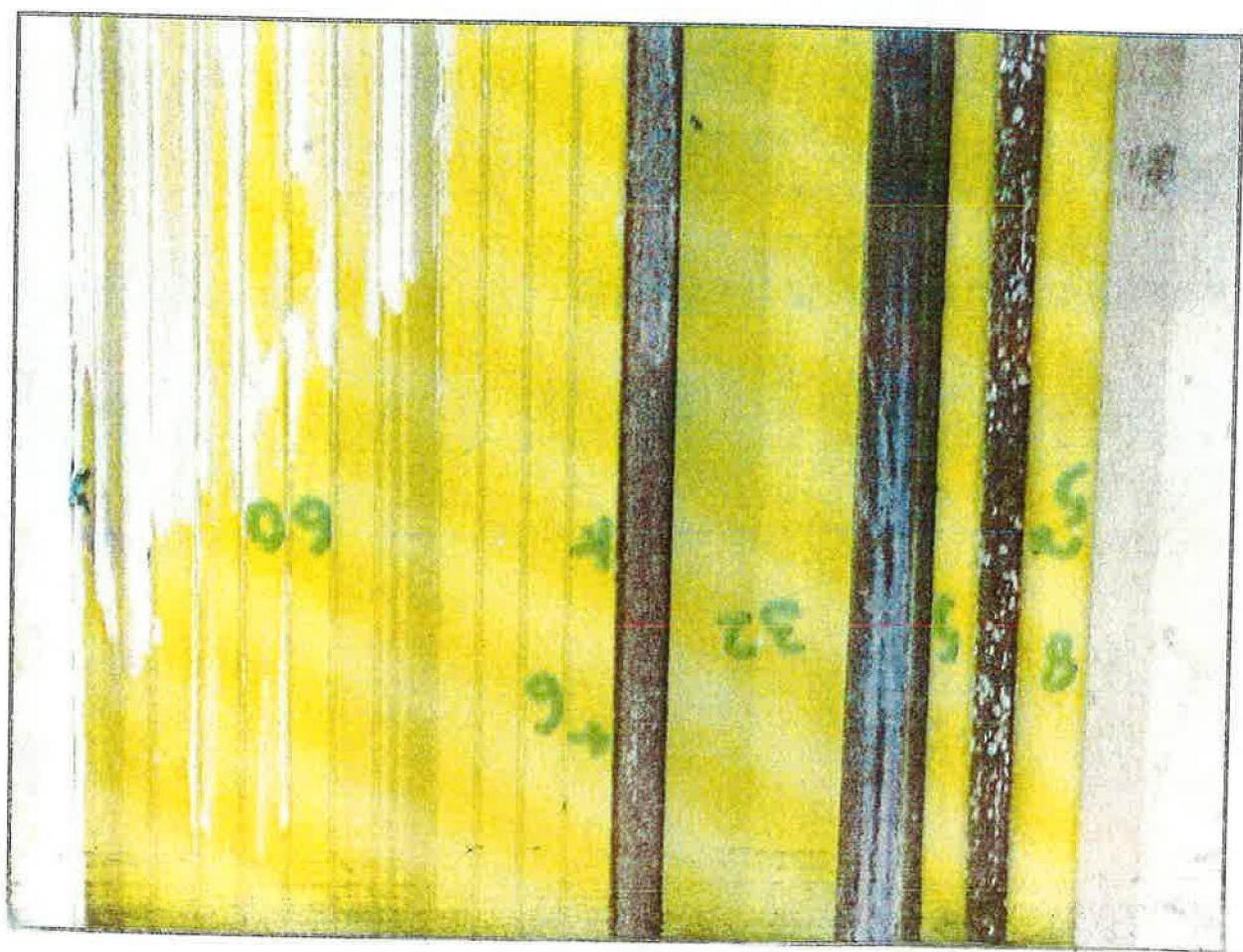


# The Building Test Centre



Fire, Acoustic Structures

The Building Test Centre  
 BPP University Limited  
 BPP House  
 100, 101, 102  
 BPP House  
 BPP House



Photograph 21. Threshold at base of doorframe.

Customer: L B Plastics Limited  
 BTC 14434F: Page 65 of 74



0296



# The Building Test Centre

Fire Acoustics Structures

The Building Test Centre

British Gas (UK) Limited

East London

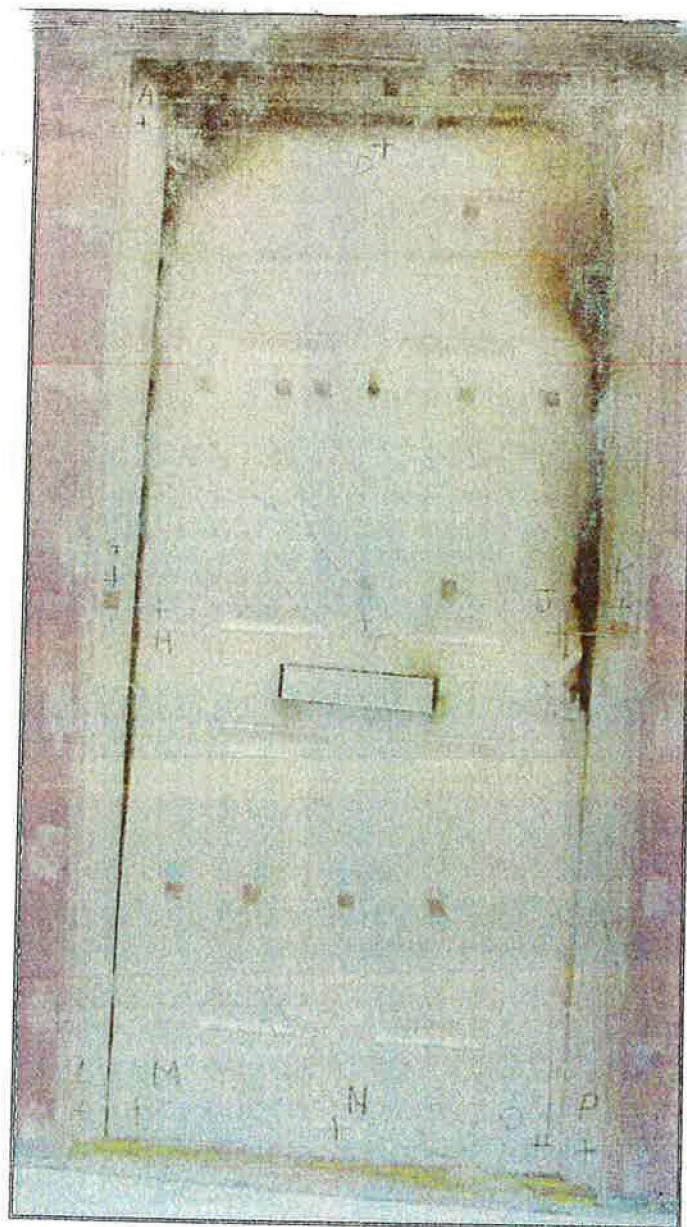
Longbridge Road

Leam (E12) 11P

Tel:

Fax:

email: [info@buildingtestcentre.co.uk](mailto:info@buildingtestcentre.co.uk)



Photograph 22. Unexposed face of doorset at 20 minutes.

Customer: L B Plastics Limited

BTC 14434F: Page 66 of 74



0298

MET00040102/8





# The Building Test Centre

Fire Acoustics Structures

The Building Test Centre

Building Test Centre

Test name

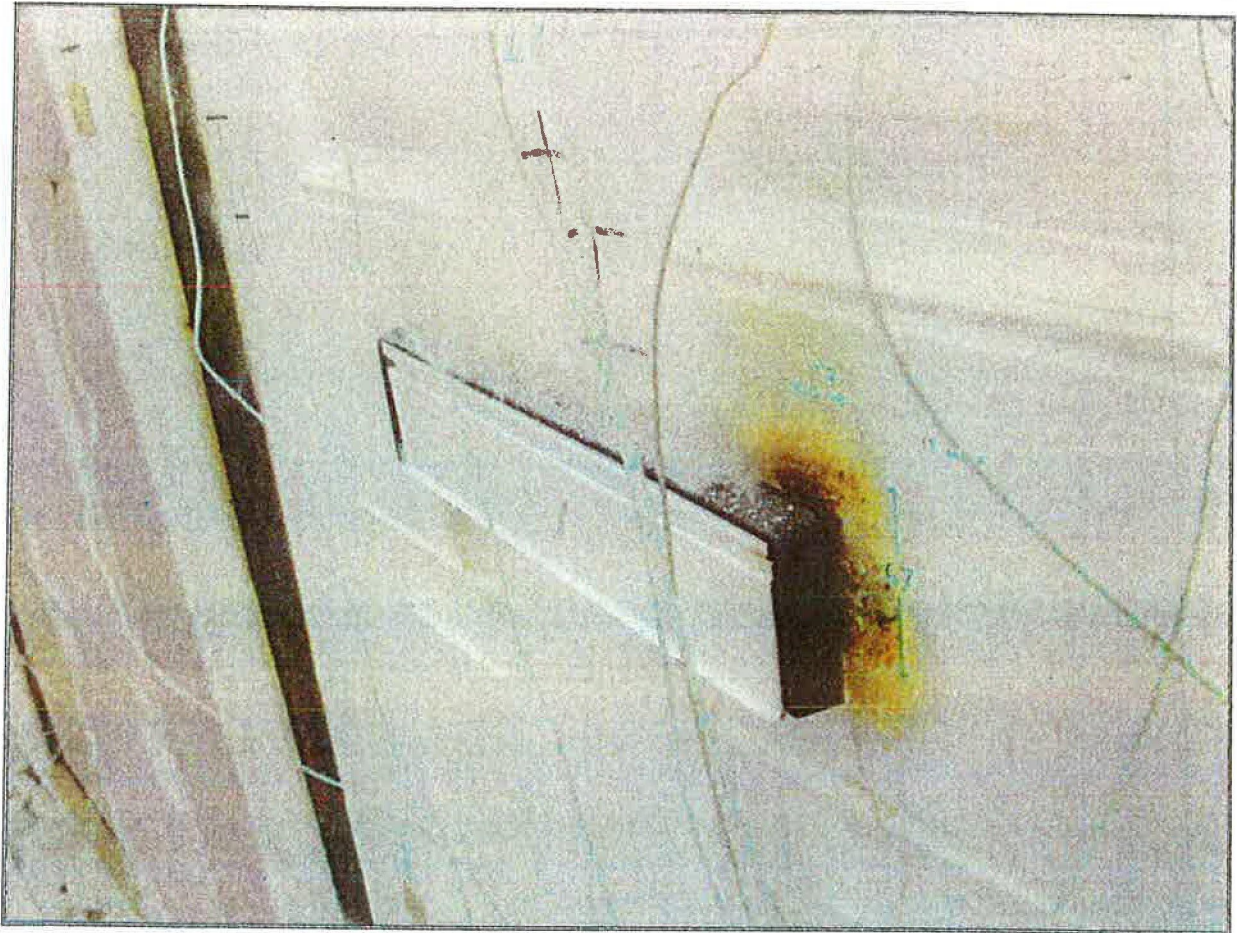
Test number

Test date

Test

Test

Test results



Photograph 23. Letter plate at 20 minutes.

Customer: L B Plastics Limited

BTC 14434F: Page 67 of 74



0296

MET00040102/9



# The Building Test Centre

Fire Acoustics Structures

The Building Test Centre  
British Gyproc Limited  
Eastleigh  
Hants RG30 3AB  
Tel: [REDACTED]  
Fax: [REDACTED]  
Email: [REDACTED]



Photograph 24. Top hanging edge corner of door leaf at 20 minutes.

Customer: L B Plastics Limited

BTC 14434F: Page 68 of 74



0296

MET00040102/10





# The Building Test Centre

*The Acoustic Structures*

The Building Test Centre  
British Gypsum Limited  
East Leake  
South Yorkshire  
Leam. NE17 4LP  
Tel: [REDACTED]  
Fax: [REDACTED]  
Email: [REDACTED]



Photograph 25. Door handle at 20 minutes.

Customer: L B Plastics Limited

BTC 14434F: Page 69 of 74



0296

MET00040102/11



# The Building Test Centre

Fire Acoustics Structures

The Building Test Centre

Building Systems Limited

East Leake

Lincolnshire

LN11 9DT

Tel

Fax

01509 211111



Photograph 26. Letter plate pulled away from leaf at 25 minutes.

Customer: L B Plastics Limited

BTC 14434F: Page 70 of 74



0296

MET00040102/12

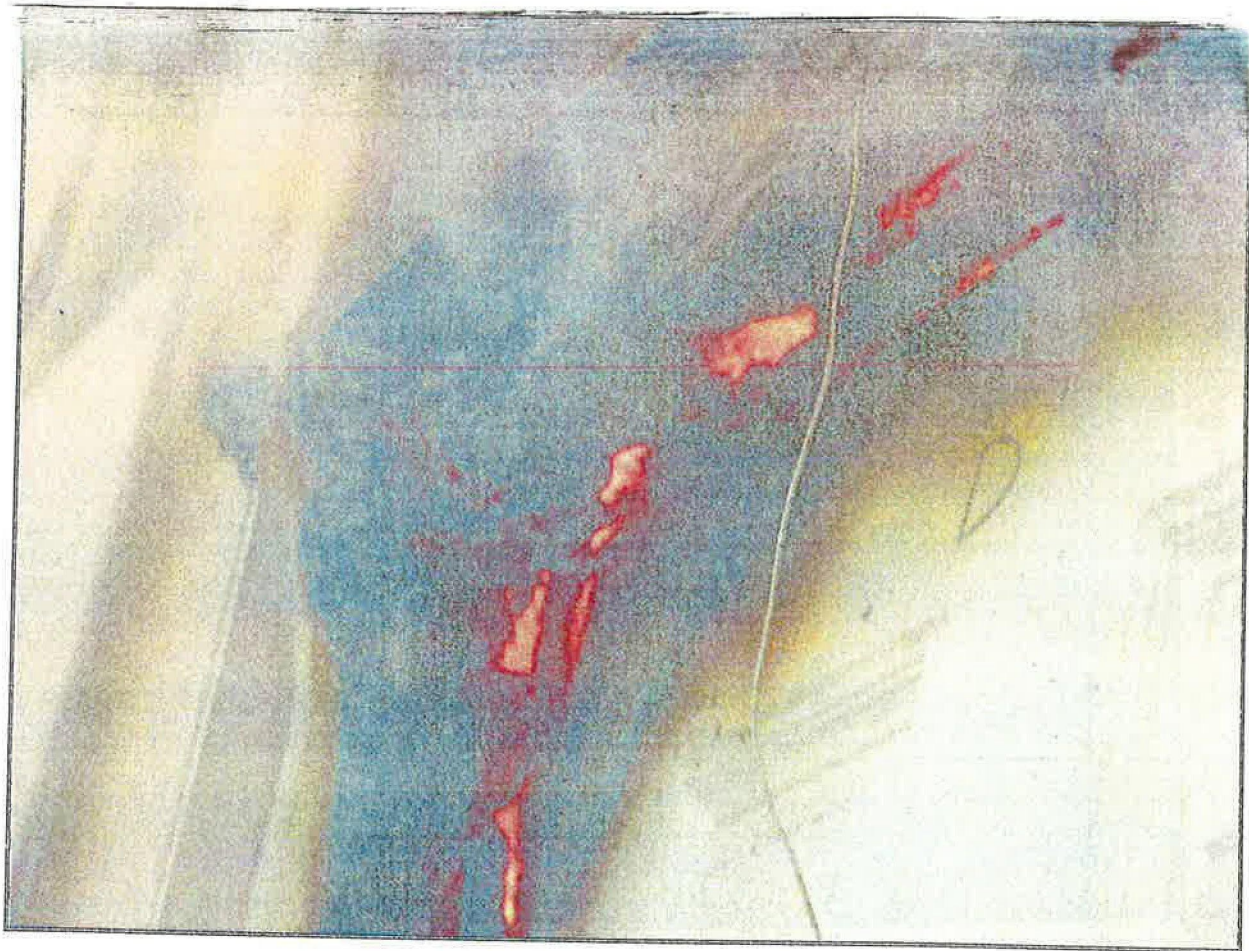




# The Building Test Centre

The Acoustic Structures

The Building Test Centre  
British Gyman Building  
Test Centre  
Birmingham  
B15 2ET  
Tel: [REDACTED]  
Fax: [REDACTED]  
Email: [REDACTED]



Photograph 27. Top hanging edge corner of door leaf at 33 minutes, showing activated intumescent.

Customer: L B Plastics Limited

BTC 14434F: Page 71 of 74



0296

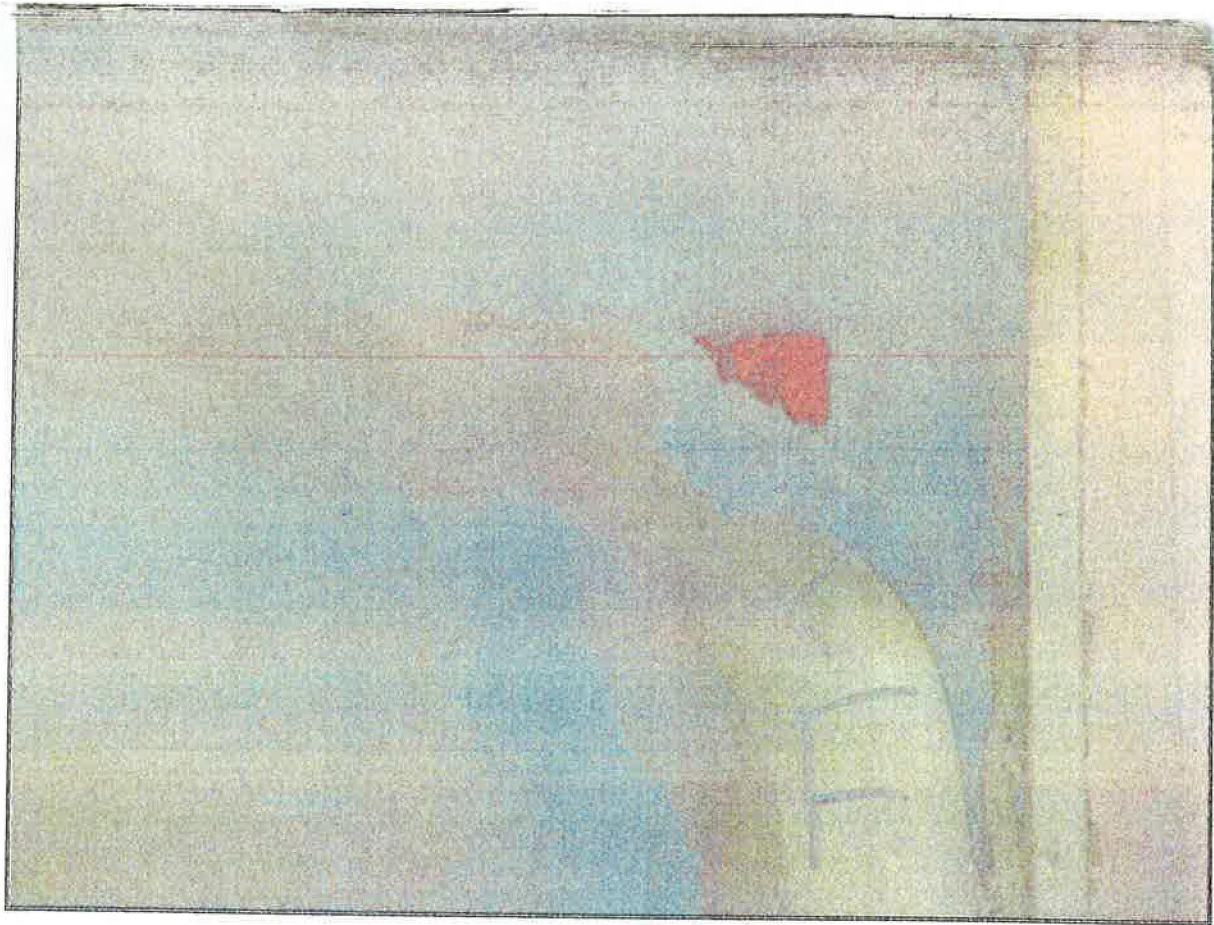
MET00040102/13



# The Building Test Centre

Fire Acoustics Structures

The Building Test Centre  
British Gyttan Limited  
East Leake  
Loughborough  
Leics LE12 0YF  
Tel: [REDACTED]  
Fax: [REDACTED]  
Email: [REDACTED]



Photograph 29. Top closing edge corner at 35 minutes, showing position of integrity failure.

Customer: L B Plastics Limited

BTC 14434F: Page 73 of 74



MET00040102/14





# The Building Test Centre

Fire Acoustics Structures

The Building Test Centre

Unit 10, Farnham Road

Exton, Leamington

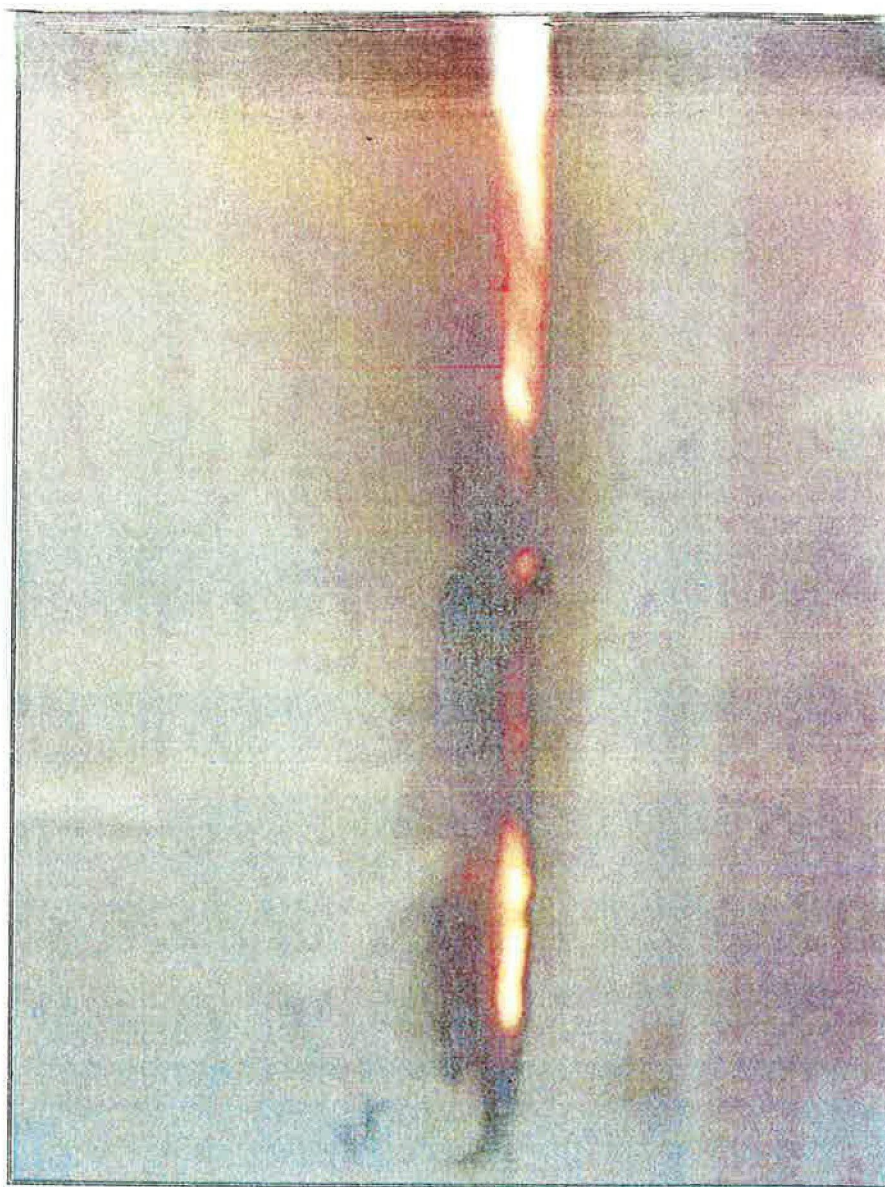
CV34 9EF

Tel:

01922 555 111

Fax: 01922 555 112

Email: [info@buildingtestcentre.co.uk](mailto:info@buildingtestcentre.co.uk)



Photograph 30. Gap between door leaf and frame at 35 minutes.

Customer: L B Plastics Limited

BTC 14434F: Page 74 of 74

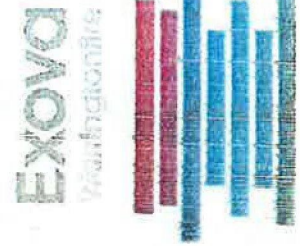


0296

MET00040102/15

Exova Warringtonfire  
Holmesfield Road  
Warrington  
WA1 2DS  
United Kingdom

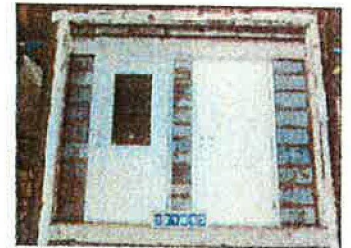
T: [REDACTED]  
F: [REDACTED]  
E: [warrington@exova.com](mailto:warrington@exova.com)  
W: [www.exova.com](http://www.exova.com)



performance of a fully  
insulated doorset and a  
partially insulated, single-  
acting single-leaf doorset  
when tested in accordance  
with BS 476: Part 22:  
1987, Clause 6 and 7,  
respectively.

**WF Report No:**

321893



**Prepared for:**

**Manse Masterdor**

Halfpenny Lane  
Knaresborough  
North Yorkshire  
HG5 0SL

**Date:**

22<sup>nd</sup> February 2013

**Notified Body No:**

0833





## Summary

### **Objective**

To determine the fire resistance performance of two fire-rated doorsets and to determine the fire resistance performance of the doorsets in accordance with BS 476 Part 22: 1987, Class 3 and 4, respectively.

### **Specimens**

Two doorsets were tested, Doorset A and Doorset B. The doorsets were tested in accordance with BS 476 Part 22: 1987, Class 3 and 4, respectively.

### **Summary of the Tested Specimens**

For the purpose of the test the doorsets were referenced Doorset A and Doorset B.

Both doorsets had overall dimensions of 2045 mm high by 1010 mm wide and incorporated a single-acting door leaf of overall dimensions 1971 mm high by 895 mm wide by 54 mm thick.

The doorsets both consisted of a GRP faced door leaf, an internal framework of timber and a core of structural foam. The doorset frame was formed from a steel reinforced PVC frame. The door leaf was hung on four steel hinges. Between the door leaf edge and the frame an intumescent strip of size 25mm wide by 3mm thick was in place. The framing member also incorporated intumescent strips within it and on the outer edges.

The leaf of Doorset A incorporated a door viewer. The leaf of Doorset B incorporated a glass panel of overall size 950mm high by 500mm wide, supplied by C3S Securiglass Limited.

Both doorsets were provided with a three point latching system. The door leaves were mounted such that they opened towards the heating conditions of the test.

Test Results:	Doorset A	Doorset B
Integrity	38 minutes	35 minutes
Insulation	38 minutes	32 minutes

The test was discontinued after a period of 40 minutes.

**Date of Test** 12<sup>th</sup> September 2012


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## Signatories

---

Responsible Officer <b>G. Edmonds*</b> Deputy Operations Manager
--

Approved <b>D. Hankinson*</b> Principal Certification Engineer
--

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

Report Issued
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Date : 22 <sup>nd</sup> February 2013
---------------------------------------

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[illegible]

**Fire Test Study  
Group/EGOLF**

### Instruction to test

Mr. M. Hudson, Mr. P. Hudson and Mr. R. Stevenson, Mr. B. Lee, Mr. C. Miles and Ms. H. Ramage representatives of the test sponsor witnessed the test.

A comprehensive description of the test construction is given in the Schedule of Components. The description is based on a detailed survey of the specimens and information supplied by the sponsor of the test.

The doorsets were mounted within apertures in a blockwork wall construction such that their door leaves opened towards the heating conditions of the test. Representatives of **Manse Masterdor Limited** conducted the installation work on the 12<sup>th</sup> September 2012.

The specimen's storage, construction, and test preparation took place in the test laboratory over a total combined time of 1 day. Throughout this period both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 16°C to 20°C and 49% to 74% respectively.



# Test Specimen

Figure 1 - General elevation of test specimens and unexposed face thermocouples

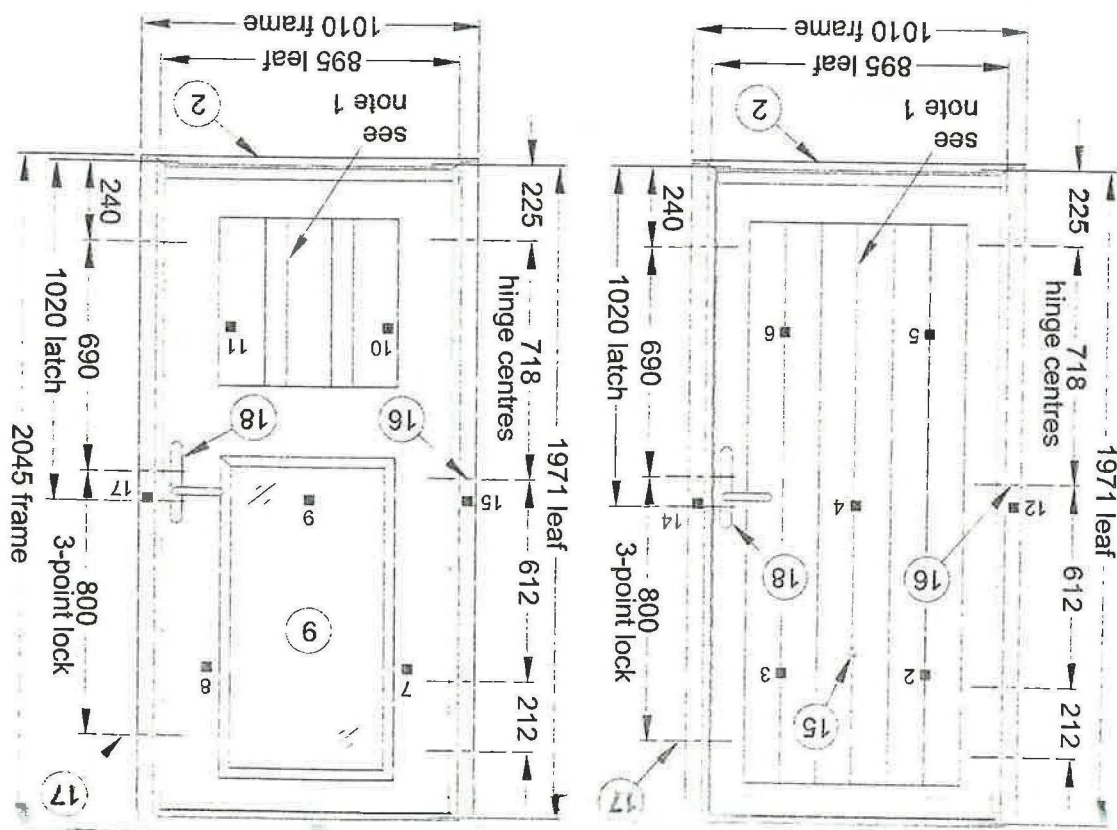
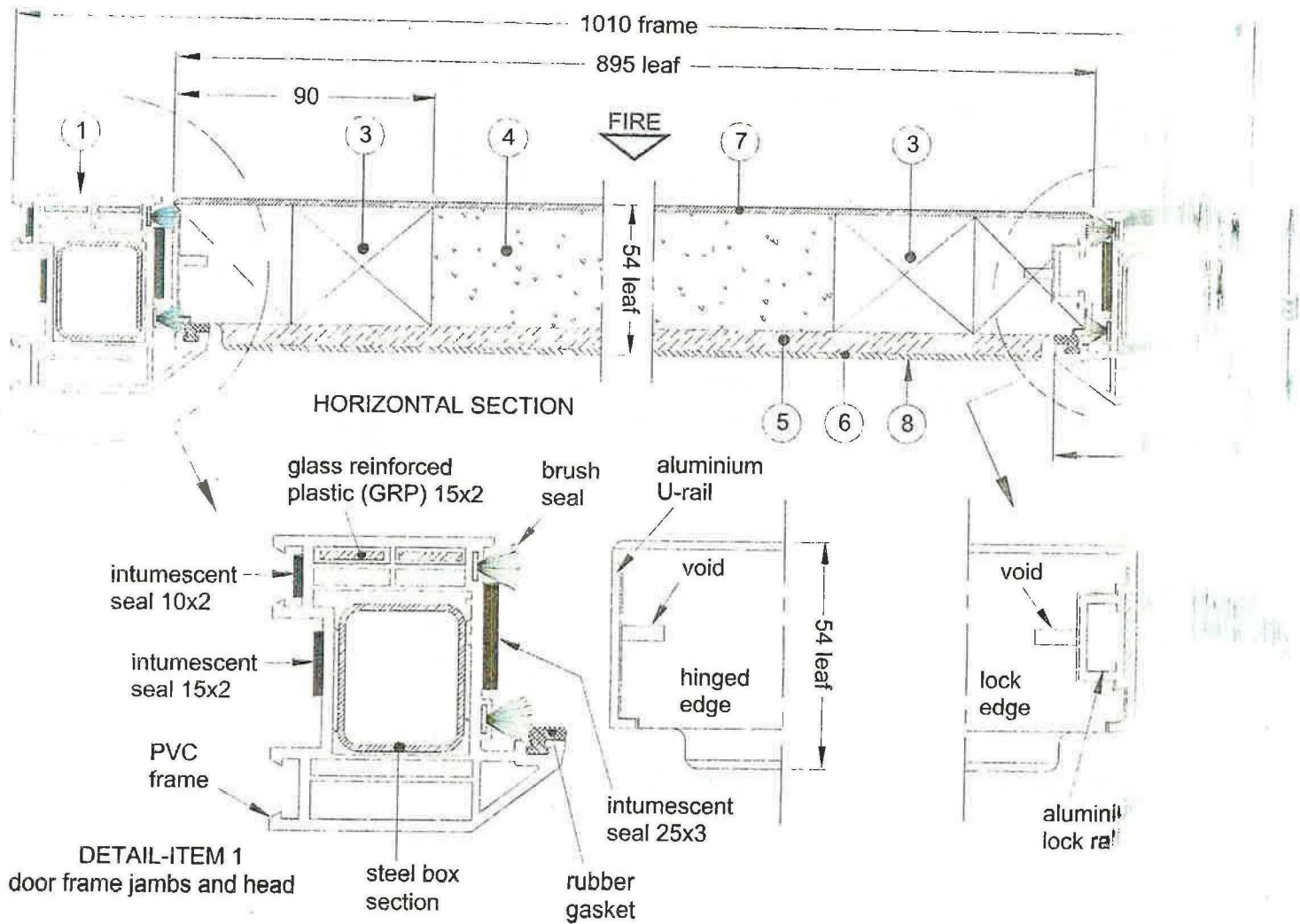


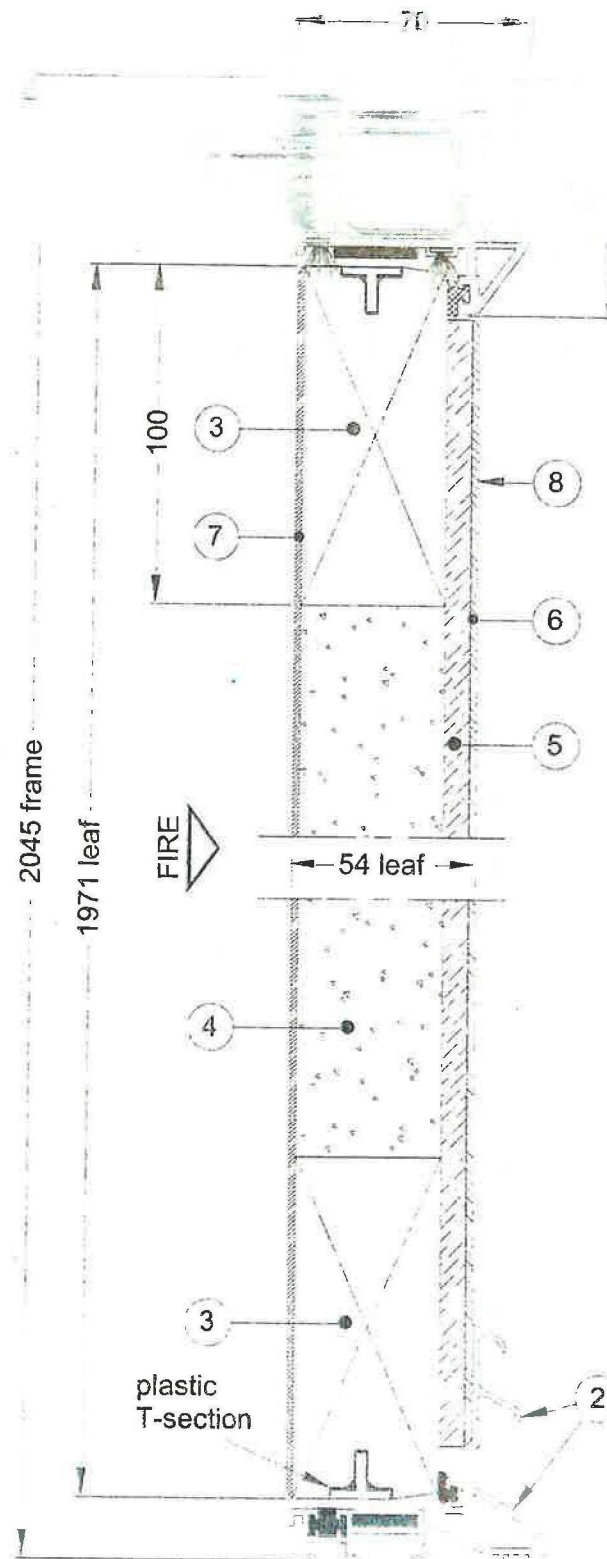
Figure 2 – Typical horizontal section through both doorsets



Do not scale. All dimensions are in mm

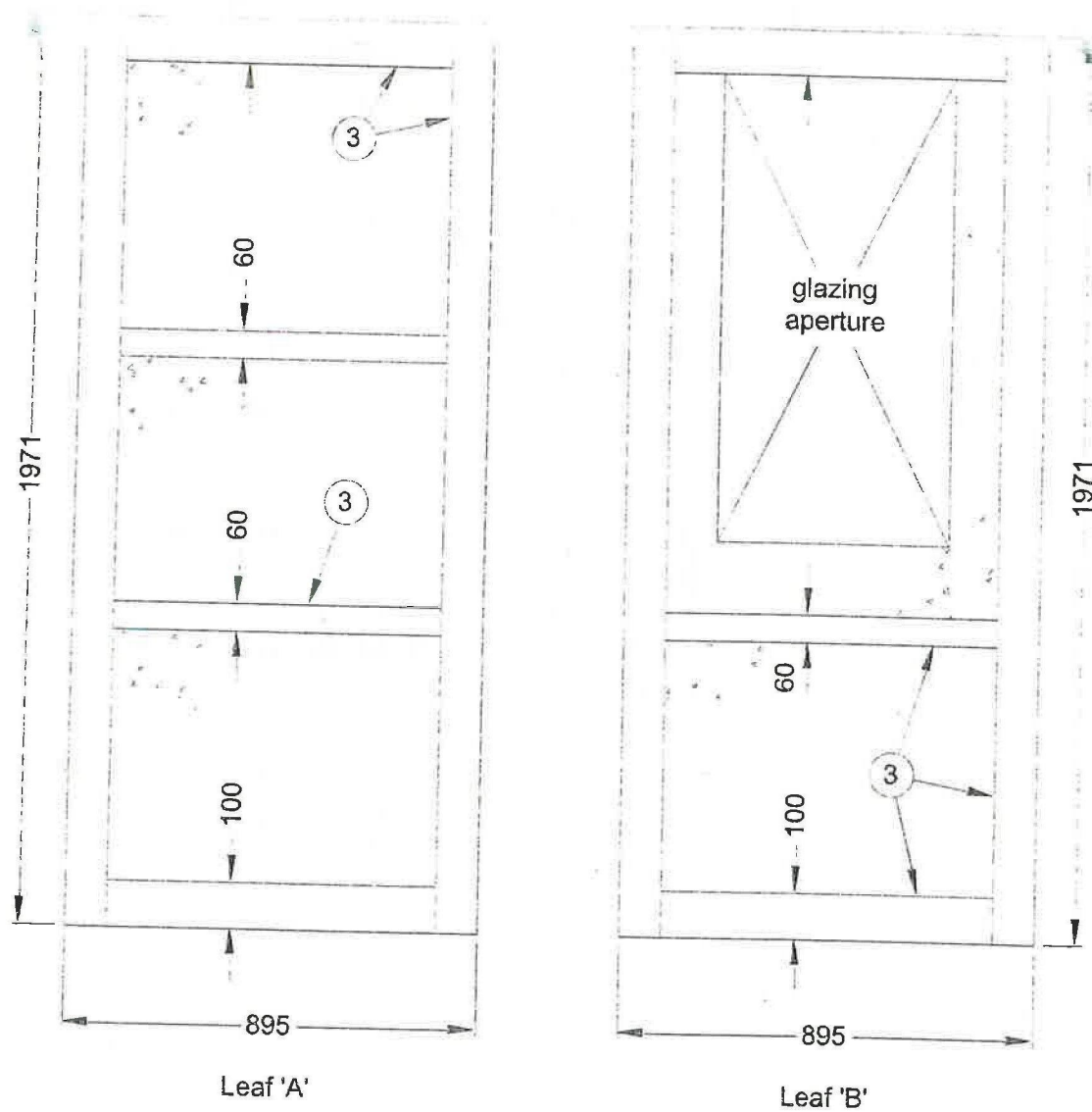


Figure 3 – Typical vertical section through both doorsets



Do not scale. All dimensions are in mm

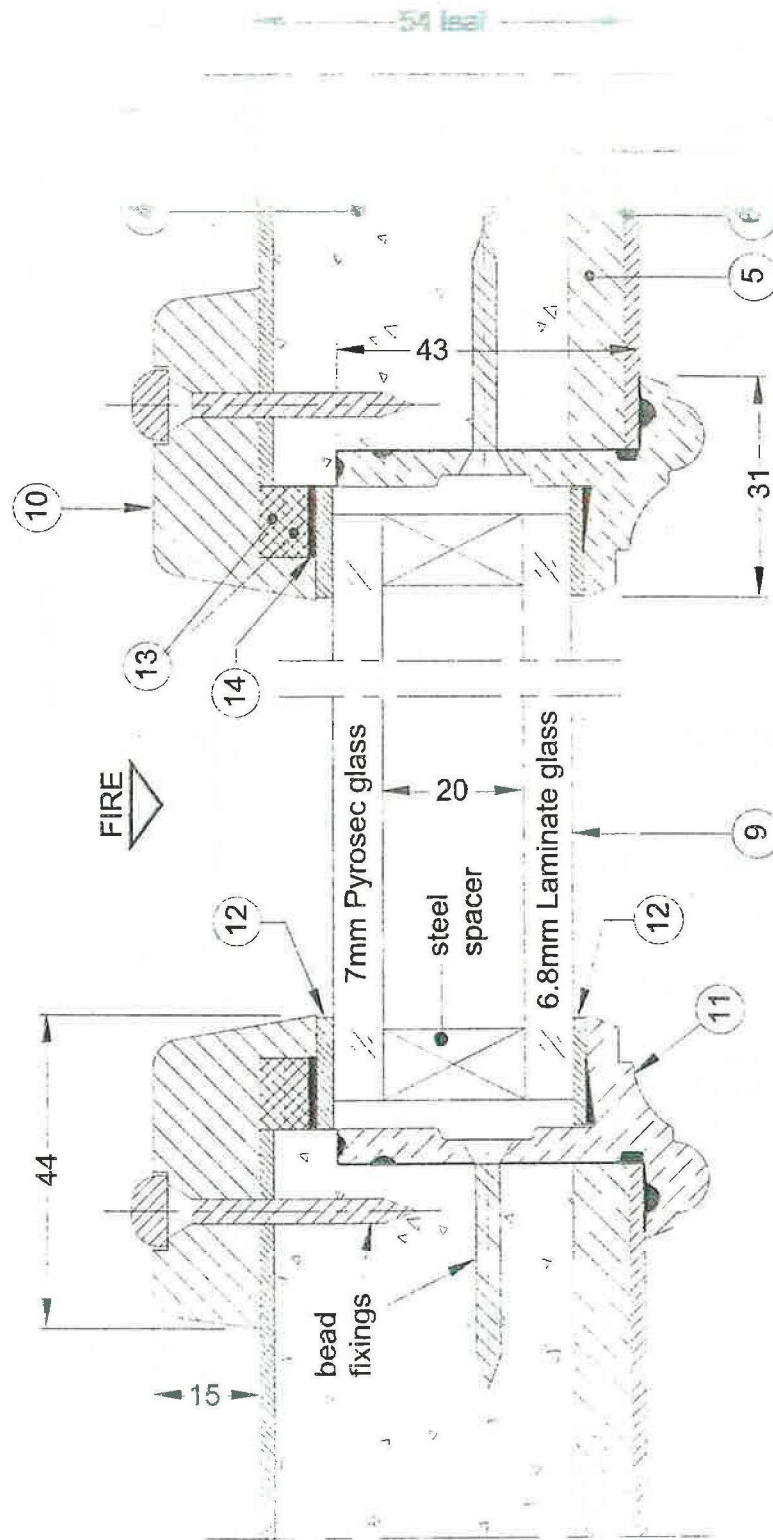
Figure 4 – Elevation view showing general layout of door leaf internal framework (item 3)



Do not scale. All dimensions are in mm

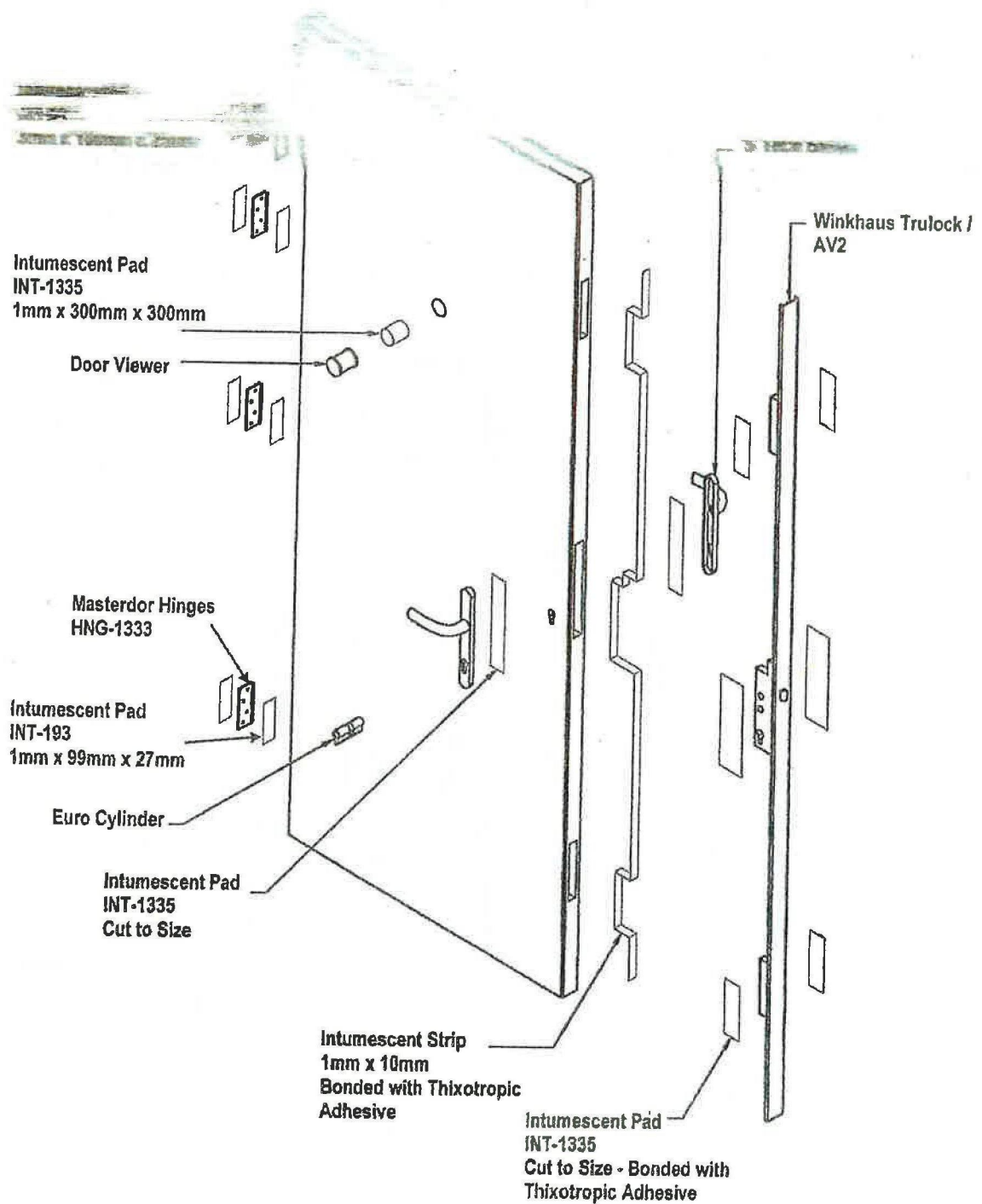


Figure 5 – Typical section through glazing for doorset 'B'



Do not scale. All dimensions are in mm

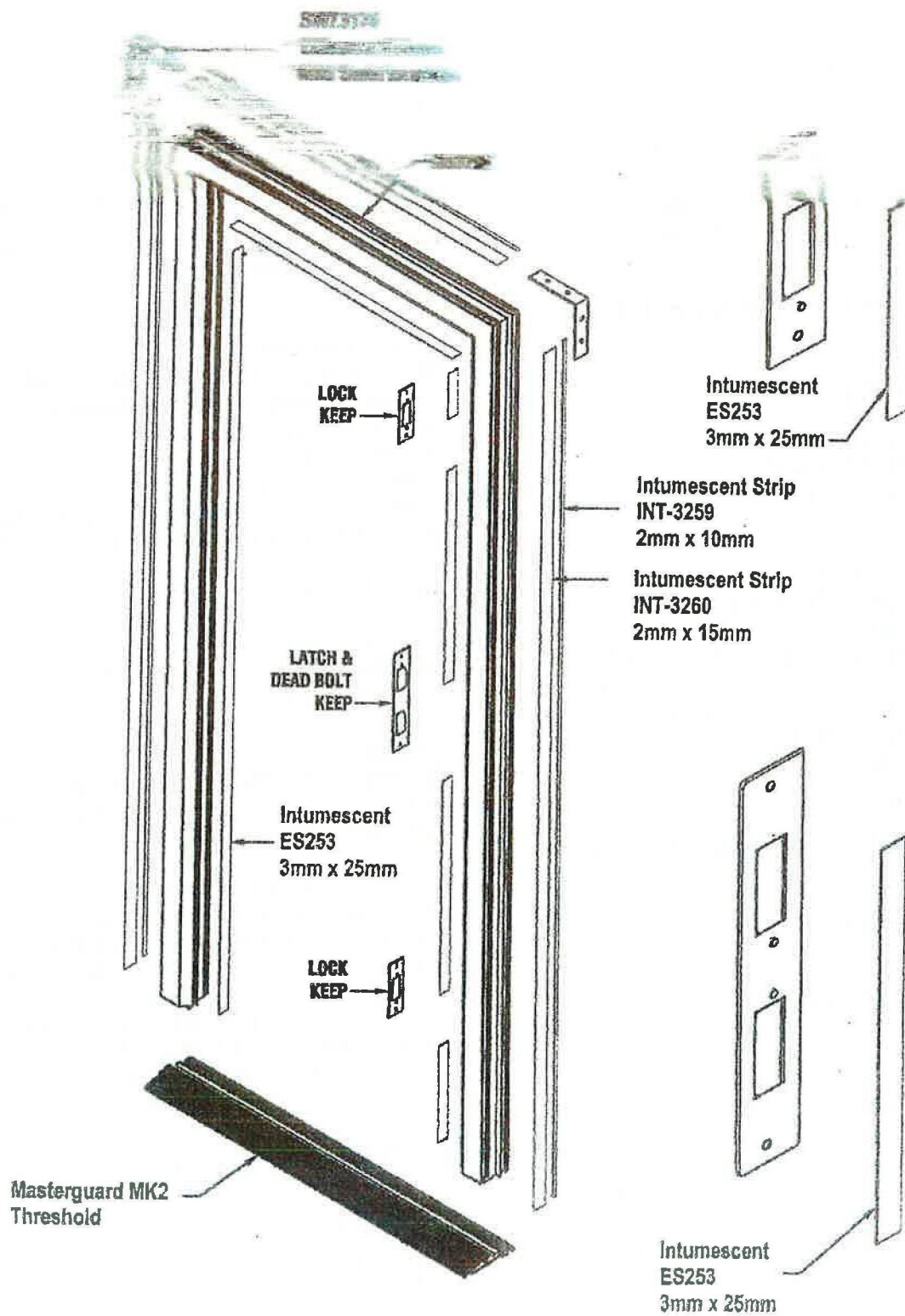
Figure 6 – Details of intumescent protection to hardware on both doorsets



Do not scale. All dimensions are in mm



Figure 7 – Details of door frame assembly



Do not scale. All dimensions are in mm

# Schedule of Components

Refer to Figures 1 & 7

**Sponsors Doorset Reference**  
**Sponsors Door Leaf Reference**

: **Masterdor TC FD**  
 : **Masterdor MD54 TC FD as manufactured by Manse Masterdor Ltd.**

## 1. Door Frame Jambs and Head

Manufacturer

Reference

Material

Overall section size

Overall frame size

Jambs to head jointing method

: LB Plastics Limited  
 : Sheerframe profile SK77950 / S118 reinforcement  
 : Polyvinyl chloride (PVC) outer frame with steel box section internal reinforcement.  
 : 70 mm x 70 mm  
 : 1010 mm wide x 2045 mm high  
 : Mitred corners with steel angle bracket fixed to the steel reinforcement using 6 no. steel screws ref SW71574, per corner.  
 : See Figures 2 & 7

Door frame construction

Details of door frame intumescent seals

i. manufacturer

ii. reference, size and positions

: Envirograf  
 : Seals fitted along door frame jambs and head.  
 : See Figures 2 & 7.

Details of door frame smoke seals

i. manufacturer

ii. type

: Envirograf  
 : One neoprene rubber seal and two brush type seals continuous along door frame jambs and head.  
 : See Figure 2.

Details of Fixings to masonry surround

i. type

ii. size

iii. quantity

: Masonry screws (no plastic plugs)  
 : 7.5 mm diameter x 130 mm long screws  
 : 4 no. screws along full height of closing jamb.  
 : 4 no. screws along hinged jamb, each screw through a pre-drilled hole in each hinge.  
 : Perimeter gaps between door frame and masonry surround were filled with Envirograf PVE/A foam and finished with Envirograf intumescent acrylic sealant.

Details of perimeter gap seal

## 2. Threshold

Manufacturer

Reference

Material

Profile and shape

Fixing method

: Stormguard  
 : Masterguard MK2  
 : Aluminium  
 : See Figure 3  
 : Screw fixed to base of door frame jambs



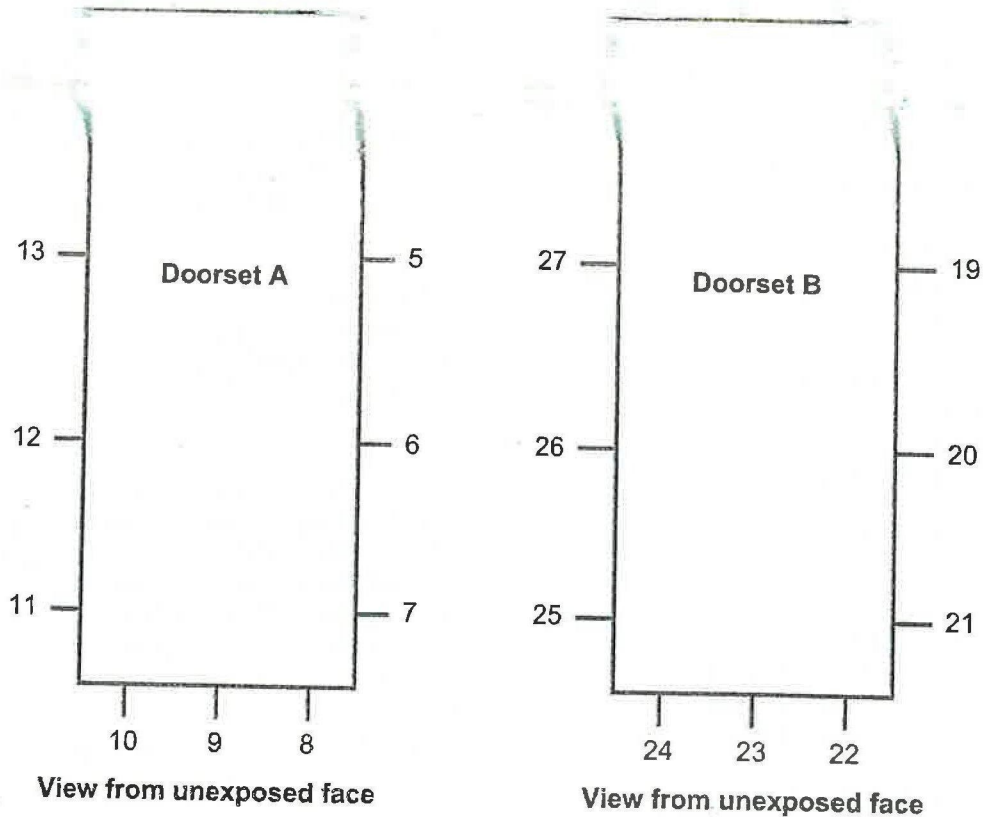
Item	Description
<b>3. Door Leaf Internal Framework</b>	
Material	: Laminated Hardwood/Pine
Density	
Thickness	
Fixing method	
Details of Adhesive	
i. manufacturer	
ii. reference	
iii. material type	
<b>4. Door Leaf Inner facing (unexposed face)</b>	
Material	: M1F1 structural foam
Density	: 100 kg/m <sup>3</sup> (stated)
Thickness	: 41 mm
<b>5. Door Leaf Inner facing (unexposed face)</b>	
Material	: Gabon plywood
Density	: 500 kg/m <sup>3</sup> (stated)
Thickness	: 8 mm
Fixing method	: Bonded with adhesive
Details of Adhesive	
i. manufacturer	: Direct Adhesives
ii. reference	: Aquafast 688 D4 PVA
iii. material type	: Polyvinyl acetate (PVA)
<b>6. Door Leaf Outer facing (unexposed face)</b>	
Material	: Glass reinforced plastic (GRP)
Thickness	: 2.5 mm
Fixing method	: Bonded with adhesive
Details of Adhesive	
i. manufacturer	: Direct Adhesives
ii. reference	: Aquafast 688 D4 PVA
iii. material type	: Polyvinyl acetate (PVA)
<b>7. Door Leaf Inner facing (exposed face)</b>	
Material	: Glass reinforced plastic (GRP)
Thickness	: 2.5 mm
Fixing method	: Bonded with adhesive
Details of Adhesive	
i. manufacturer	: Direct Adhesives
ii. reference	: Aquafast 688 D4 PVA
iii. material type	: Polyvinyl acetate (PVA)
<b>8. Door Leaf Skin</b>	
Material	: <u>Permaskin</u>
Thickness	: 0.3 mm
Fixing method	: Bonded with adhesive
Details of Adhesive	
i. manufacturer	: Apollo Adhesives
ii. product reference	: A6813/A6769
iii. material type	: Polyurethane (PU)

Item	Description
<b>9. Glass Unit</b>	
Manufacturer	: C3S Securiglass Limited
Overall thickness	: 33.6 mm (7mm Pyrosec ESD + 24mm clear glass)
<b>Density</b>	: 640 kg/m <sup>3</sup> (stated)
Overall section size	: See Figure 5
Details of Fixings	
i. type	: Countersunk head steel screws
ii. size	: 3.5 mm diameter x 30 mm long screws
iii. spacing	: 200 mm centres
<b>11. Glazing Bead (unexposed face)</b>	
Material	: 'Sheerwood' (wood dust and resin) from LB Plastics
Section profile	: See Figure 5
Details of Fixings	
i. type	: Countersunk head steel screws
ii. size	: 3.5 mm diameter x 30 mm long screws
iii. spacing	: 200 mm centres
<b>12. Glass Edge Seal</b>	
Manufacturer	: Envirograf
Material	: Intumescent strip
Overall section size	: 2 mm thick x 15 mm wide
Fixing method	: Thixotropic adhesive
<b>13. Glazing Bead Intumescent</b>	
Manufacturer	: LB Plastics
Reference	: Firestop
Material	: Glass Reinforced Plastic (GRP)
Overall section size	: 2 no. layers, each 3.5 mm thick x 10 mm wide
Fixing method	: Thixotropic adhesive
<b>14. Intumescent Strip</b>	
Manufacturer	: Envirograf
Material	: Intumescent strip
Overall section size	: 2 mm thick x 15 mm wide
Fixing method	: Thixotropic adhesive
<b>15. Door Viewer</b>	
Manufacturer	: UAP
Reference	: 180 degree door viewer
Material	: Aluminium / glass
Overall size	: 12 mm diameter
Details of bedding material	: Intumescent pad. See Figure 6



Item	Description
<b>16. Hinges</b>	
Reference	: Masterdor hinge Type HNG-1333
Material	: Steel, brass finish
Overall sizes	: 100 mm wide x 32 mm high
iii. quantity	: 104 x 50 mm long screws (to door each)
Details of bedding material	: M4 x 38 mm long screws (to door frame)
	: 4 no. screws per blade
	: Intumescent pads. See Figure 6
<b>17. Lockset</b>	
Manufacturer	: Winkhaus
Reference	: 3 point Trulock/3 point AV2
Type	: Auto triple locking and single latch
'Markings' on forend plate	: vds M105301 Winkhaus
Material	: Mild steel
Overall sizes	
i. latch and central lock keep	: 25 mm wide x 215 mm long backing plate with a
	: 110 mm long front plate screw fixed to it.
ii. top and bottom lock keep	: 25 mm wide x 235 mm long backing plate with a
	: 110 mm long front plate screw fixed to it.
iii. forend plate	: 20 mm wide x 1770 mm long
iv. central lock case	: 185 mm long x 75 mm deep
v. top and bottom lock case	: 115 mm long x 40 mm deep
Operation of locks and latch	: Both engaged
Details of bedding material	: Intumescent strip/pads. See Figures 6 & 7.
<b>18. Lever Handleset</b>	
Manufacturer	: S-Tech
Reference	: Lever/lever SLD, with cylinder and thumb-turn
Material	: Aluminium handles, steel cylinder and thumb-turn
Overall sizes	: 245 mm long x 34 mm wide handle plate
Details of bedding material	: Intumescent pad. See Figure 6

## Doorset Clearance Gaps



Door Ref	Gap Dimension in mm at Positions													
A	1	2	3	4	5	6	7	8*	9*	10*	11	12	13	14
	4.3	5.2	4.3	4.8	4.3	3.6	4.2	0	0	0	5.0	5.5	5.2	5.5
B	15	16	17	18	19	20	21	22*	23*	24*	25	26	27	28
	4.3	4.5	4.6	4.8	3.5	3.6	4.1	0	0	0	3.2	5	4.5	5.4
A	Mean			4.7		Maximum			5.5		Minimum		3.6	
B	Mean			4.3		Maximum			5.4		Minimum		3.2	

\* Dimension not included in calculations

# Gap not measured

DO NOT SCALE

ALL DIMENSIONS ARE IN mm



## Instrumentation

### General

The instrumentation was provided in accordance with the requirements of the standard.

### Furnace

The furnace was equipped with a thermocouple to monitor the temperature of the furnace atmosphere. The output of the thermocouple was recorded at no less than one minute intervals as follows:

### Thermocouple Allocation

Thermocouples were provided to monitor the unexposed surface of the specimens. The output of all instrumentation was recorded at no less than one minute intervals as follows:

### Thermocouples 2 to 6 Doorset A and 7 to 11 Doorset B

At five positions on the unexposed surface of the doorset, one approximately at the centre and one at approximately the centre of each quarter section of the doorset.

### Thermocouples 12 to 14 Doorset A and 15 to 16 Doorset B

At three positions on the unexposed surface of the door frame, one at the approximate mid-height of each of the vertical frame members and one approximately mid-span of the head member.

The locations and reference numbers of the various unexposed surface thermocouples are shown in Figure 1.

### Roving Thermocouple

A roving thermocouple was available to measure temperatures on the unexposed surface of the specimens at any position which might appear to be hotter than the temperatures indicated by the fixed thermocouples.

### Integrity Criteria

Cotton pads and gap gauges were available to evaluate the impermeability of the specimens where relevant.

### Furnace Pressure

After the first five minutes of testing and for the remainder of the test, the furnace atmospheric pressure was controlled so that it complied with the requirements of BS 476: Part 20: 1987, Clause 3.2.2. The calculated pressure differential relative to the laboratory atmosphere was  $8.9 (\pm 2)$  at the head of each Doorset.

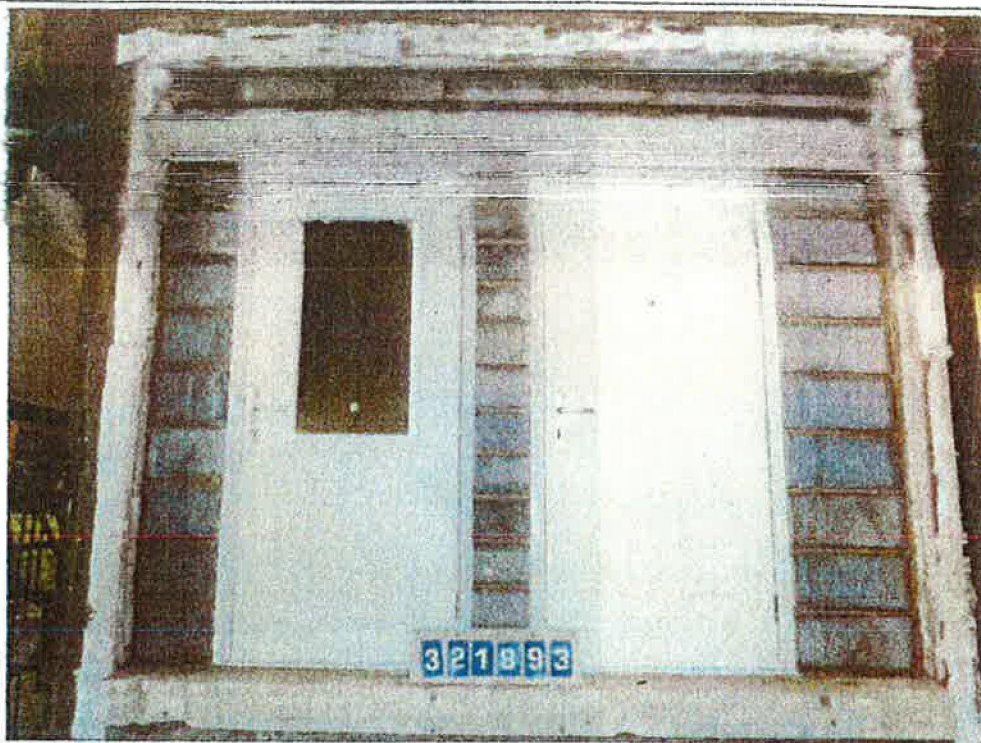
## Test Observations

Time	All observations are from the unexposed face unless noted otherwise	
05	00	Glass pane of Doorset B begins to turn opaque.
06	00	Slight amount of smoke leakage is being released from the leading edge corner of Doorset A.
07	00	Slight amount of smoke leakage from the leading edge of Doorset B.
14	00	The glass pane on the exposed face is heavily cracked and the beading material of Doorset B is cracked also.
15	00	The GRP face of Doorset A is coming away on the lower right hand side of the specimen on the exposed face.
21	00	Smoke leakage continues at the position previously mentioned at 6 minutes.
28	00	The GRP face of Doorset A falls away completely; the material behind it is flaming on the exposed face. A cotton wool pad is applied over the door viewer. The pad only discolours.
29	00	A cotton wool pad is applied over the door viewer of Doorset A. The pad only discolours.
35	00	The vision panel of Doorset B suddenly falls away and the glass shatters. <b>Doorset B is no longer maintaining its integrity.</b>
38	00	A cotton wool pad is applied over a lower area of Doorset A on the hinge side. The cotton wool pad ignites. <b>Integrity failure of doorset A occurs.</b>
40	00	At the request of the sponsor the test is discontinued.

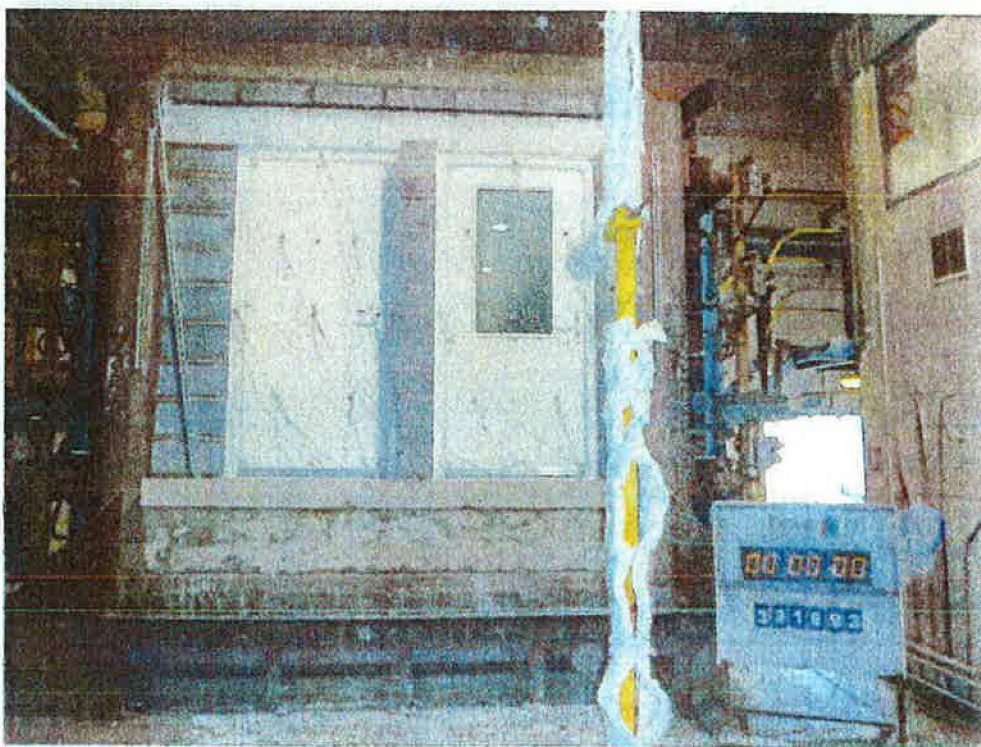


## Test Photographs

The exposed face  
of the doorsets  
prior to testing



The unexposed  
face of the  
doorsets prior to  
testing

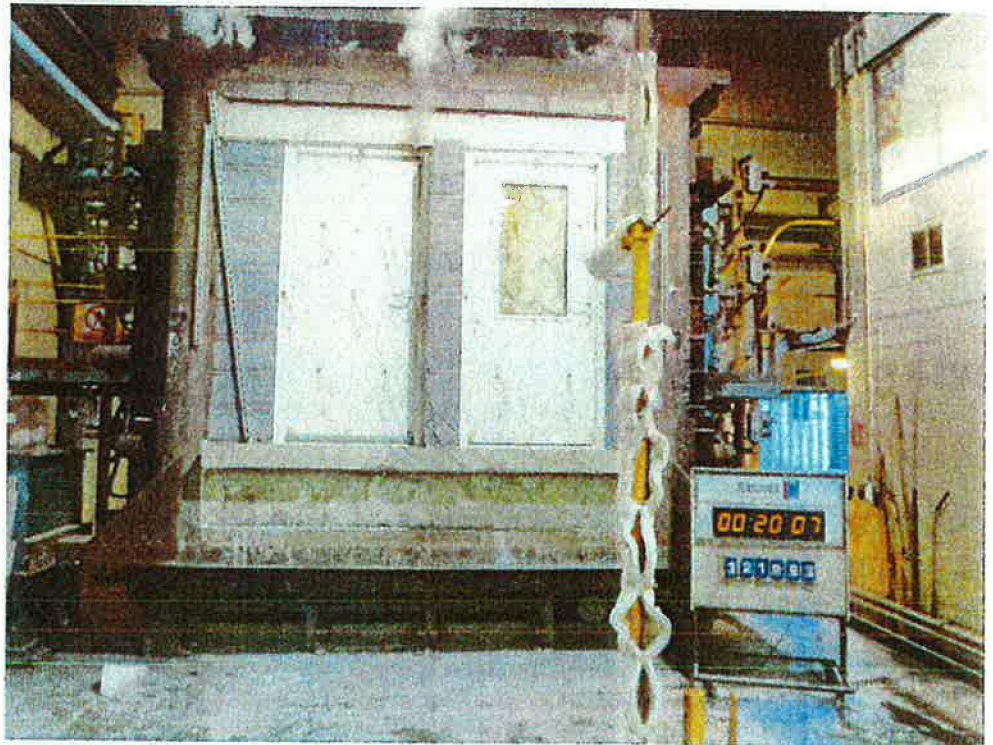




The unexposed  
face of the  
doorsets after 10  
minutes of testing

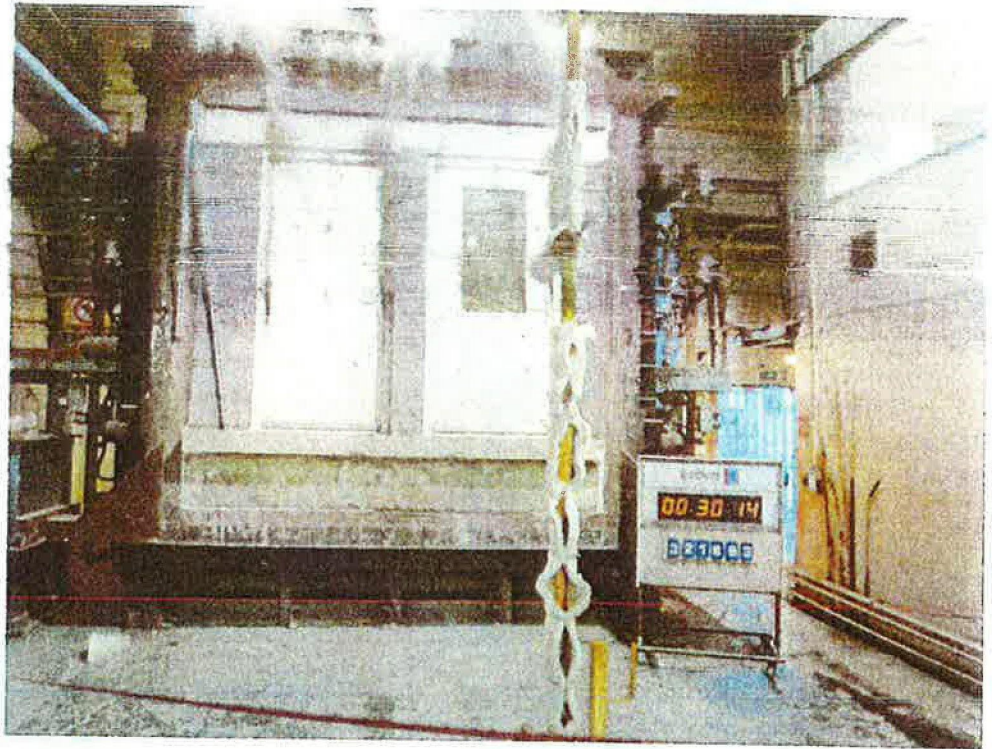


The unexposed  
face of the  
doorsets after 20  
minutes of testing

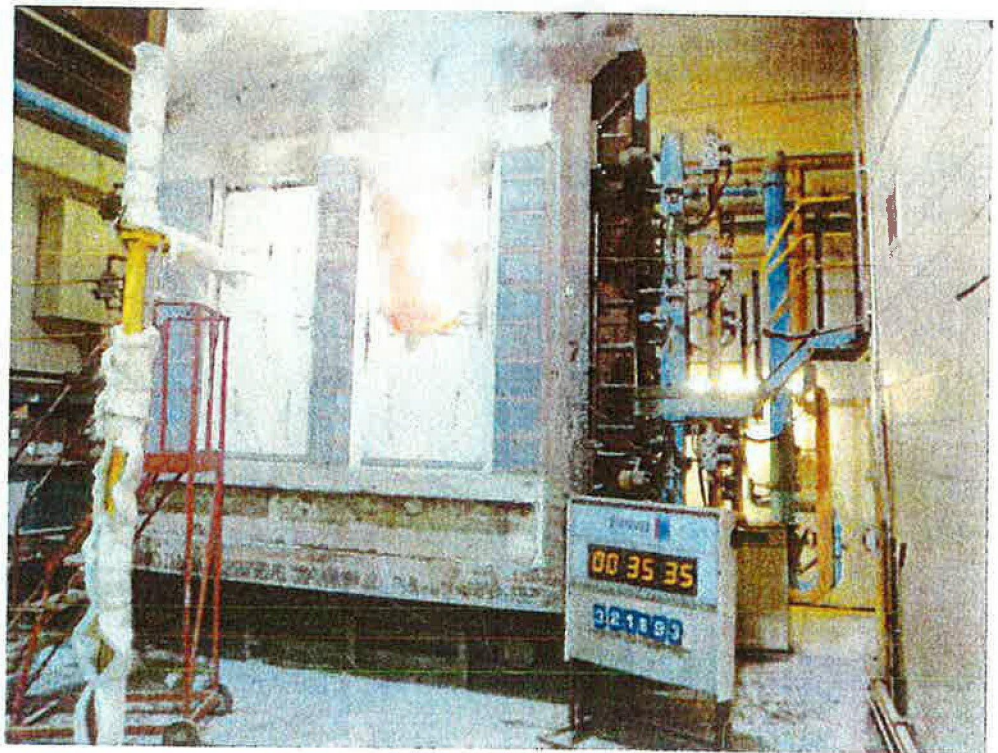




The unexposed  
face of the  
doorsets after 30  
minutes of testing



The unexposed  
face of the  
doorsets after 35  
minutes of testing





The unexposed  
face of the  
doorsets after 39  
minutes of testing



The exposed face  
of the doorsets  
immediately after  
testing





## Temperature and Deflection Data

Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified in The Standard

Time	Temperature	Temperature
Min	Deg. C	Deg. C
0	20	23
1	349	373
2	445	452
3	502	527
4	544	560
5	576	593
6	603	608
7	626	657
8	646	653
9	663	656
10	678	653
11	693	679
12	706	701
13	717	720
14	728	729
15	739	737
16	748	769
17	757	766
18	766	772
19	774	790
20	781	801
21	789	781
22	796	845
23	802	859
24	809	855
25	815	860
26	820	865
27	826	871
28	832	880
29	837	858
30	842	853
31	847	851
32	852	846
33	856	852
34	860	873
35	865	872
36	869	848
37	873	825
38	877	820
39	881	828
40	885	833

Individual And Mean Temperatures Recorded On The Unexposed Surface Of Doorset A

Time	T/C Number	T/C Number	T/C Number	T/C Number	T/C Number	Mean
2	16	16	16	16	16	16
3	16	16	16	16	16	16
4	16	16	16	16	16	16
5	16	16	16	16	16	16
6	15	16	16	16	16	16
7	16	16	16	16	16	16
8	15	16	16	16	16	16
9	16	16	16	16	16	16
10	16	16	16	16	16	16
11	16	16	16	16	16	16
12	16	16	16	16	16	16
13	16	16	16	16	16	16
14	16	16	16	17	16	16
15	16	16	17	17	17	17
16	16	16	17	17	17	17
17	17	17	17	17	17	17
18	17	17	17	17	17	17
19	17	17	18	18	17	17
20	18	18	18	18	18	18
21	18	18	19	19	18	18
22	19	19	19	19	18	19
23	20	19	20	20	19	20
24	21	20	21	21	20	21
25	22	21	22	23	21	22
26	24	22	23	24	22	23
27	26	24	25	27	23	25
28	28	26	27	29	25	27
29	31	28	29	33	27	30
30	35	31	32	37	29	33
31	39	35	36	42	32	37
32	45	39	40	48	35	41
33	60	44	45	56	39	49
34	72	50	52	65	44	57
35	80	54	60	72	49	63
36	85	59	67	78	56	69
37	*	*	*	*	*	

\*Thermocouple malfunction



Individual And Mean Temperatures Recorded On The Unexposed Surface Of Doorset B

Time	T/C Number	T/C Number	T/C Number	T/C Number	T/C Number	Mean
	7	8	9	10	11	
	Door C	Door D	Door E	Door F	Door G	Door H
1	17	18	19	17	18	18
2	17	18	20	18	18	18
3	17	18	21	17	18	18
4	17	18	24	18	18	19
5	17	18	27	17	18	19
6	17	18	31	17	18	20
7	17	18	34	17	18	21
8	17	18	38	17	18	22
9	17	18	42	17	18	22
10	17	18	46	18	18	23
11	17	18	51	18	18	24
12	17	18	56	18	18	25
13	17	19	61	18	18	27
14	18	19	67	18	18	28
15	18	19	73	18	18	29
16	18	20	78	18	19	31
17	19	20	82	19	19	32
18	19	20	88	19	19	33
19	20	21	95	19	19	35
20	20	21	103	20	20	37
21	21	22	114	20	20	39
22	22	23	125	20	21	42
23	23	24	137	21	21	45
24	23	24	149	22	22	48
25	24	25	162	23	23	51
26	25	26	173	24	24	54
27	27	27	176	25	25	56
28	28	29	178	26	26	57
29	30	30	184	28	28	60
30	31	32	190	31	30	63
31	33	34	197	34	33	66
32	35	36	203	38	36	70
33	37	38	207	44	39	73
34	40	43	209	50	43	77
35	49	52	319	56	48	105
36	50	54	*	*	*	
37	*	*	*	*	*	
38						

\*Thermocouple malfunction

Individual Temperatures Recorded On The Frame Of Doorset A

Time	T/C Number	T/C Number	T/C Number
Min	27	27	27
Temp. C	Temp. C	Temp. C	Temp. C
1	17	17	17
2	17	17	17
3	17	17	17
4	17	17	17
5	17	17	17
6	17	17	17
7	17	17	17
8	18	17	17
9	18	17	17
10	18	17	18
11	19	18	19
12	19	18	20
13	20	18	22
14	20	19	23
15	21	20	24
16	22	20	25
17	23	21	26
18	24	22	27
19	26	22	28
20	27	23	29
21	29	25	30
22	30	26	31
23	31	27	32
24	33	28	33
25	34	29	34
26	36	31	34
27	38	32	36
28	41	32	37
29	44	33	38
30	46	35	39
31	49	37	40
32	52	39	41
33	54	42	43
34	57	45	44
35	61	49	46
36	65	54	48
37	*	60	*
38		67	
39		69	
40		69	

\*Thermocouple malfunction



Individual Temperatures Recorded On The Frame Of Doorset B

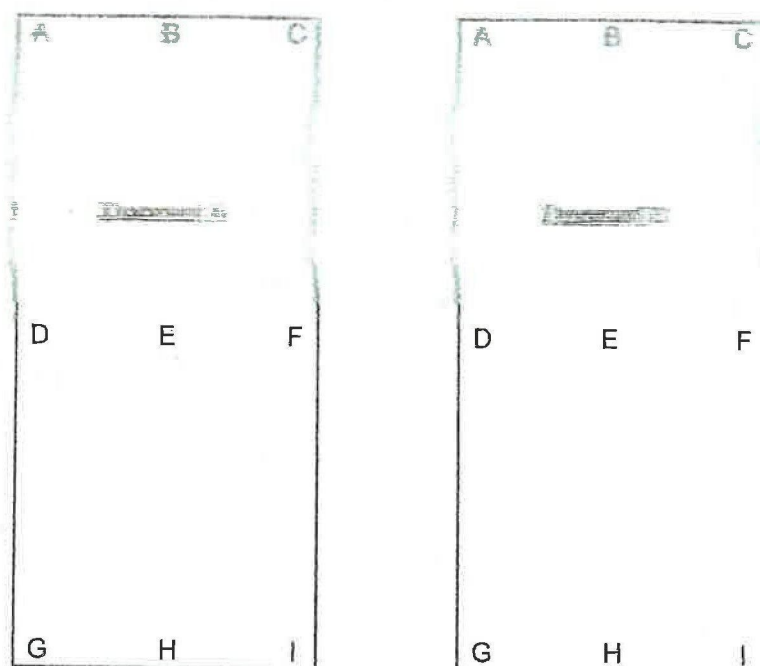
Time	T/C Number	T/C Number	T/C Number
1	13	14	14
2	13	14	14
3	13	14	14
4	13	14	14
5	13	14	14
6	13	14	14
7	13	14	14
8	13	14	14
9	13	15	14
10	13	15	15
11	13	16	15
12	13	17	16
13	13	17	17
14	13	18	18
15	14	19	19
16	14	20	20
17	15	22	21
18	17	23	22
19	18	25	23
20	20	27	24
21	22	29	25
22	23	31	27
23	25	33	28
24	26	35	29
25	27	37	30
26	28	38	32
27	29	40	33
28	30	42	34
29	31	43	36
30	32	45	37
31	33	46	39
32	34	48	40
33	35	50	42
34	36	51	44
35	38	53	47
36	40	65	49
37	44	96	51

Recorded radiation intensity

Time	Radiation intensity
3	0.0
4	0.1
5	0.0
6	0.1
7	0.3
8	0.3
9	0.3
10	0.4
11	0.4
12	0.3
13	0.5
14	0.4
15	0.5
16	0.4
17	0.6
18	0.7
19	0.7
20	0.5
21	0.6
22	0.8
23	0.7
24	0.8
25	0.7
26	0.8
27	0.8
28	0.9
29	0.8
30	1.0
31	0.9
32	1.1
33	1.1
34	1.2
35	1.2
36	1.6
37	1.6
38	1.1
39	1.2
40	1.2



# Deflection Of The Door Leaves During The Test

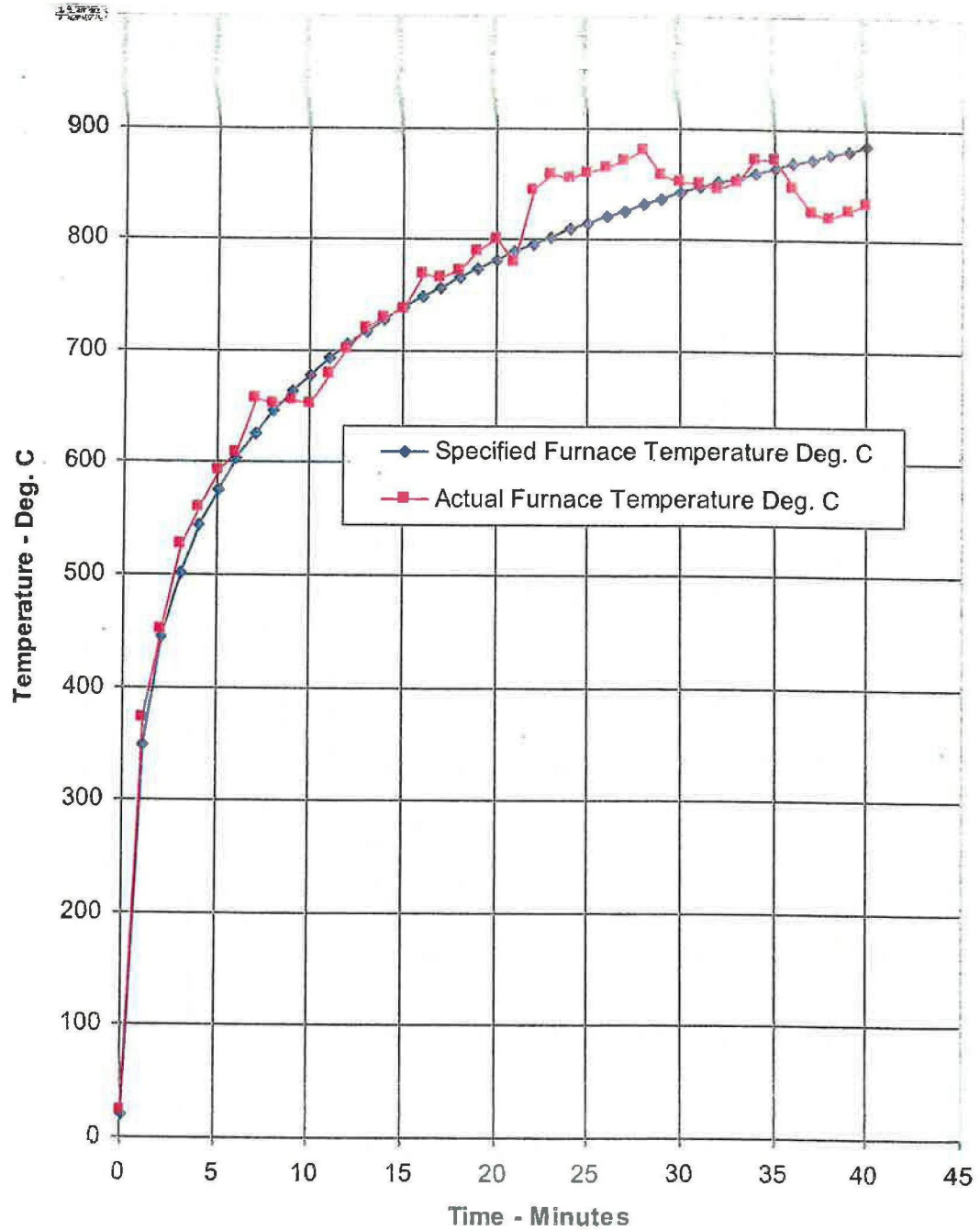


Doorset A									
Deflections – mm									
Time Mins	A	B	C	D	E	F	G	H	I
0	0	0	0	0	0	0	0	0	0
10	-3	5	6	0	5	2	5	1	-1
20	-1	7	3	5	6	7	0	3	1
30	-3	4	7	1	8	7	1	4	2

Doorset B									
Deflections – mm									
Time Mins	A	B	C	D	E	F	G	H	I
0	0	0	0	0	0	0	0	0	0
10	-2	4	3	2	2	1	0	0	0
20	-1	2	3	2	1	2	1	2	1
30	1	3	4	2	-1	-2	2	5	0

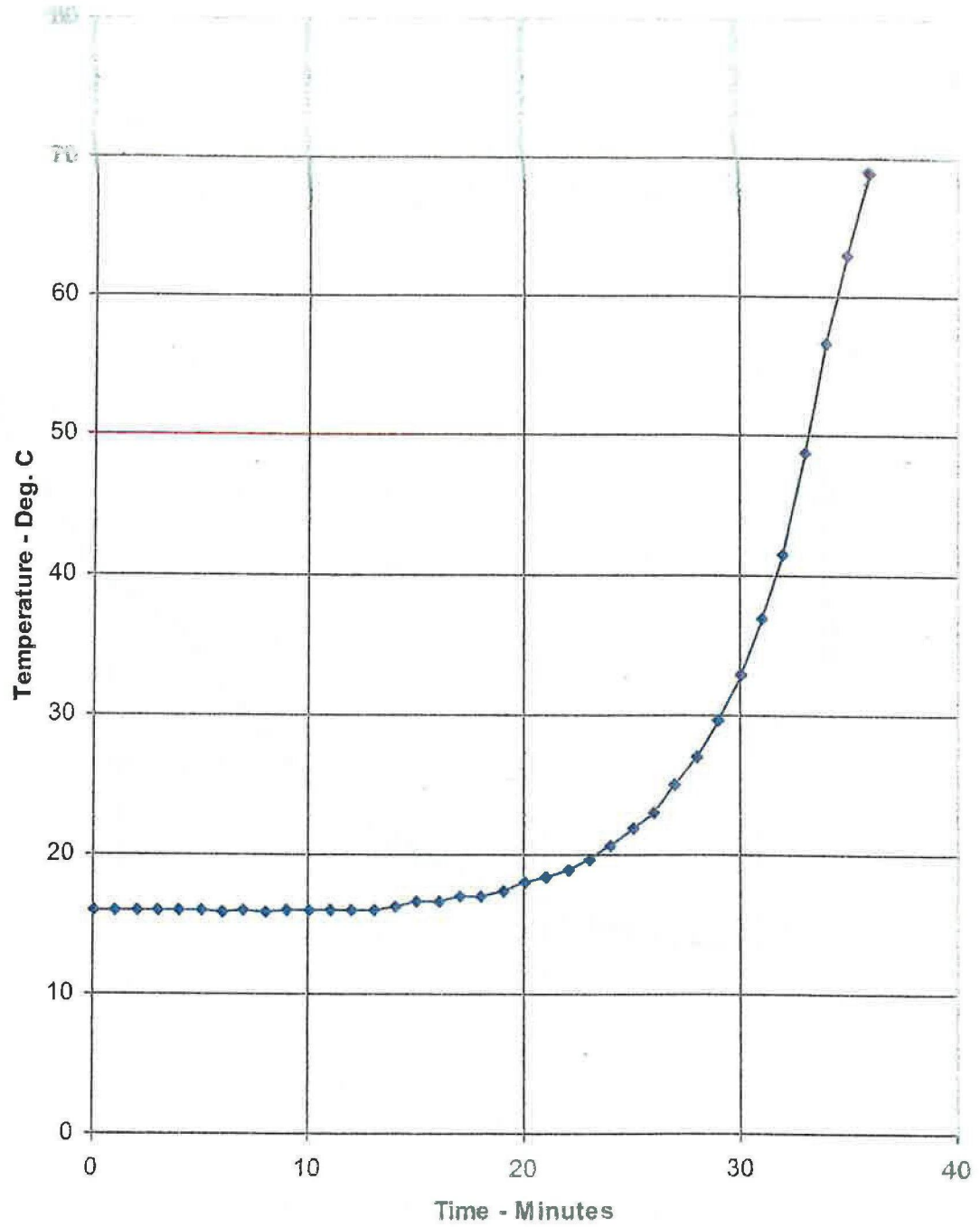
Positive values indicate movement towards the furnace chamber

Graph Showing Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In The Standard

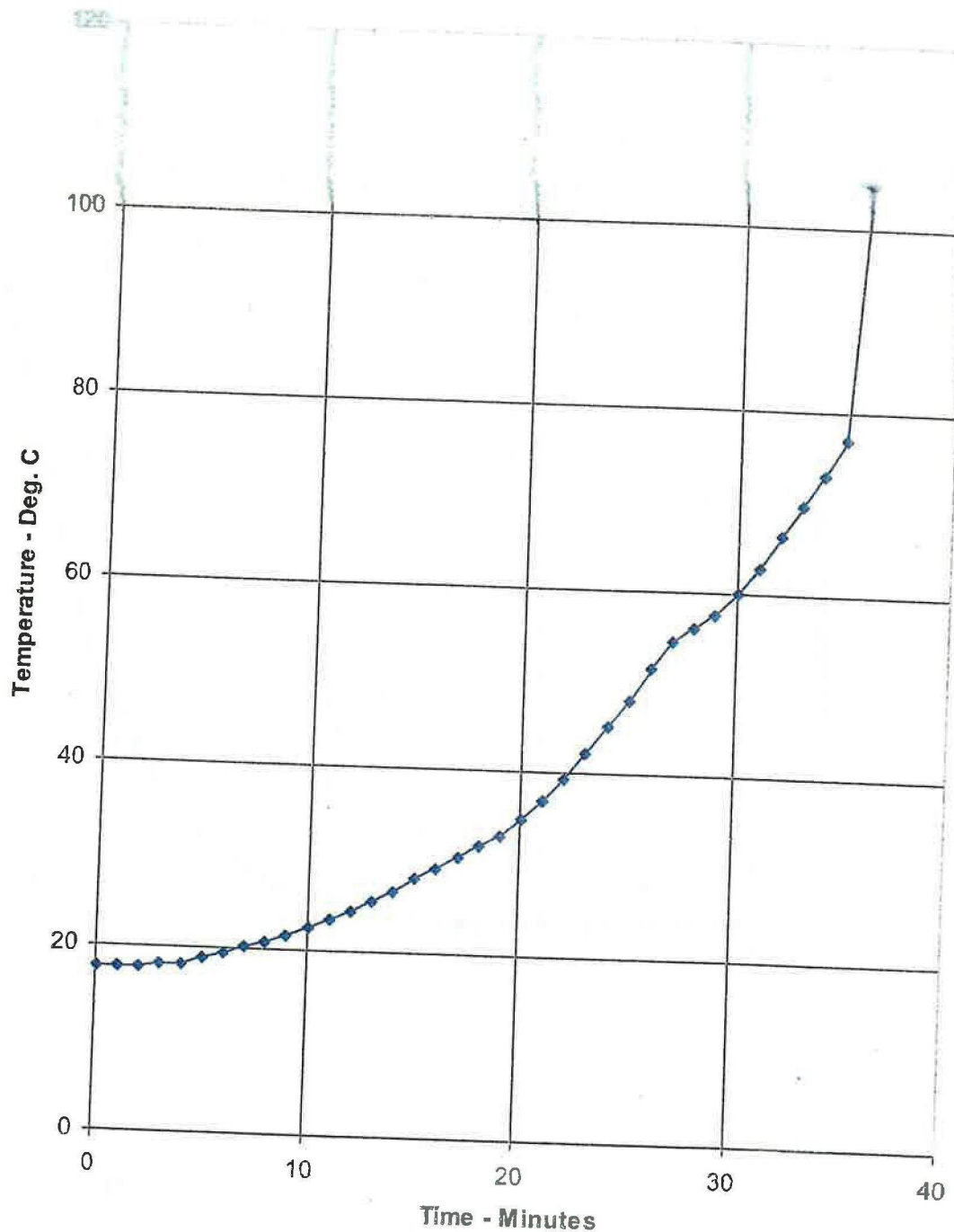




Graph Showing Mean Temperature Recorded On The Unexposed Surface Of Doorset A



Graph Showing Mean Temperature Recorded On The Unexposed Surface Of Doorset B





## Performance Criteria and Test Results

### Integrity

It is required that there is no collapse of the specimen, no sustained flaming on the unexposed surface and no loss of impermeability. These requirements were satisfied for a period of 35 minutes by Doorset A and 25 minutes by Doorset B after which time sustained flaming on the unexposed surface occurred.

### Insulation

It is required that the mean temperature rise of the unexposed surface shall not be greater than 140°C and that the maximum temperature rise shall not be greater than 180°C. Insulation failure also occurs simultaneously with integrity failure. These requirements were satisfied for a period of 32 minutes after which time thermocouple number 6 recorded a temperature increase in excess of 180°C.

## Ongoing Implications

### Limitations

The results relate only to the behaviour of the specimens of the element of construction under the particular conditions of test. They are not intended to be the sole criteria for assessing the potential fire performance of the element in use, nor do they reflect the actual behaviour in fires.

The test results relate only to the specimens tested. Appendix A of BS 476: Part 20: 1987 provides guidance information on the application of fire resistance tests and the interpretation of test data. Application of the result to doorsets of different dimensions or supported other than by a masonry wall or incorporating different components should be the subject of a design appraisal.

The tested assemblies were asymmetrical and were tested such that the door leaves opened towards the heating conditions of the test. The test results may not be appropriate to situations where the door leaves opens away from the heating conditions.

### Review

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over five years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

## Conclusions

### Evaluation

#### Against Objective

A fully insulated doorset and a partially insulated, single-acting, single-leaf doorsets, installed within a masonry wall, have been subjected to a fire resistance test in accordance with BS 476, Part 22, 1987, Clause 6 and 7.

The evaluation of the doorsets against the requirements of BS 476, Part 22, Clause 6 and 7 showed that they satisfied the requirements for the periods stated below.

Test Results:	Doorset A	Doorset B
Integrity	38 minutes	35 minutes
Insulation	38 minutes	32 minutes

The test was discontinued after a period of 40 minutes.



**CONFIDENTIAL**

**Test Report : Chilt/RF07149**

**A fire resistance test performed on  
two single leaf single acting doorsets,  
one with glazing and a glazed fanlight**

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

**Test Date: 20 November 2007**

**Test for :**

**Manse Masterdor Ltd  
Hambleton Grove  
Knaresborough  
North Yorkshire  
HG5 0DB**

**Page 1 of 13**

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

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*The legal validity of this report can only be claimed on the presentation of the complete report.  
This report is printed on 100% recycled paper*



Ref: 12/02

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## 1 Introduction

The doorsets were manufactured and supplied to test by the client and delivered during November 2007. Chiltern International (UK) Limited (CIL) conducted the test in accordance with BS 4792:2007 and BS 4792:2007:2008.

## 2 SPECIMENS

Details of the specimen are shown in the Appendix.

### 2.1 Door leaves

The left leaf was designated doorset A and the right leaf was designated doorset B. Both leaves measured 1970mm high x 900mm wide x 55mm thick. Both leaves were hung to open in towards the furnace. The glazing system and framing within the doorsets was an asymmetric construction and therefore can only be used in the way it was tested, opening in towards the fire. The results of this test were obtained from doorsets each fitted with an engaged latch.

### 2.2 Door perimeter gaps

The gaps between the edge of the doors and frame were measured prior to test. A total of 27 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)
Doorset A	44	22
Doorset B	47	23

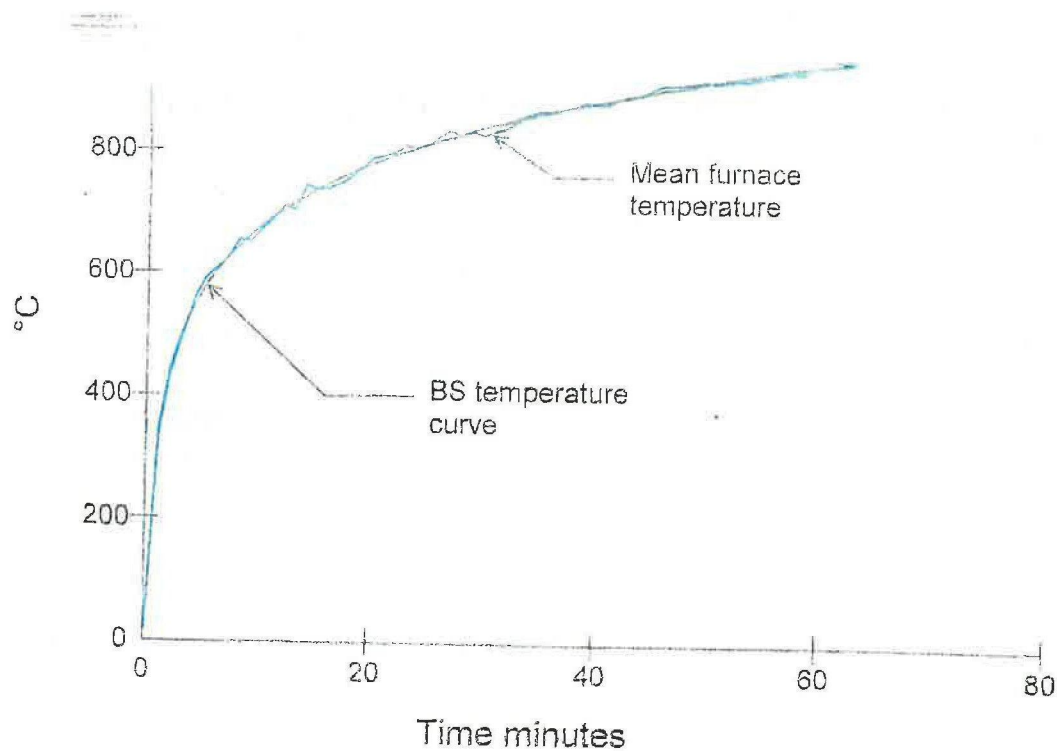
### 3 Test conditions

- 3.1 Where areas of the test specification are ambiguous or open to interpretation the Test Study Group Resolutions Nos 51, 53, 70, 71, 72 and 78 have been followed (further specific details are available on request). These Resolutions provide terms of common agreement between the fire test laboratories which are members of the CIB.
- 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  $0 \pm 2$  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. Doorset A had an additional thermocouple fixed to the glass of the leaf and to the glass of the overpanel. 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

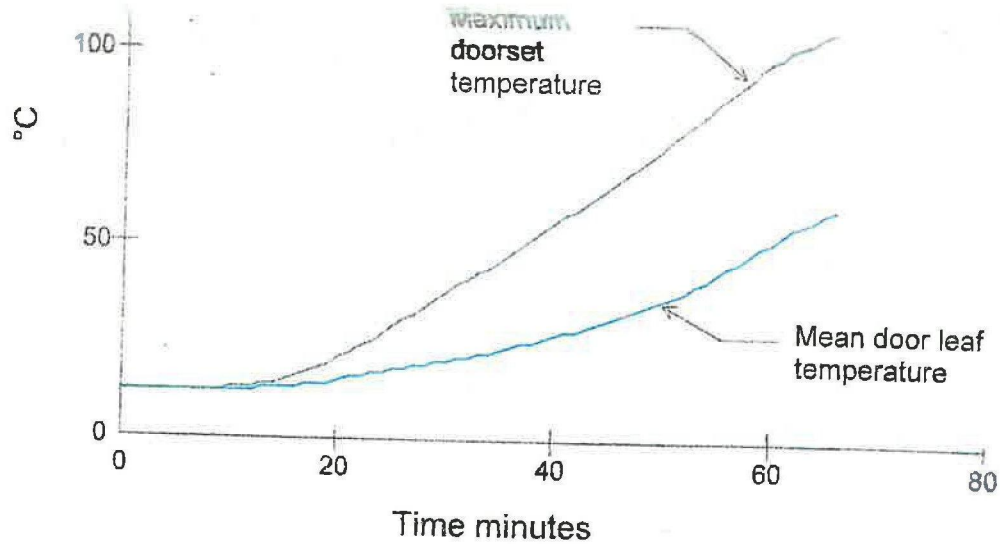


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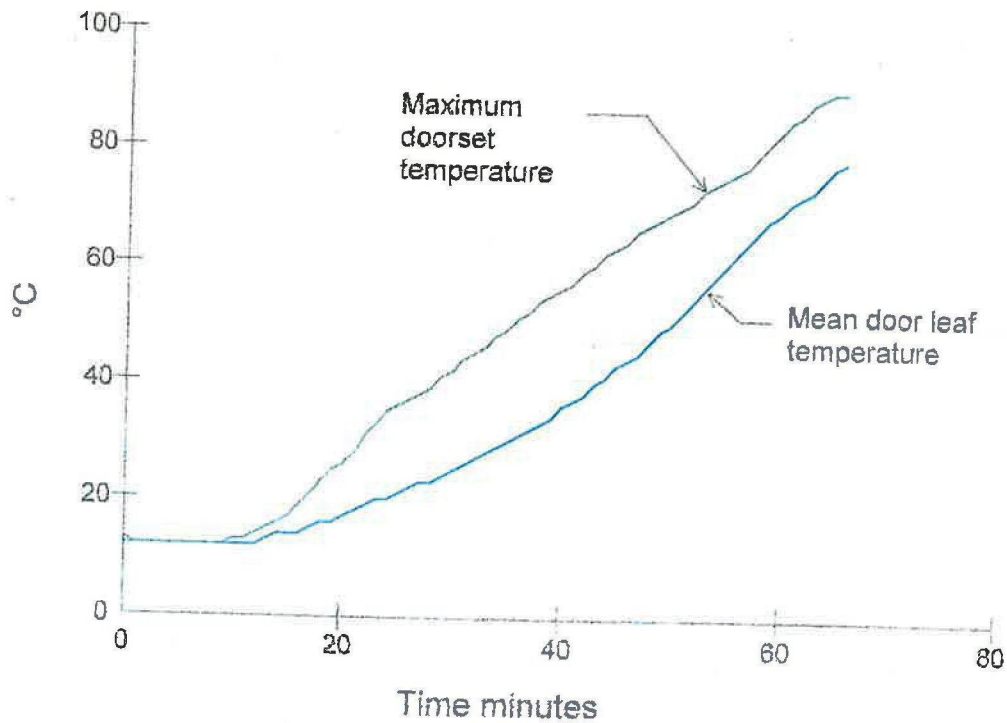


## 4.2 Unexposed face temperature curves

### Doorset A



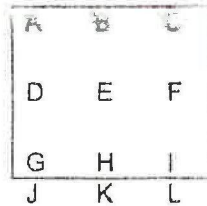
### Doorset B



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### 4.3 Door distortion data

The following tables show the distortion of the doors in mm with an accuracy of  $\pm 1$  mm.  
 A positive measurement indicates distortion towards the fire.  
 A negative measurement indicates distortion away from the fire.  
 At K and L, any visible movement of the door, a negative reading indicates that the door has closed.



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

Time	A	B	C	D	E	F	G	H	I	J	K	L
15	0	-1.5	-2	0	-	0	1	1.5	4	0	0	-0.5
30	2	0	-1.5	0.5	-	1	3	5.5	8	-1	0	-0.5
45	3	-3.5	-2.5	-2.5	-	-3.5	2.5	3.5	7	-2	1.5	-1.5
60	17	8	13	5	-	4.5	7	5	8	-3	-3.5	-3

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

Time	A	B	C	D	E	F	G	H	I	J	K	L
15	0	-2.5	-1.5	0.5	-0.5	0	2	2.5	3	0.5	0	0
30	2	-3	-3	-0.5	-3.5	-1	2.5	4	4	1	-1	-1
45	7	-5	-2.5	-3.5	-16.5	-8	3	2	3	0.5	-2	-2
60	-	-	-	1.5	-20.5	-9.5	8	7	9.5	0	-2	-2

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

#### 4.4 Observations

All comments relate to the unexposed face unless otherwise specified

Time	Observations
03.23	Doorset A, the glass is cracking in the leaf and fanlight.
05.08	Doorset A, there is smoke issuing from the top closing corner of the leaf.
07.05	Doorset B, there is smoke issuing from the top closing corner of the leaf.
19.40	Doorset A, there is smoke issuing from the top hanging corner of the leaf.
20.30	Doorset A, smoke continues to issue from the top closing corner of the leaf and along the bottom right hand side of the transom.
27.09	Doorset B, there is smoke issuing from the top hanging and closing corners of the leaf.
28.00	Doorset A, there is discolouration of the right hand side of the transom approximately 100mm in from the top closing corner of the leaf.
33.45	Doorset A, there is smoke issuing from the top right corner of the fanlight glazing bead.
40.51	Doorset A, there is smoke issuing from both sides of the glazing bead on the leaf.
44.45	Doorset A, there is an increase in the level of smoke issuing from all round the leaf glazing bead.
49.25	Doorset A, there are fissures in the top glazing bead on the leaf.
53.26	Doorset B, there is an increase in the level of smoke issuing from the top hanging and closing corners of the leaf.
59.43	Doorset B, there is smoke issuing from the latch position.
62.40	Doorset A, there is smoke issuing from the latch position.
66.12	Doorset A, there is continuous flaming from the top of the leaf glazing thereby constituting integrity failure.
66.20	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:

Integrity	66 (sixty six) minutes	66 (sixty six) minutes*
Insulation	66 (sixty-six) minutes*	66 (sixty six) 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.

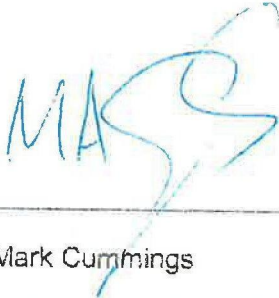

\*\* No failure had occurred at the time of test termination

## 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. 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:	7/1/08	07-01-2008

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Description of construction (refers to Figures 1 to 4 of the appendix)

Leaf – both doorsets. The client specified both doorblanks were supplied by Morat Tischlermeister.

Component		Species/type	Dimensions (mm)	Density (kg/m³)	Moisture (% w/w)	Key to figures
Core		Spruce ply veneers*	Nominally 4.6 wide x 46.5 thick	450*	-	1
Facings		Gaboon *	4.5 thick	440**	12-13	2
Adhesive	Lipping	PVA D4*	-	-	-	-
	Facing	Urea formaldehyde*	-	-	-	-
	Core	Miracol 13F2 (PVA)*	-	-	-	-
Lippings – all edges		Sapele	36 thick overall (see figures 2 & 3)	674*	9-1	3

\* As stated by client and not verified by CIFI

\*\* Nominal density

#### Door frame – both doorsets

Component	Species/type	Dimensions (mm)	Density (kg/m³)	Moisture (% w/w)	Key to figures
Head and jambs	Aluminium extrusion, Part No THR-3102, with 22 wide x 37 deep sapele reinforcement (see figures 2 and 3)	72 wide x 79 deep (including cappings and integral stops)	-	-	4
Transom – doorset A	See clients supplied drawing 1 in Appendix	-	-	-	-
Frame cappings	Sapele (see figure 2 and 3)	18 thick	640**	10	4a
Head to jamb jointing detail	Butted – screwed	-	-	-	-
Stops	Integral (see figure 2 and 3)	-	-	-	-
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 steel wood screws	100 long	-	-	-
Architrave	None fitted	-	-	-	-
Threshold	Stormguard aluminium extrusion Part No. THR-3102	14.9 high (max) x 75 deep	-	-	5

\* As stated by client and not verified by CIFI

\*\* Nominal density

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



### Intumescent materials

3 coats of Environmental Seals Ltd HWD1, and 1 coat of Environmental Seals Ltd HWD2 intumescent paint were applied to the exposed face of the leaf, rear edges and frame capping

		Make/type	Size (mm)	Location	Key to figures
Frame reveal (see figure 2)	Head and jambs	Environmental Seals Ltd 2ND, foam and graphite type Environmental Seals Ltd PVC encapsulated with brush seal	20 x 4 7 x 4	Fitted into frame rebate Fitted on edge of frame capping	6 7
Around hinges		Continuous	-	-	-
Under hinge blade		Environmental Seals Ltd Product ref. unknown - graphite seal	4 thick	Fitted under the hinge blade on the leaf only	-
Encasing latch body		Environmental Seals Ltd Product ref. INT 194 and INT 195	1 thick	Fitted each side of the lock case	-
Under latch forend		Environmental Seals Ltd Product ref. GZT 0163	8 wide x 2 thick	Fitted under the latch forend	-
Around latch keep		Continuous	-	-	-
Under latch keep		Environmental Seals Ltd Product ref. INT 197	25 x 4	Fitted under the latch keep	-
Glazing perimeter and fanlight - doorset A only (see figure 2 and 3 and clients supplied drawing)		Environmental Seals Ltd Product ref. G20/10	20 x 2	Fitted between the glass and bead on both sides	8
		Environmental Seals Ltd Product ref. unknown - glazing tape	2 thick	Fitted around the aperture	9

### Hardware – both doorsets

	Make/type	Size (mm)	Location	Key to figures
Hinges	4No Select Engineering Asia stainless steel Manufacturers Ref. HNG 1333	100 x 35 (blade size)	Fitted 150mm, 365mm, 975mm and 1690mm from the head of the leaf	10
Closer	Select Engineering Asia overhead type closer Manufacturers Ref. DCL-2339	220 x 50 (footprint size)	Fitted on the exposed face as per the manufacturer's instructions	11

Continued overleaf.....

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



Latch	Winkhaus Cobra 3 point lock/latch Manufacturers Ref. LLK-365b - engaged	20 wide (faceplate)	Centre latch nib fitted 960mm from the head of the leaf	12
Furniture	Select Engineering Asia Aluminium extrusion door handle Manufacturers ref. 402	35 x 250 (faceplate)	Fitted approximately to centre	13

### Glazing – doorset A leaf

	Make/type	Size (mm)	Location	Key to figures
Glass type	Pilkington Pyroshield	7 thick	Fitted centrally, 120mm from the leaf head	14
Sight size	-	875 high x 180 wide	-	-
Overall aperture size	-	926 high x 229 wide	-	-
Expansion allowance	-	3 all round	-	-
Beading	Sapele	31 deep x 43 high including a 20 x 10.5 bolection return and a 15° chamfer (See clients supplied drawing 4.2)	Fitted around the perimeter of the glazing aperture	15
Beading fixings	Steel screws and cup washers	70 long	Fitted 90mm from corners @ 175mm centres at 15° to the glass	16

### Glazing – doorset A fanlight (see figure 3)

	Make/type	Size (mm)	Location	Key to figures
Glass type	Pilkington Pyroshield	7 thick	Fitted centrally in the framing above the leaf	17
Sight size	-	824 wide x 243 high	-	-
Overall aperture size	-	887 wide x 306 high	-	-
Expansion allowance	-	3 all round	-	-
Beading	Sapele	See clients supplied drawing 1		18
Beading fixings	Steel screws	70 long	Fitted 90mm from corners @ 175mm centres at 15° to the glass	19

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

## Appendix - figures 1 to 4 and clients supplied drawings

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

Test for: Manse Masterdor Ltd  
Ref: Chil/RF07149

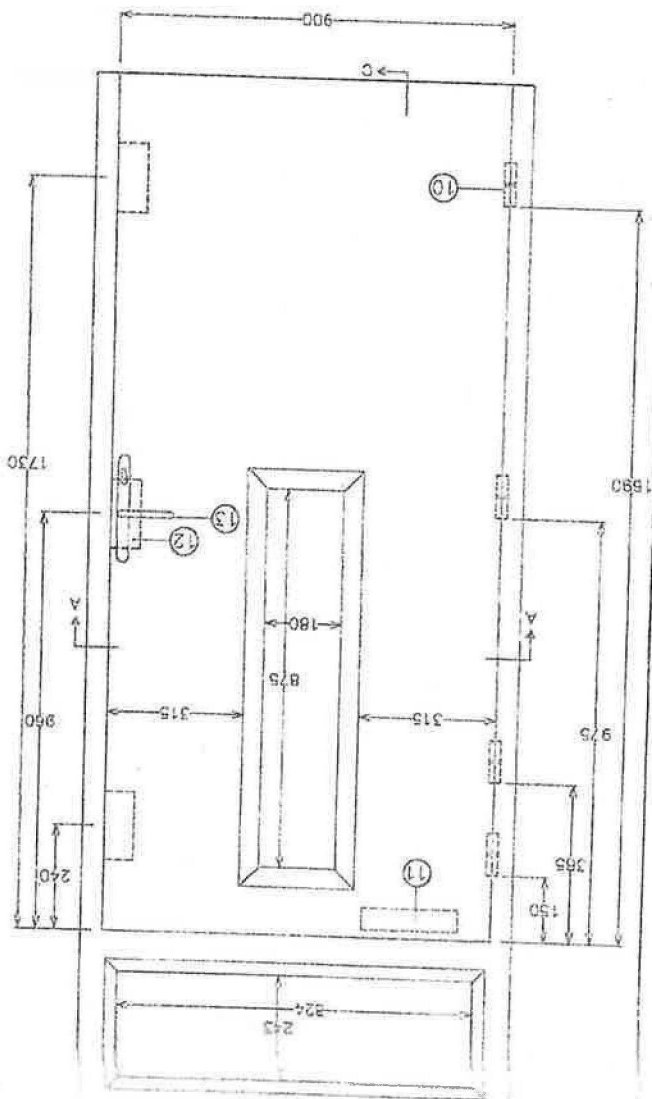
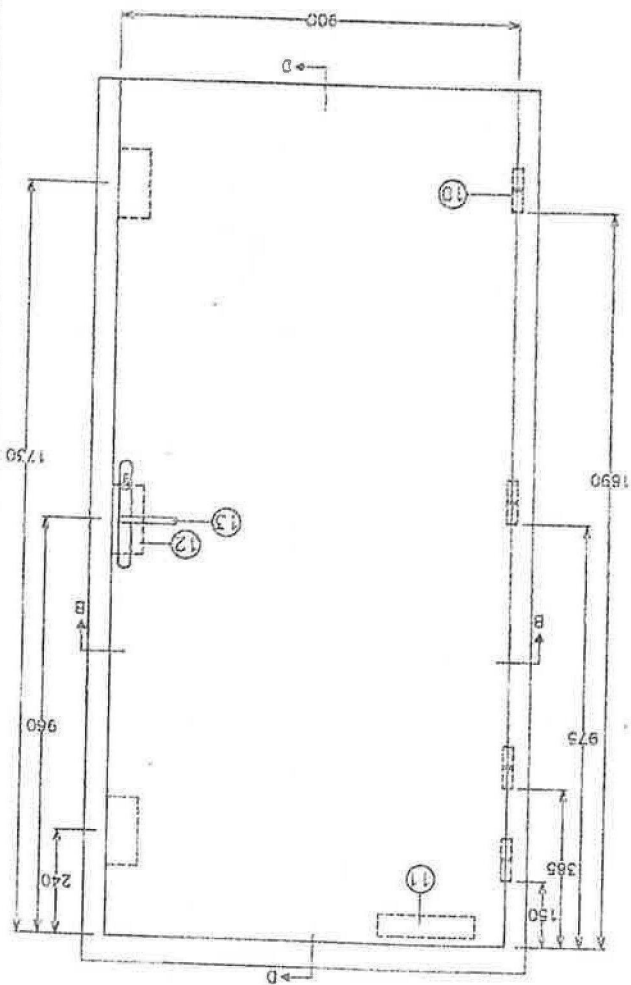
Page 13 of 13

MET00040102/63

Title		Unexposed face elevation (All dimensions in mm) showing hardware positions	
Date Drawn	28/11/07	Drawn By	ARD
Project No.	Chit/RFO7149	Scale	NTS
Appendix			

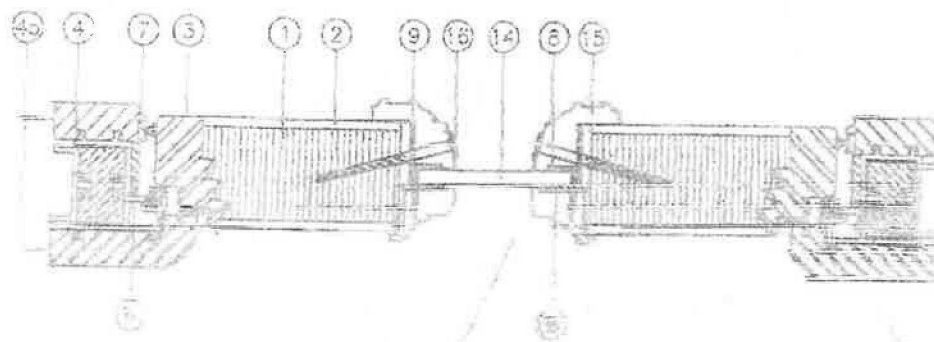


Chiltern House, Stocking Lane, Hughenden Valley  
High Wycombe, Buckinghamshire, HP14 4ND, UK.  
Tel: [Redacted] Fax: [Redacted]





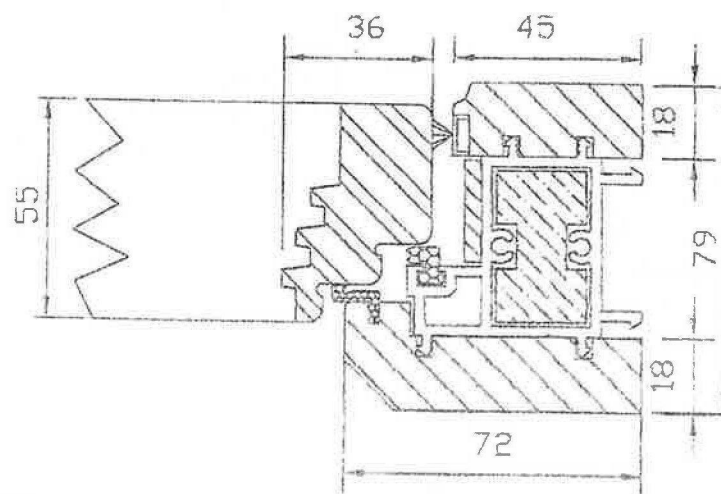
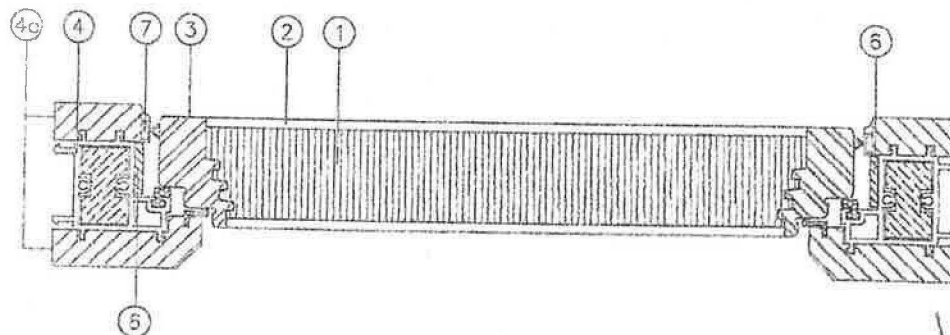
Section A-A



5 x 70 Steel Screws  
and Cup Washers  
175 mm Max Pitch  
Set at 15 degrees  
from vertical.

225 Dia. X 254 mm  
retaining rail.

Section B-B



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

Tel:

Fax:

Title

Horizontal cross sections

Date Drawn

11/12/07

From clients  
Supplied drawings

Scale

NTS

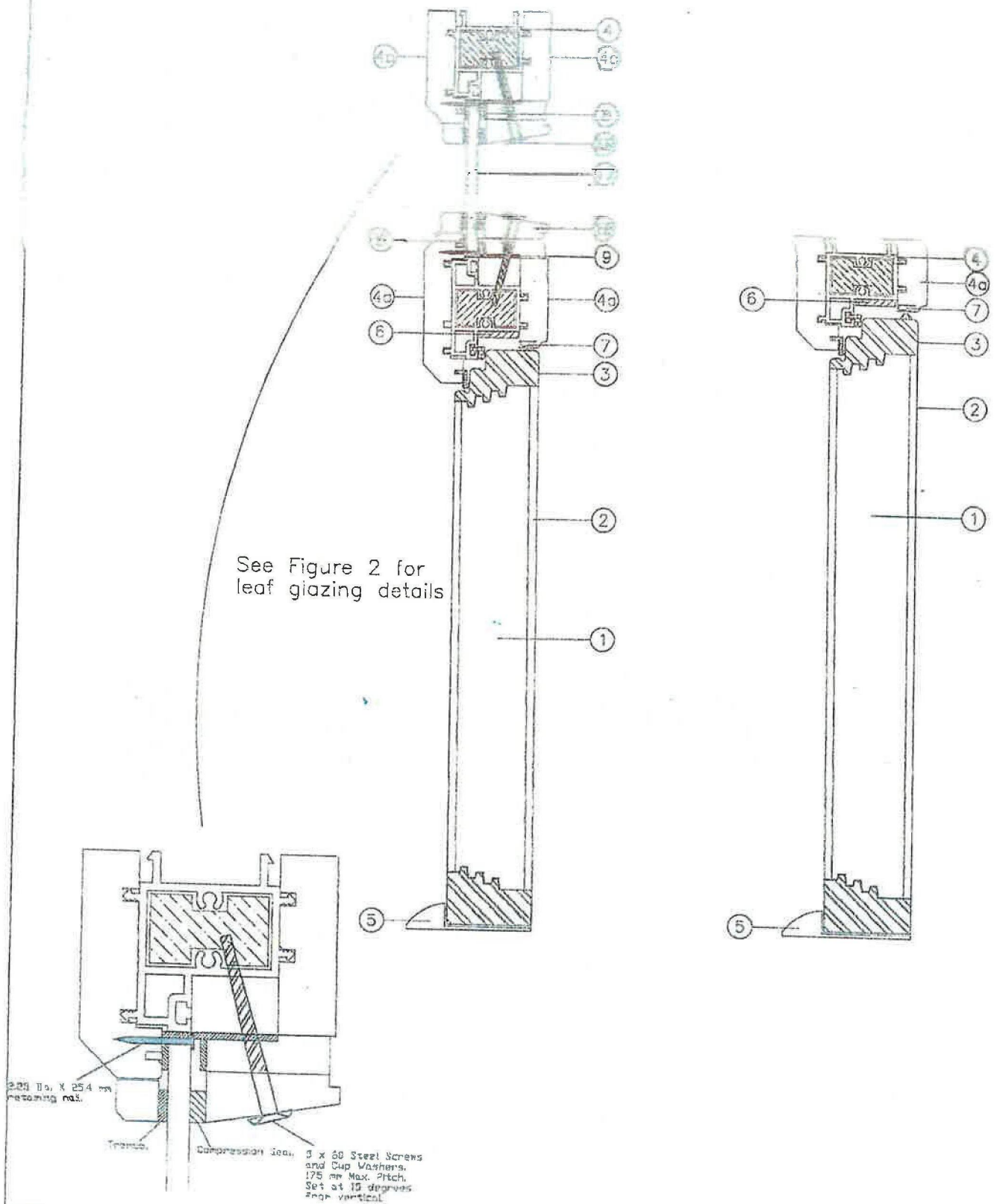
Project No.

Chilt/RF07149

Appendix

Section C-C

Section D-D



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

Tel: [REDACTED]

Fax: [REDACTED]

Title

Vertical cross sections

Date Drawn

11/12/07

From clients

Supplied drawings

Scale

NTS

Project No.

Chilt/RF07149

Appen

MET00040102/66





5 x 60 Steel screws and Cup  
Washer 3.175 mm Max. Pitch  
Set at 13 degrees  
from vertical.

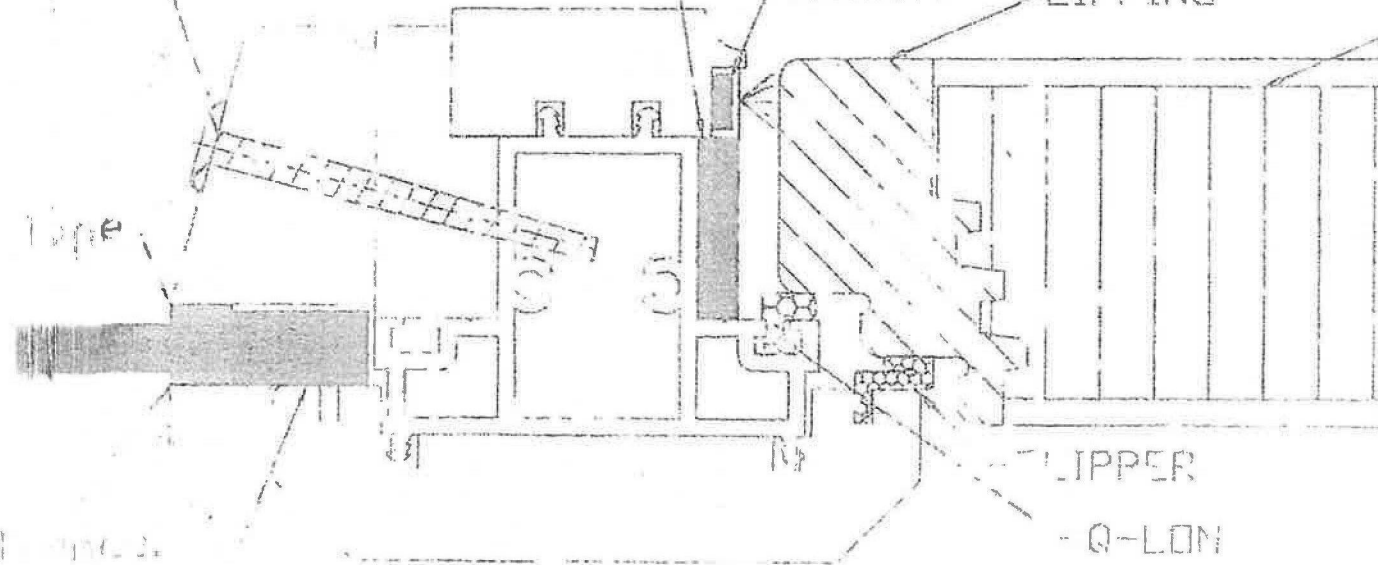
INTUMESCENT  
SEAL

INTUMESCENT  
BRUSH

LIPPING

BLADE

Compressor Type



CLIPPER

- Q-LON

Intumescent Type G20/10

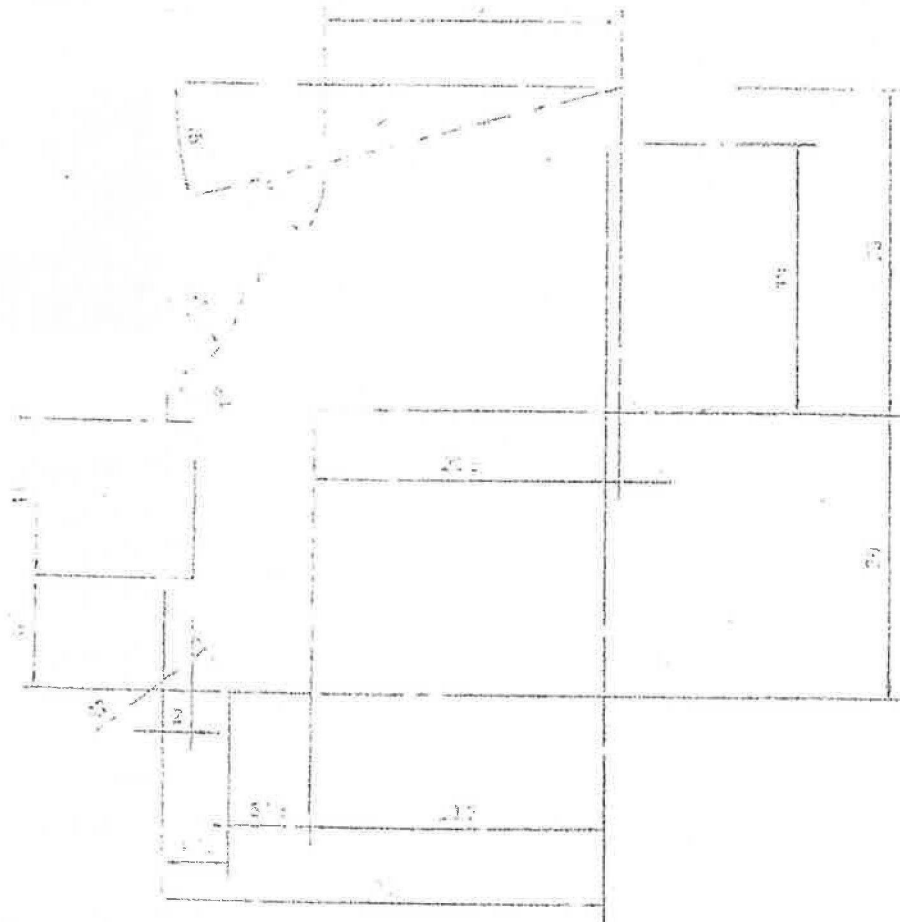
Seal side G20/11

SP FD60 Integral Frame Cross Section with Integral Air side unit.  
Frame width of less than 1500 mm  
Height less than 2400 mm

# masterdor Production Manual

Fig. 1185 - of 4

60 Minute Fire Door Glazing Section



Part Code	GZB-3211
Material	Hardwood
Supplier	Manse Masterdor
Notes	

F030 - 2007

**Title:**

The fire resistance performance of a fully insulated, single-acting, single-leaf doorset, in accordance with BS 476: Part 22: 1987, Clause 6

**WF Report No:**

161186



**Prepared for:**

**LB Plastics Limited.**

Firs Works,  
Nether Heage,  
Derby,  
Derbyshire,  
DE56 2JJ.

**Date:**

23<sup>rd</sup> March 2007

**Notified Body No:**

0833





## Summary

### Objective

To determine the fire resistance performance of a fully insulated, single-acting, single-leaf doorset, when tested in accordance with Clause 6 of BS 476: Part 22: 1987.

### Sponsors

**LB Plastics Ltd**, Firs Works, Nether Heage, Derby, Derbyshire, DE56 2JJ.

### Summary of Tested Specimen

The doorset had overall dimensions of 2030 mm high by 915 mm wide and incorporated a door leaf referenced 'Masterdor DCM1' having overall dimensions of 1960 mm high by 812 mm wide by 44 mm thick. The door leaf comprised a 'Moralt' timber based core, a softwood perimeter framework and 3 mm thick plywood facings. The leaf was hung within a steel reinforced PVC frame on three hinges.

The door leaf was orientated such that it opened towards the heating conditions of the test. The doorset included a '3 point hook lock'. The doorset was rendered locked for the test duration.

### Test Results:

#### Integrity

35 minutes

#### Insulation

35 minutes

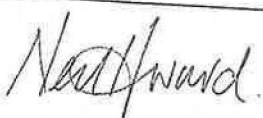
The test was discontinued after a period of 38 minutes.

#### Date of Test

5<sup>th</sup> February 2007

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## Signatories


Responsible Officer <b>N. Howard*</b> Testing Officer


Approved <b>D. Hankinson*</b> Technical Consultant

\* For and on behalf of Bodycote **warringtonfire**.

Report Issued Date : 23 <sup>rd</sup> March 2007
---

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## Test Procedure

### Introduction

The doorset was of a fully insulated construction and the test was therefore conducted in accordance with Clause 6 of BS 476: Part 22: 1987 'Methods for determination of the fire resistance of non-loadbearing elements of construction'. This test report should be read in conjunction with that Standard and with BS 476: Part 20: 1987, 'Methods for determination of the fire resistance of elements of construction (general principles)'.

The specimen was judged on its ability to comply with the performance criteria for integrity and insulation, as required by BS 476: Part 22: 1987, Clause 6.

### Fire Test Study Group/EGOLF

Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group and EGOLF have identified a number of such areas and have agreed Resolutions, which define common agreement of interpretations between fire test laboratories, which are members of the Groups. Where such Resolutions are applicable to this test they have been followed.

### Instruction To Test

The test was conducted on the 5<sup>th</sup> February 2007 on behalf of LB Plastics Ltd.

Mr. P. Asquith a representatives of J and S. Supplies witnessed the test.

### Test Specimen Construction

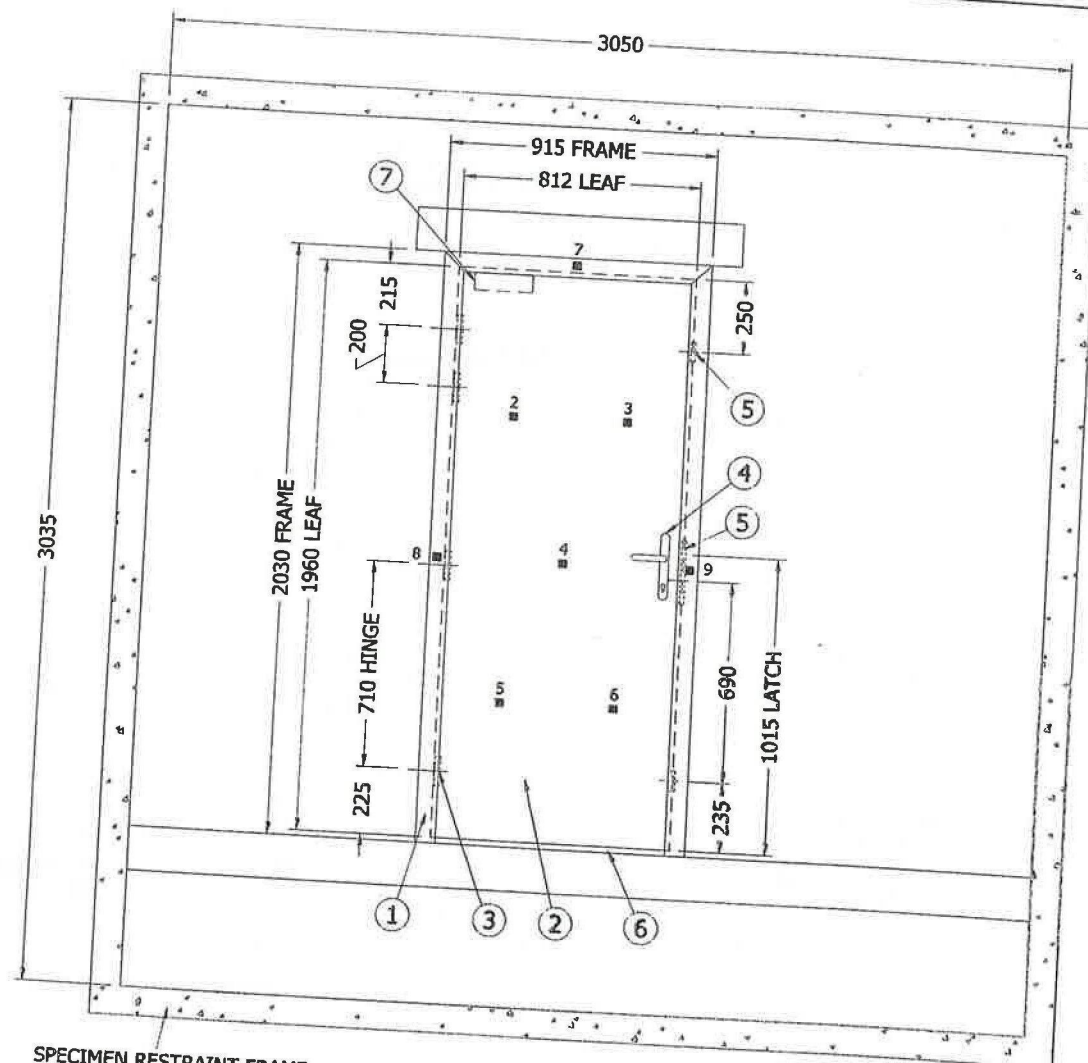
A comprehensive description of the test construction is given in the Schedule of Components. The description is based on a detailed survey of the specimen and information supplied by the sponsor of the test.

### Installation

The doorset was mounted within an aperture provided in a masonry wall construction such that the door leaf opened towards the heating conditions of the test. Representatives of the test sponsor conducted the installation of the doorset on the 5<sup>th</sup> February 2007.

# Test Specimen

Figure 1 – Elevation of unexposed face of doorset built into a specimen restraint frame



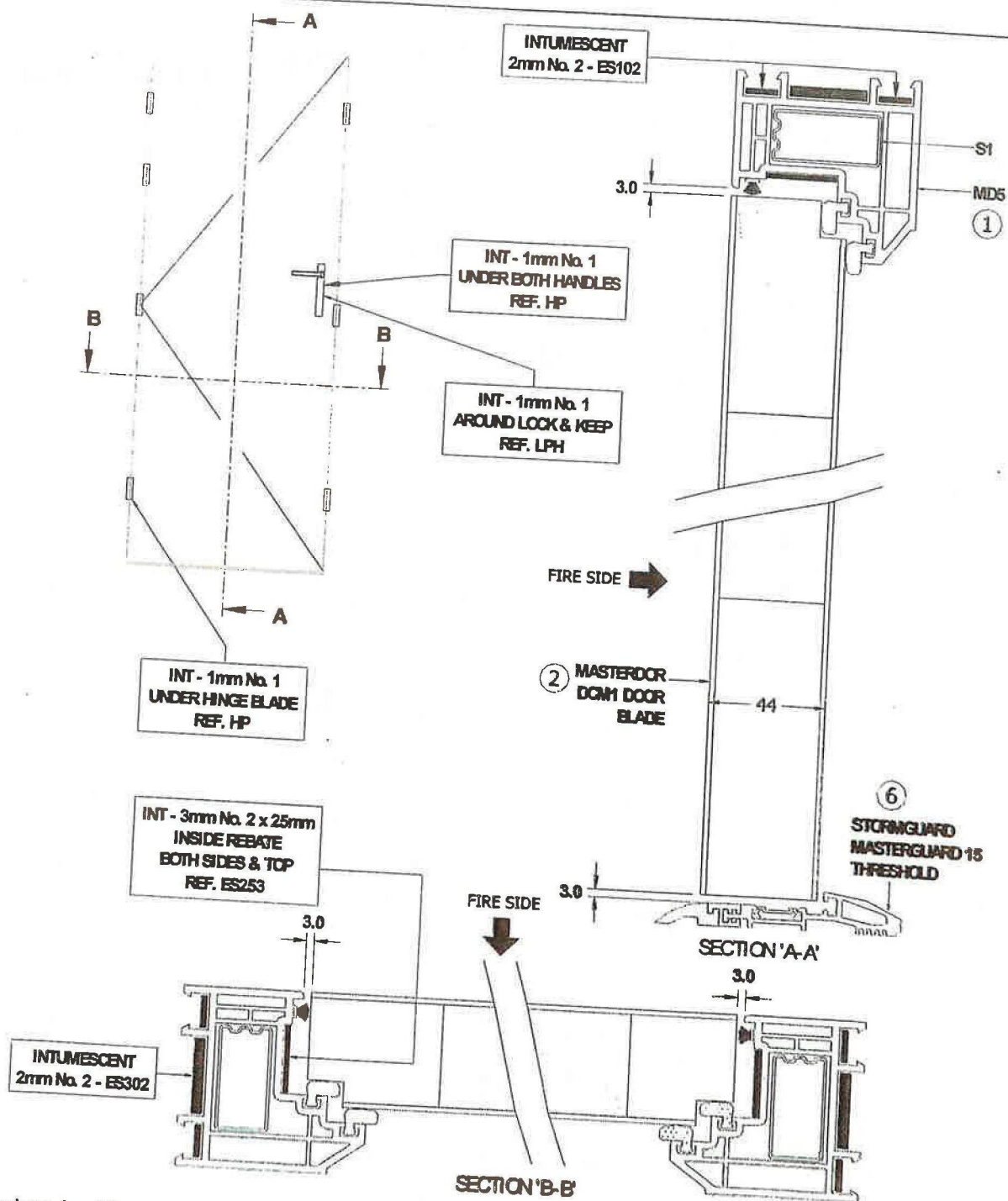
SPECIMEN RESTRAINT FRAME

■ POSITIONS OF UNEXPOSED FACE THERMOCOUPLES.

SPECIMEN BUILT INTO A MASONRY WALL CONSISTING OF AAC (AUTOCLAVED AERATED CONCRETE) BLOCKWORK WALLS, LINTEL AND BASE, NOMINALLY 150 THICK. DOOR LEAF OPENS TOWARDS THE HEATING CONDITIONS OF THE TEST.

Do not scale. All dimensions are in mm

**Figure 2 – Elevation and sections through frame and leaf**

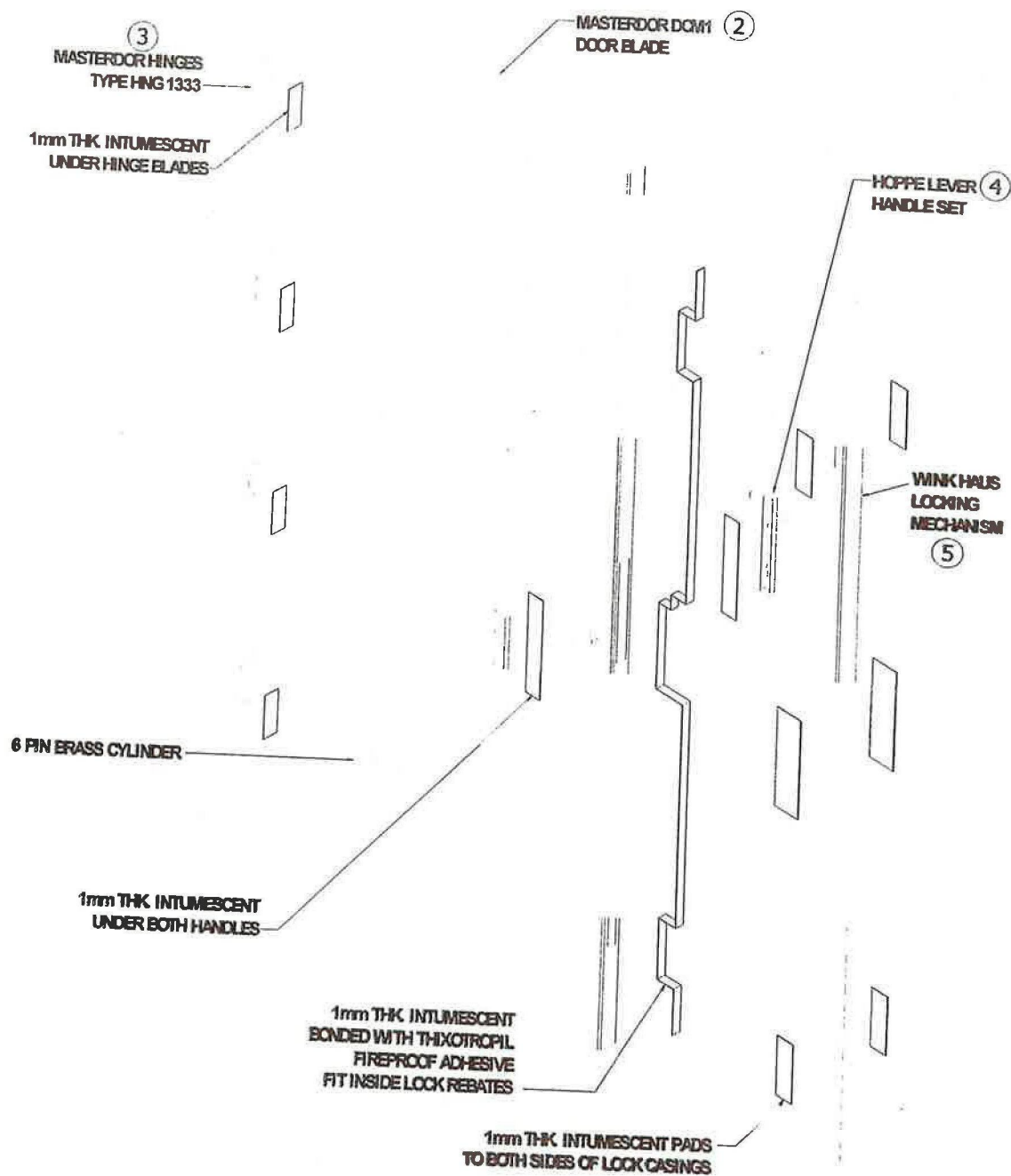


Do not scale. All dimensions are in mm



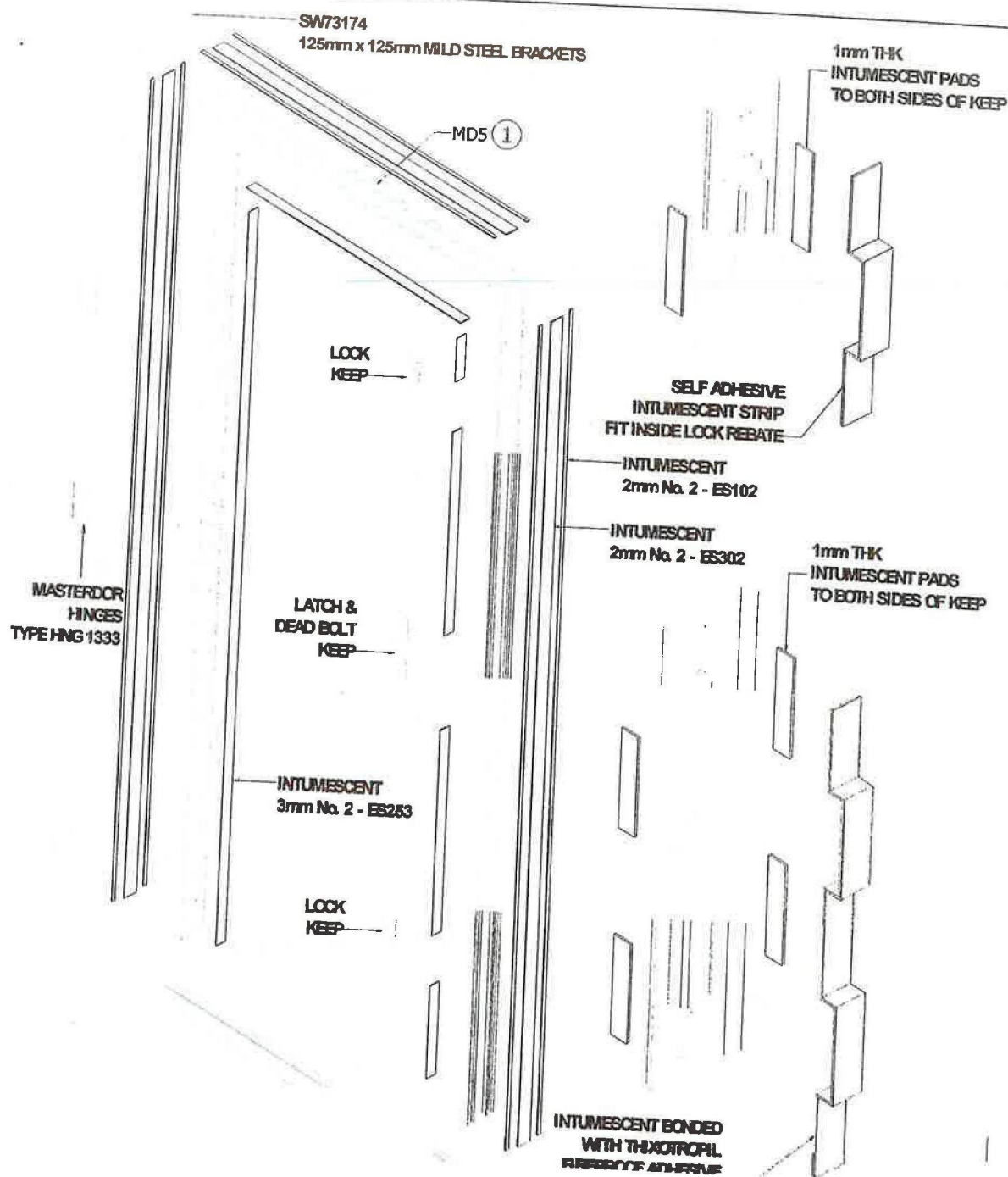


**Figure 3 – Details of furniture to door leaf**



Do not scale. All dimensions are in mm`

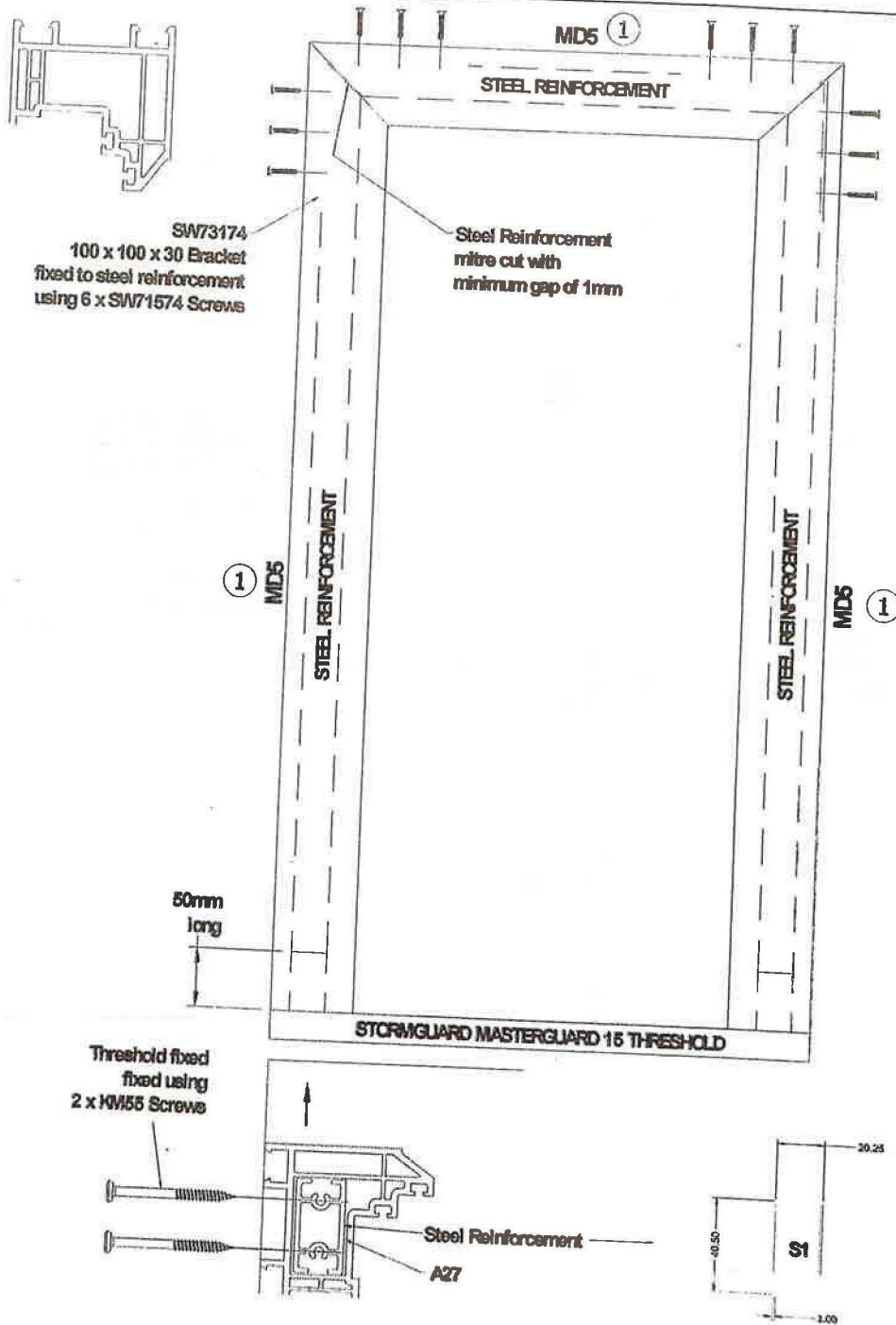
Figure 4 – Details of furniture and seals to frame



Do not scale. All dimensions are in mm



**Figure 5 – Outer frame general assembly details**



**Do not scale. All dimensions are in mm**

## Schedule of Components

(Refer to Figures 1 to 5)  
(All values are nominal unless stated otherwise)  
(All other details are as stated by the sponsor)

<u>Item</u>	<u>Description</u>
Doorset reference: Masterdor DCM1	
<b>1. Door frame</b>	
Manufacturer	: LB Plastics Limited
Material	: Polyvinyl chloride (PVC) with steel reinforcing box section 1 mm thick
Reference	: MD5 S1 Steel Reinforcing
Frame overall size	: 915 mm wide x 2030 mm high x approximately 68 mm x 68 mm section size
Frame assembly and reinforcements	: See Figures 4 and 5
Intumescent seals to frame	
i. manufacturer	: Envirograf
ii. supplier of seals	: J & S Supplies
iii. suppliers seal references, sizes and positions	: See Figures 2 and 4
Smoke seals to frame	
i. manufacturer	: Envirograf
ii. supplier of seals	: J & S Supplies
iii. seal references	: Note stated
iv. seal types	: Two neoprene rubber bulb and one brush type seal to each frame section
v. seal positions	: See Figure 2
<b>2. Door leaf</b>	
Manufacturer	: Dorways
Reference	: DCM1
Overall size	: 812 mm wide x 1960 mm high x 44 mm thick
Perimeter framework	
i. material	: Softwood (TSL)
ii. density	: 610 – 660 kgm <sup>3</sup>
iii. thickness	: 40 mm
iv. sizes	: Approximately 50 mm deep stiles; 85 mm deep top rail and 115 mm deep bottom rail
Core	
i. material	: Moralt, fire retardant foam
ii. density	: 490 kgm <sup>3</sup>
iii. thickness	: 40 mm
Facing	
i. material	: Plywood 3 ply
ii. thickness	: 2 mm thick
Intumescent seals to leaf	
i. manufacturer	: Envirograf
ii. supplier of seals	: J & S Supplies
iii. suppliers seal references, sizes and positions	: See Figures 2 and 3

### 3. Hinges

Reference  
Material  
Size

- : Masterdor Hinge Type HNG 1333
- : Steel, brass finish
- : 100 mm x 32 mm hinge flaps x 12 mm diameter knuckle
- : 5 no. steel screws per flap
- : Intumescent seals see Figure 3

Fixing  
Bedding material

### 4. Lever handles

Manufacturer

Reference

Material

Size

Bedding material

- : Hoppe
- : Lever / Lever
- : Steel
- : 27 mm x 240 mm plate with 120 mm long levers
- : Intumescent seals see Figure 3

### 5. Locking mechanism

Manufacturer

Reference

Type

Material

Sizes

i. strike plate of latch and central lock

ii. strike plate of top and bottom lock keep

iii. latch throw

Operation of lock and latch

Bedding material

- : Wink Haus
- : 3 point hook lock
- : Triple locking with single latch
- : Polished mild steel
- : 25 mm x 215 mm deep backing plate with 110 mm deep front plate screw fixed to it
- : 25 mm x 235 mm deep backing plate with 110 mm deep front plate screw fixed to it
- : 10 mm
- : Both engaged
- : Intumescent seals see Figure 3 and 4

### 6. Threshold

Manufacturer

Reference

Material

Profile and shape

- : Stormguard
- : Masterguard 15
- : Aluminium
- : See Figures 2 and 4

### 7. Door Closer

Manufacturer and reference

Material

Fitting

- : Laidlaw
- : Die cast alloy body with steel arms
- : To exposed face with projecting 90° arm fitted to frame