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Testing. Advising. Assuring.

Title:

The fire resistance performance of two fully insulated, single-acting single-leaf doorsets when tested in accordance with BS 476: Part 22: 1987, Clause 6.

WF Report No:

347971

Prepared for:

Corinthian Industries (Asia) Sdn Berhad

Lot 37217, Jalan Genting
Off 4th Mile,
Jalan Kapar,
42100 Rantau Panjang,
Klang,
Selangor Darul Ehsan,
Malaysia

Date:

2015

Notified Body No:

0833

UKAS TESTING
0249

Summary

Objective

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

Sponsor

Corinthian Industries (Asia) Sdn Berhad, Lot 37217, Jalan Genting Off 4th Mile, Jalan Kapar, 42100 Rantau Panjang, Klang, Selangor Darul Ehsan, Malaysia.

Summary of the Tested Specimens

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

Each doorset had overall dimensions of 2075 mm high by 980 mm wide and incorporated a door leaf of overall dimensions of 2040 mm high by 926 mm wide by 44 mm thick. Each door leaf was hung within a MDF (Medium density fibreboard) frame on three mild steel hinges.

The leaf of Doorset A comprised a 5 mm thick Magnesium Oxide Board (MgO) and a particle board core with 0.45 mm to 0.55 mm thick oak veneer outer skins and 10 mm oak lipping's bonded on all four sides of the door leaf. The leaf incorporated 9mm thick, MDF panel facings.

The leaf of Doorset B comprised a 44 mm thick particle board core with 0.45 mm to 0.55 mm thick oak veneer outer skins and 10 mm oak lipping's bonded on all four sides of the door leaf.

The leaves included a latch at their approximate mid-height which was disengaged for the test duration.

Both doorsets were provided with an overhead door closer referenced 'Briton 121 CE' and the doorsets were installed such that their leaves opened towards the heating conditions of the test.

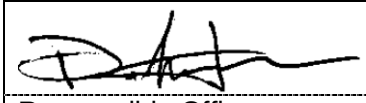
Test Results:	**Doorset A**	**Doorset B**
Integrity	34 Minutes*	34 Minutes*
Insulation	34 Minutes*	34 Minutes*

* The test duration. The test was discontinued after a period of 34 minutes.

Date of Test

5th January 2015

Signatories



Responsible Officer
D. Fitzsimmons*
Testing Officer

Approved
S. Gilfedder*
Certification Engineer

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

Report Issued

Date : 23rd February 2015

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Test Procedure

Introduction

The doorsets were of an insulated construction, 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' respectively. 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 specimens were judged on their 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 5th January 2015 at the request of **Corinthian Industries (Asia) Sdn Berhad** the test sponsor.

Mr M. Roberts a representative of the test sponer 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 specimens and information supplied by the sponsor of the test.

Installation

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 **Exova Warringtonfire** conducted the installation work on the 4th January 2015.

Sampling

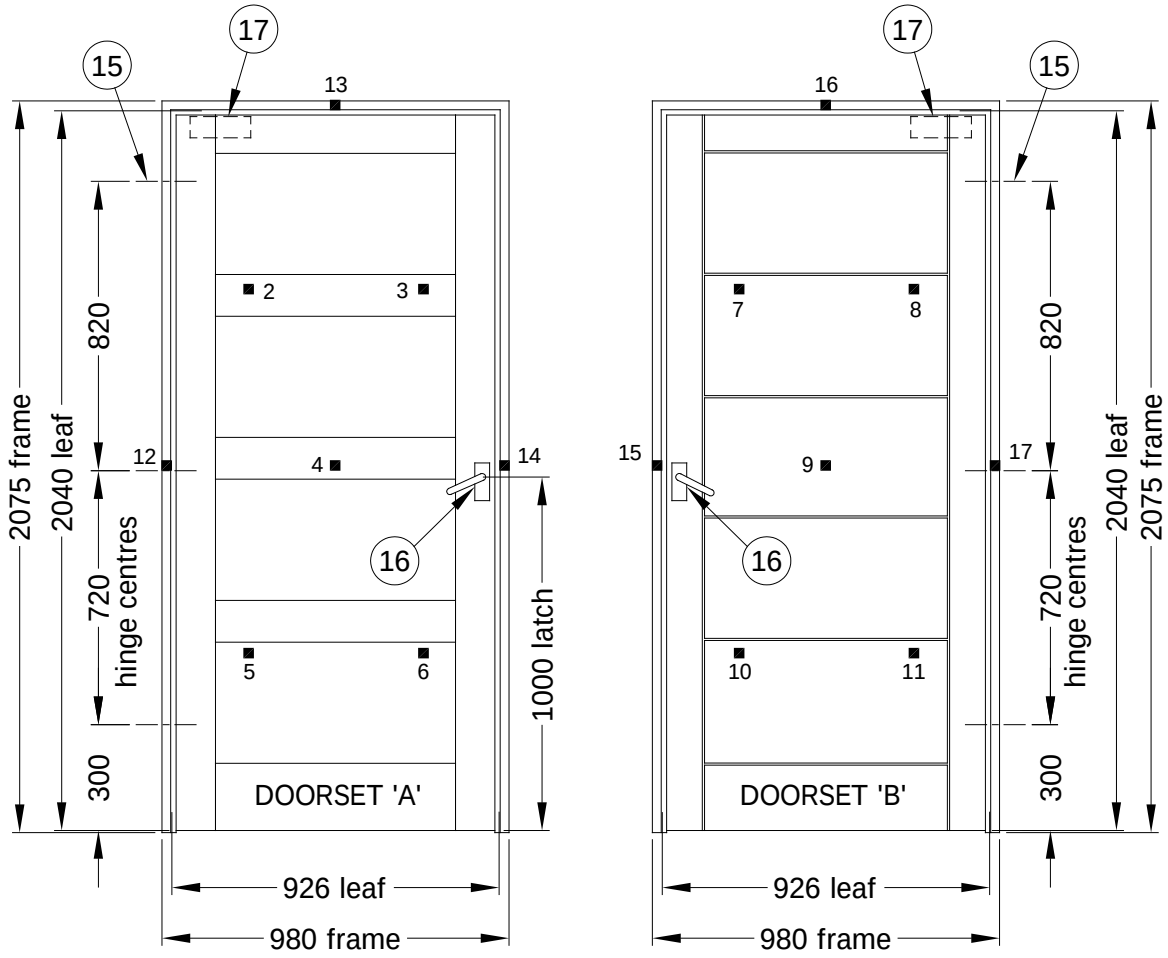
A representative of Warrington Certification Limited sample selected both doorsets on the 19th December 2015.

Conditioning

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 14.5°C to 15°C and 40.5% to 46% respectively.

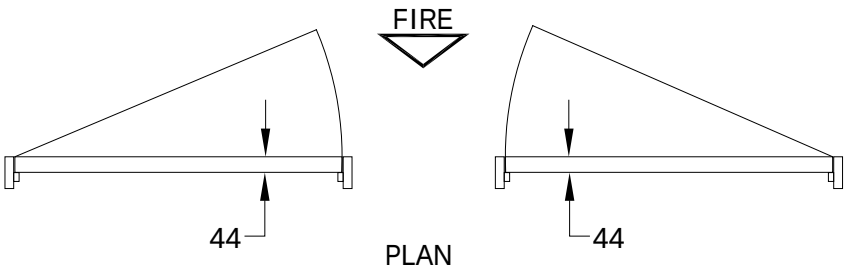
Test Specimen

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



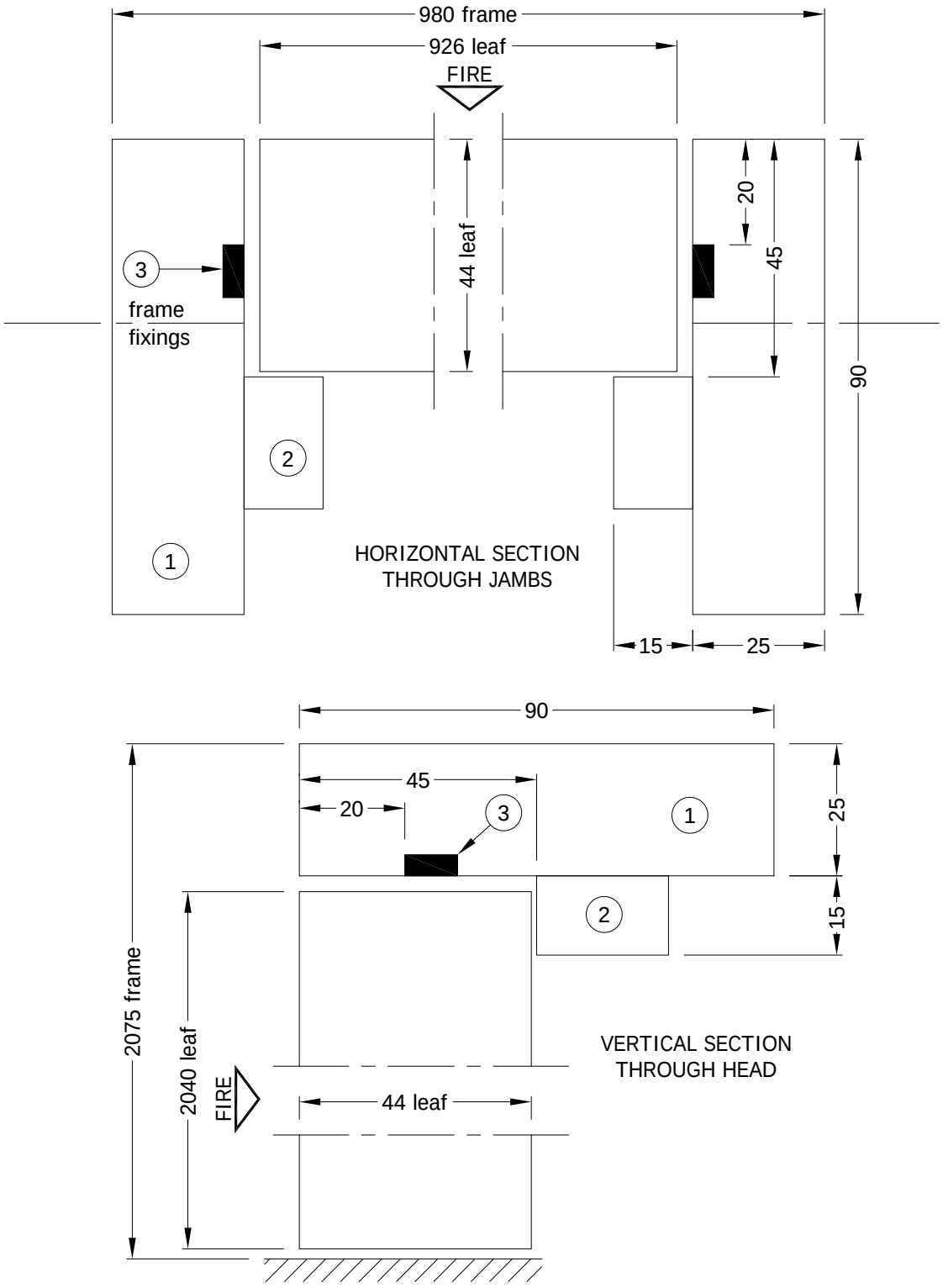
GENERAL ELEVATION
OF UNEXPOSED FACE

■ Positions of thermocouples



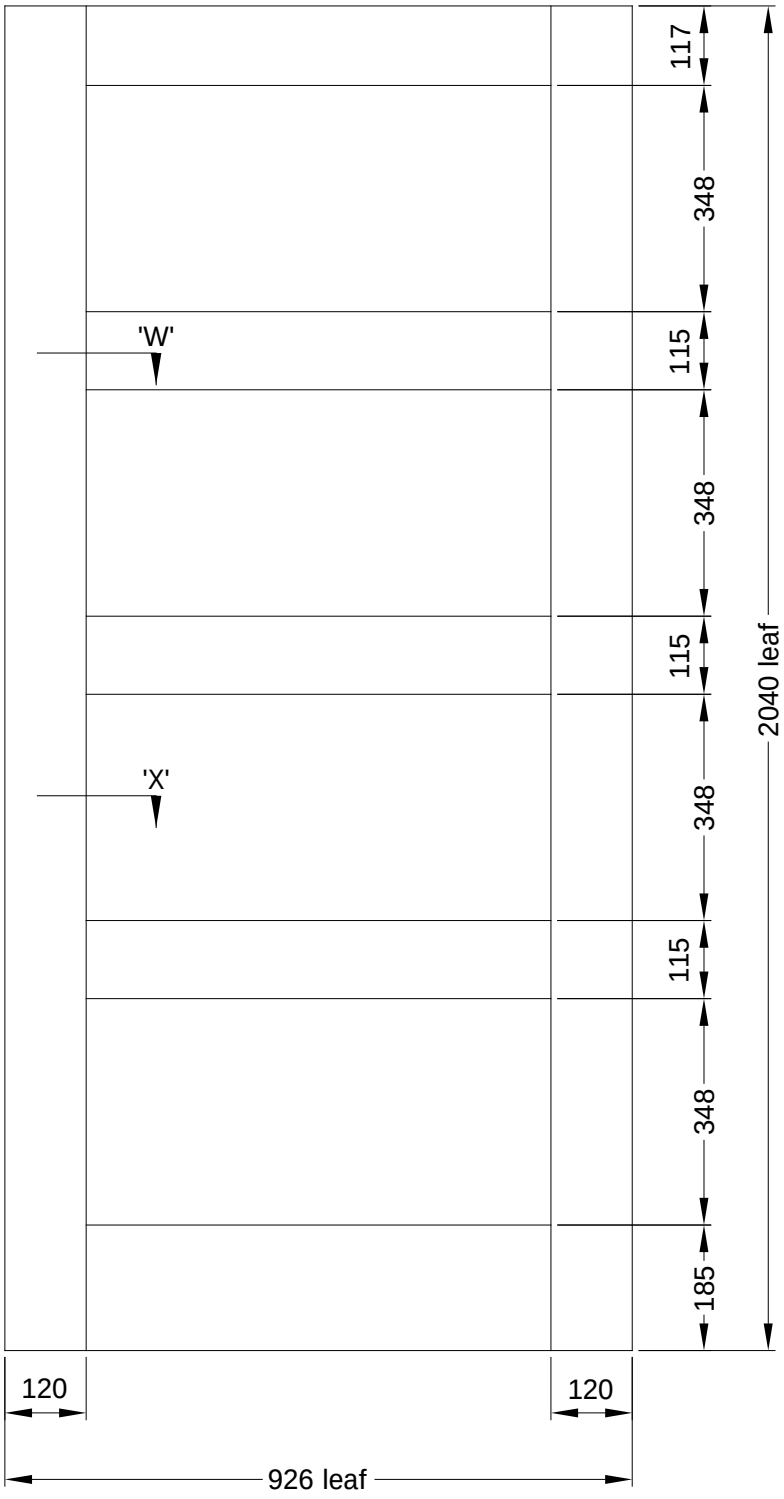
Do not scale. All dimensions are in mm

Figure 2 – Details of door frame (both doorsets)



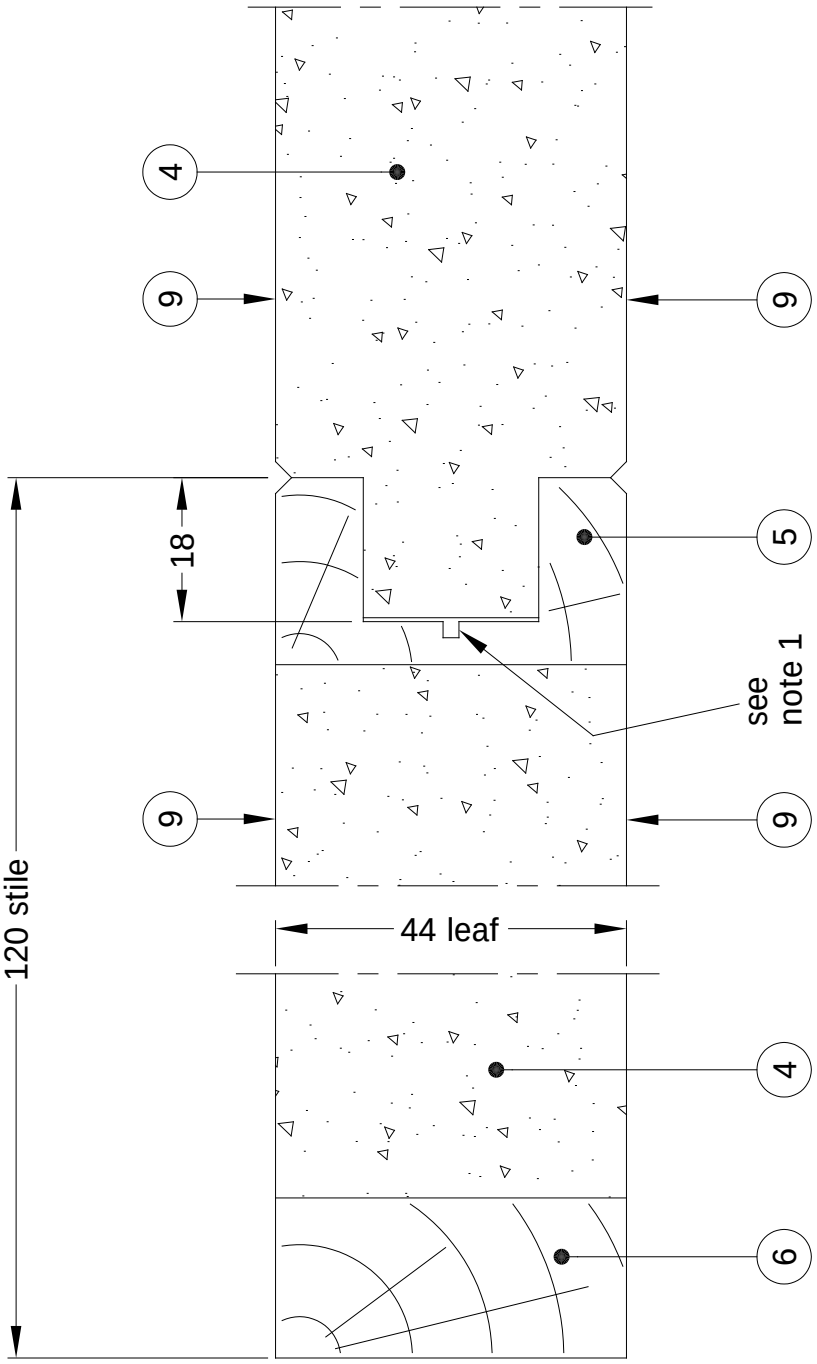
Do not scale. All dimensions are in mm

Figure 3 – Elevation of Door Leaf 'A'



Do not scale. All dimensions are in mm

Figure 4 – Details of door leaf 'A'



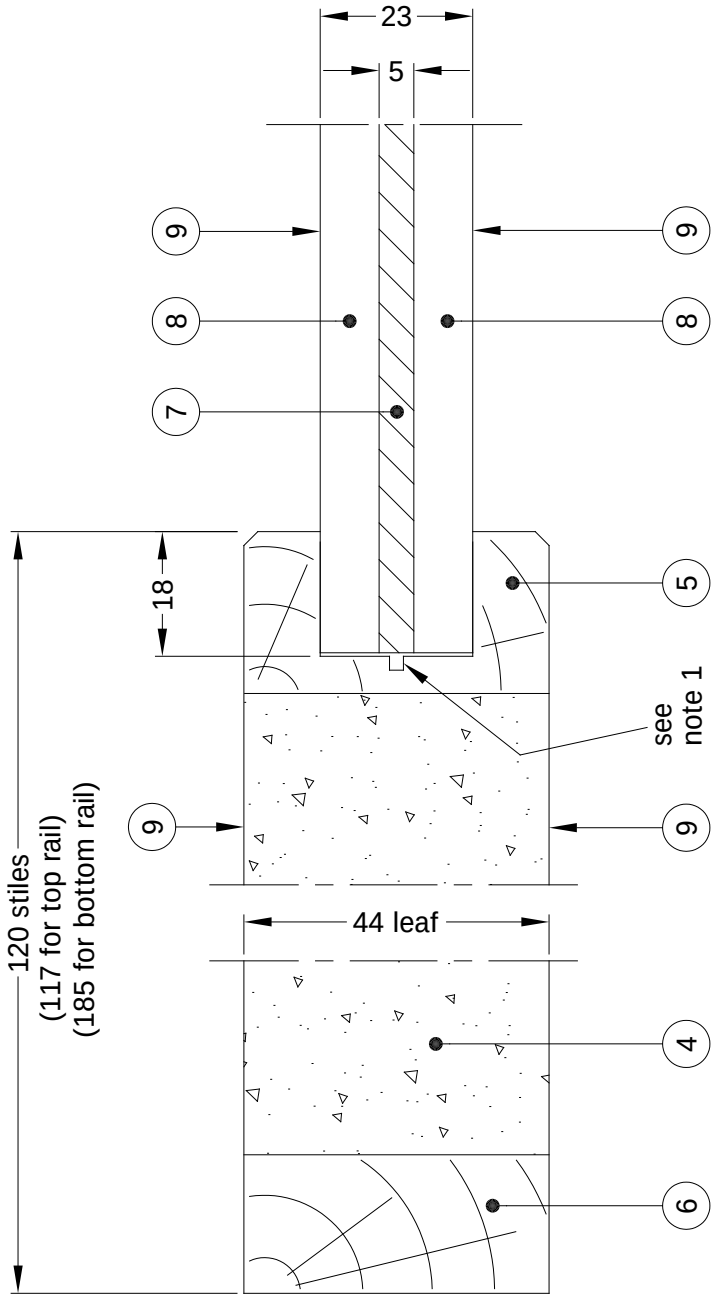
SECTION 'W'
Typical stile to rails jointing detail

Note

1. 2mm x 2mm groove all around panels filled with Pyromas 'A' intumescent mastic

Do not scale. All dimensions are in mm

Figure 5 – Details of door leaf 'A'

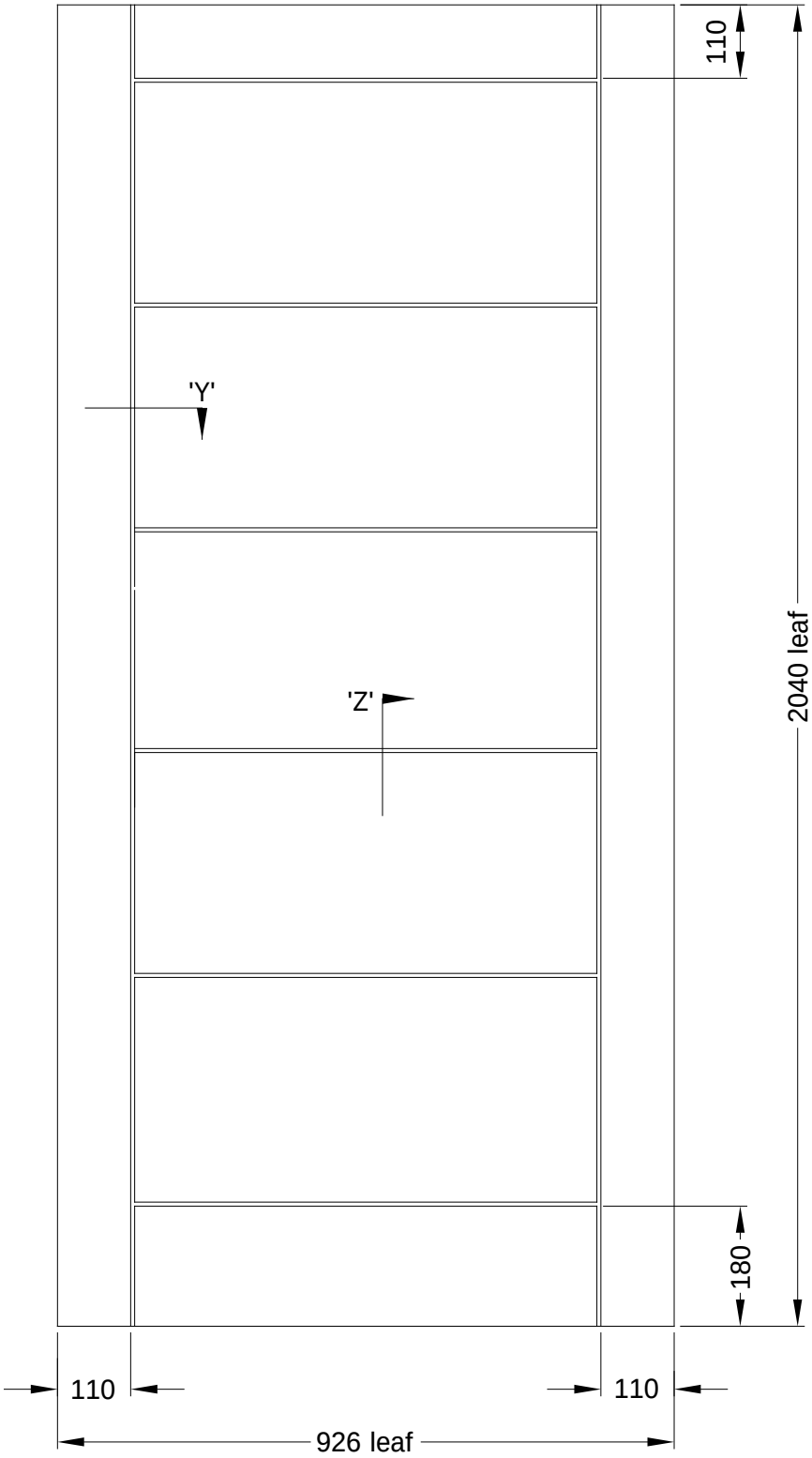


SECTION 'X'
Typical section all around each panel

Note
1. 2mm x 2mm groove all around panels filled with Pyromas 'A' intumescent mastic

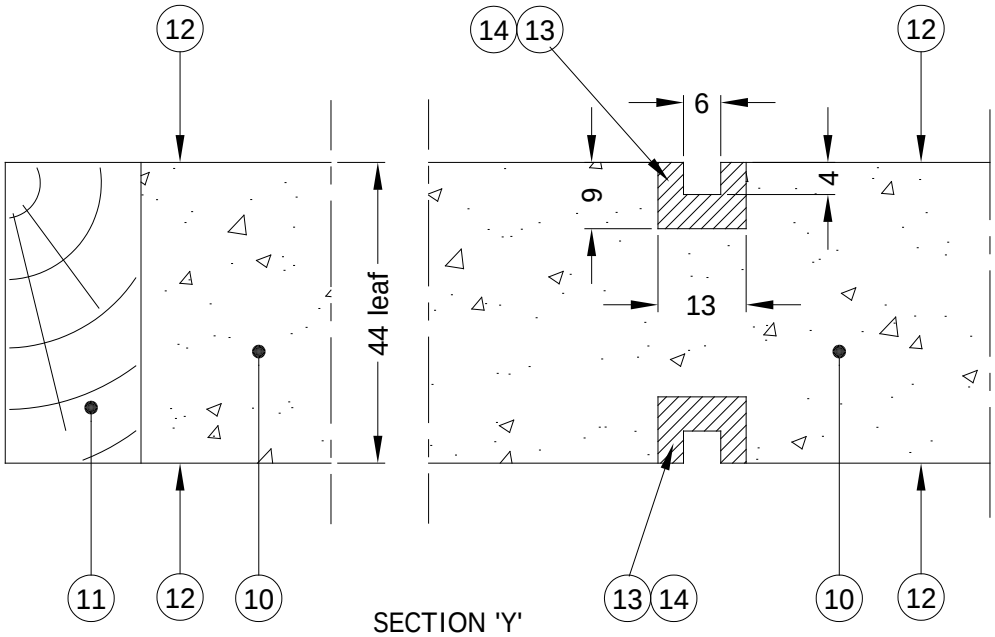
Do not scale. All dimensions are in mm

Figure 6 – Elevation of door leaf 'B'

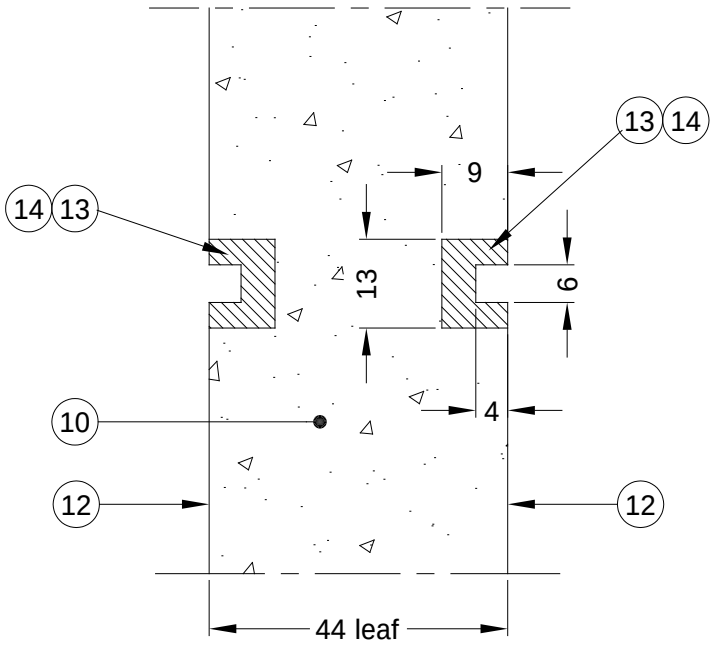


Do not scale. All dimensions are in mm

Figure 7 – Details of door leaf 'B'



SECTION 'Y'
Typical perimeter details



SECTION 'Z'
Typical panel details

Do not scale. All dimensions are in mm

Schedule of Components

(Refer to Figures 1 to 7)
(All values are nominal unless stated otherwise)
(All other details are as stated by the sponsor)

Sponsors Reference
Door Leaf 'A' : **4 Panel Primed Shaker FD30**
Door Leaf 'B' : **Linear oak FD30**

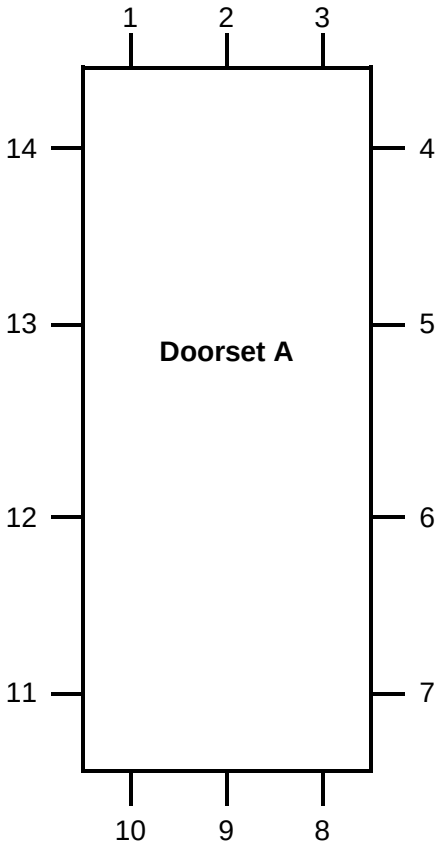
Item		**Description**
1. Door frame jambs and head		
Material	:	MDF (Medium density fibreboard), supplied by Exova Warringtonfire)
Overall section size	:	90 mm x 25 mm
Details of Fixings to masonry surround		
i. type	:	Countersunk head steel screws into plastic plugs
ii. overall size	:	100 mm long screws x 5 mm (No.12) diameter
iii. spacing	:	5 no. screws along full height of closing jamb 6 no. screws along hinged jamb (2 no. screws at 150 mm centres about each hinge position)
2. Door frame planted stop		
Material	:	MDF (supplied by Exova Warringtonfire)
Overall section size	:	25 mm x 15 mm
Fixing method	:	38 mm long steel pins
3. Door frame intumescent seal		
Manufacturer	:	Intumescent Seals Limited (supplied by Exova Warringtonfire).
Type	:	Certifire approved
Overall section size	:	10 mm wide x 4 mm thick
Fixing method	:	Self adhered into a groove along the door frame jambs and head.
Details of door leaf 'A' (items 4 to 9)		
4. Door leaf stiles and rails core		
Manufacturer	:	Panel Plus Co., Ltd. or Mieco Chipboard Ltd.
Reference	:	Particle board
Material	:	Chipboard
Density	:	600 kg/m^3 (stated)
Corner Jointing method	:	Timber dowels
5. Door leaf stiles and rails inner edging		
Material	:	Paint Grade Finger Jointed timber
Nominal Density	:	495 kg/m^3 (minimum)
Overall section size	:	18 mm wide x 38 mm thick (minimum)
Fixing method	:	Bonded with adhesive
Details of adhesive		
i. manufacturer	:	Revertex Finewaters SDN.BHD
ii. reference	:	Durabond PA 117
iii. material type	:	Polyvinyl acetate (PVA)

Item		Description
6. Door leaf lipping		
Material	:	Paint Grade Finger Jointed timber
Nominal Density	:	495 kg/m^3 (minimum)
Overall section size	:	16 mm wide x 38 mm thick (minimum) on verticals and 10 mm wide x 38 mm thick (minimum) on top & bottom.
Fixing method	:	Bonded with adhesive along all four edges
Details of adhesive		
i. manufacturer	:	Revertex Finewaters SDN.BHD
ii. reference	:	Durabond PA 117
iii. material type	:	Polyvinyl acetate (PVA)
7. Door leaf panel core		
Manufacturer	:	Zhangjiagang Yulong Technological Board Co., Ltd
Material	:	Magnesium Oxide board (MgO)
Thickness	:	5 mm, single layer
Fixing method	:	Bonded with adhesive
Details of adhesive		
i. manufacturer	:	Revertex Finewaters SDN.BHD
ii. reference	:	Durabond PA 1221(B)
iii. material type	:	Polyvinyl acetate (PVA)
iv. application method	:	Hot pressed
8. Door leaf panel facings		
Manufacturer	:	Segamat Panel Boards Sdn. Bhd
Reference	:	MDF Board
Material	:	Standard MDF Board
Nominal Density	:	650 kg/m^3 (minimum)
Thickness	:	9 mm
Fixing method	:	Single layer bonded to each face of the panel core (item 7) with adhesive
Details of adhesive		
i. manufacturer	:	Revertex Finewaters SDN.BHD
ii. reference	:	Durabond PA 1221(B)
iii. material type	:	Polyvinyl acetate (PVA)
iv. application method	:	Hot pressed
9. Door leaf outer skin (Stile & Rail)		
Material	:	MDF Skin
Density	:	650 kg/m^3 (minimum)
Nominal Thickness	:	2.3 mm to 3.0 mm
Fixing method	:	Bonded with adhesive
Details of adhesive		
i. manufacturer	:	Revertex Finewaters SDN.BHD
ii. reference	:	Durabond PA 1015(PB)
iii. material type	:	Polyvinyl acetate (PVA)
iv. application method	:	Hot pressed
Details of door leaf 'B' (items 10 to 14)		
10. Door leaf slab		
Manufacturer	:	Panel Plus Co.,Ltd or Mieco Chipboard Ltd.
Material	:	Particle board
Density	:	600 kg/m^3 (stated)
Thickness	:	44 mm

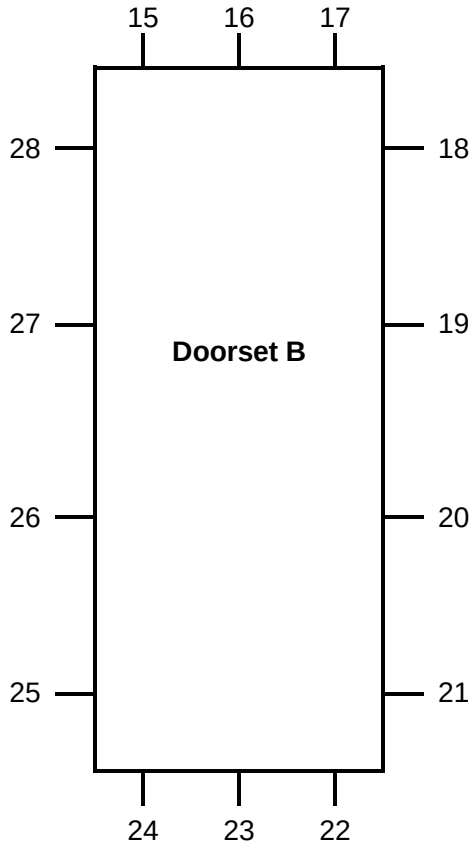
Item		Description
11. Door leaf lipping		
Material	:	KSK timber
Density	:	515 kg/m^3 (stated)
Thickness	:	10 mm (minimum) top & bottom ; 16mm on verticals
Fixing method	:	Bonded along all four edges of door leaf with adhesive
Details of adhesive		
i. manufacturer	:	Revertex Finewaters SDN.BHD
ii. reference	:	Durabond PA 117
iii. material type	:	Polyvinyl acetate (PVA)
12. Door leaf outer skin		
Material	:	Oak veneer
Density	:	600 kg/m^3 (stated)
Nominal Thickness	:	0.45 mm to 0.55 mm
Fixing method	:	Bonded with adhesive
Details of adhesive		
i. manufacturer	:	Revertex Finewaters SDN.BHD
ii. reference	:	Durabond PA 1015(PB)
iii. material type	:	Polyvinyl acetate (PVA)
iv. application method	:	Hot pressed
13. Door leaf panel U-Groove		
Material	:	Timber, Oak
Density	:	515 kg/m^3 (stated)
Fixing method	:	Bonded with adhesive
Details of adhesive		
i. manufacturer	:	Revertex Finewaters SDN.BHD
ii. reference	:	Durabond PA 117
iii. material type	:	Polyvinyl acetate (PVA)
14. Door leaf panel U-Groove skin		
Material	:	Oak veneer
Density	:	600 kg/m^3 (stated)
Nominal Thickness	:	0.45 mm to 0.55 mm
Fixing method	:	Bonded with adhesive
Details of adhesive		
i. manufacturer	:	Revertex Finewaters SDN.BHD
ii. reference	:	Durabond PA 1015(PB)
iii. material type	:	Polyvinyl acetate (PVA)
iv. application method	:	Hot pressed
15. Hinges		
Manufacturer	:	Royde & Tucker Ltd (supplied by Exova Warringtonfire)
Reference	:	H102-FR-BZP
Primary material	:	Zinc plated steel
Quantity	:	3 no. hinges per doorset
Overall Size		
i. knuckle	:	104 mm long x 13.8 mm diameter
ii. blades	:	100 mm long x 35 mm wide by 3 mm thick
Details of Fixings		
i. type	:	Countersunk head woodscrews
ii. material	:	Steel
iii. size	:	32 mm long x 5 mm diameter
iv. number off per blade	:	5 no. screws

Item		Description
16. Latch/lever handleset		
Reference	:	Magnet SAA latch door pack (supplied by Exova Warringtonfire).
Type	:	Tubular mortice steel latch with aluminium lever handles
Overall size		
i. forend plate	:	58 mm x 25 mm
ii. strike plate	:	58 mm x 22 mm
iii. barrel casing	:	20 mm x 15 mm x 64 mm long
Operation of latch	:	Disengaged
17. Overhead Door Closer		
Reference	:	Briton 121 CE (supplied by Exova Warringtonfire)
Location	:	Exposed face of each doorset
Maximum opening moment (measured by Exova Warringtonfire)		
i. doorset ‘A’	:	27 Newton metre (Nm)
ii. doorset ‘B’	:	42 Nm
Maximum closing moment (measured by Exova Warringtonfire)		
i. doorset ‘A’	:	18 Nm
ii. doorset ‘B’	:	21 Nm

Doorset Clearance Gaps



View from unexposed face



View from unexposed face

Door Ref	Gap Dimension in mm at Positions													
A	1	2	3	4	5	6	7	8*	9*	10*	11	12	13	14
	2.7	0.3	1.5	3.0	2.2	2.9	3.0	6.6	6.9	7.1	2.3	1.8	1.7	2.1
B	15	16	17	18	19	20	21	22*	23*	24*	25	26	27	28
	1.3	0.3	2.8	2.7	2.6	2.9	2.3	6.0	6.3	7.1	3.1	3.3	4.6	4.0
A	Mean		2.1		Maximum			3.0		Minimum			0.3	
B	Mean		2.7		Maximum			4.6		Minimum			0.3	

* Dimension not included in calculations

Instrumentation

General

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

Furnace

The furnace was controlled so that its mean temperature complied with the requirements of BS 476: Part 20: 1987, Clause 3.1. using six mineral insulated thermocouples distributed over a plane 100 mm from the surface of the test construction.

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 17 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 9.2 (±2) Pa at the head of each doorset.

Test Observations

Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	The ambient air temperature in the vicinity of the test construction was 12ºC at the start of the test with a maximum variation of -1ºC during the test.
00	00	**The test commences.**
3	32	Very light steam/smoke release from the top corners of the leading edge of both doorsets.
5	00	Steam/smoke release increases from doorset B. Both doorsets now releasing smoke/steam from mid-height of the leading edge now as well.
7	00	Discolouring of the leading edge from mid-height up on doorset B is now evident.
8	00	Steam/smoke release now from mid-height up on the hinge edge can now be seen as steam/smoke release continues from the leading edge.
13	26	Small flickers of flame can now be seen intermittently from mid-height of the leading edge of doorset A.
17	00	Very small intermittent flickers of flame from the leading edge of both doorsets can now be seen at approximately mid-height.
17	30	Cotton wool pad integrity test performed on doorset A over the leading edge next to the lockset, pad did not discolour or ignite.
21	00	Intermittent flickers continue around the latch of both doorsets.
22	00	A bubble can now be seen on the outer skin on the top profile of doorset A.
24	00	Intermittent flickers of flame continue and are now becoming more frequent.
25	00	Thermocouple 6 has fallen away from doorset A.
25	00	The top hinge on doorset A is now discolouring.
26	20	Cotton wool pad integrity test performed on doorset A over the leading edge next to the lockset, pad discoloured but did not ignite.
27	00	Flickers of flame from the latch on doorset A continues to increase in frequency.
32	00	Flickers of flame can now be seen at the head of leaf B.
34	00	**Test discontinued at clients request.**

Test Photographs

The exposed face of the doorsets prior to testing

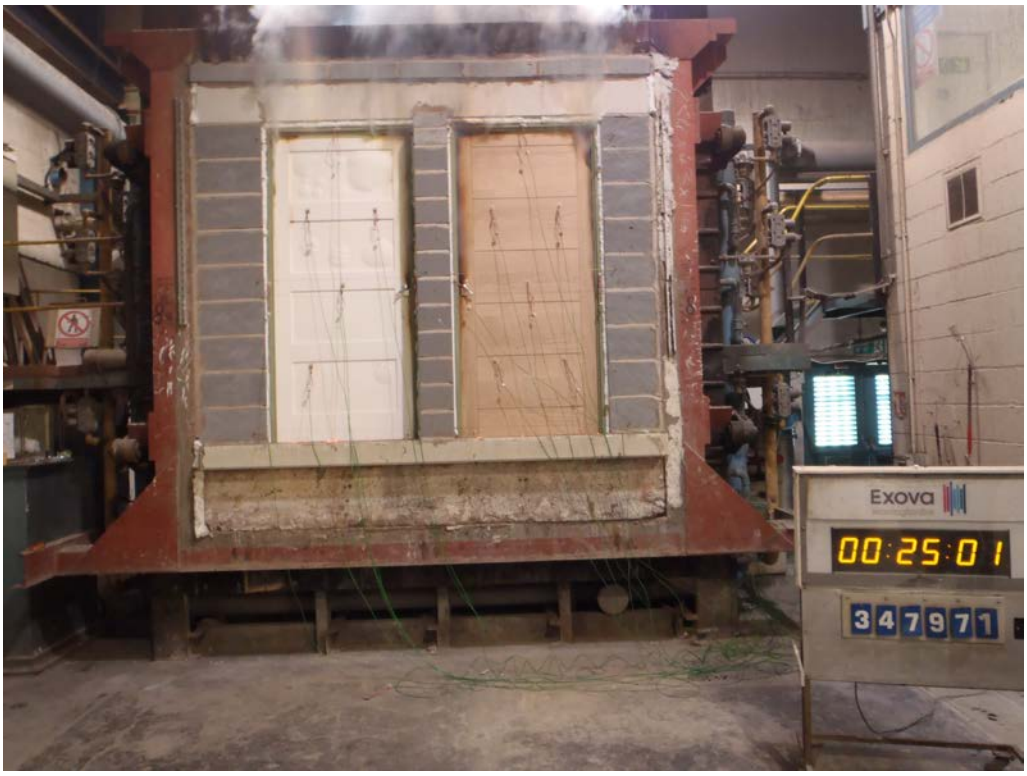
The unexposed face of the doorsets prior to testing

The unexposed face of the doorsets after 5 minutes of testing

The unexposed face of the doorsets after 10 minutes of testing

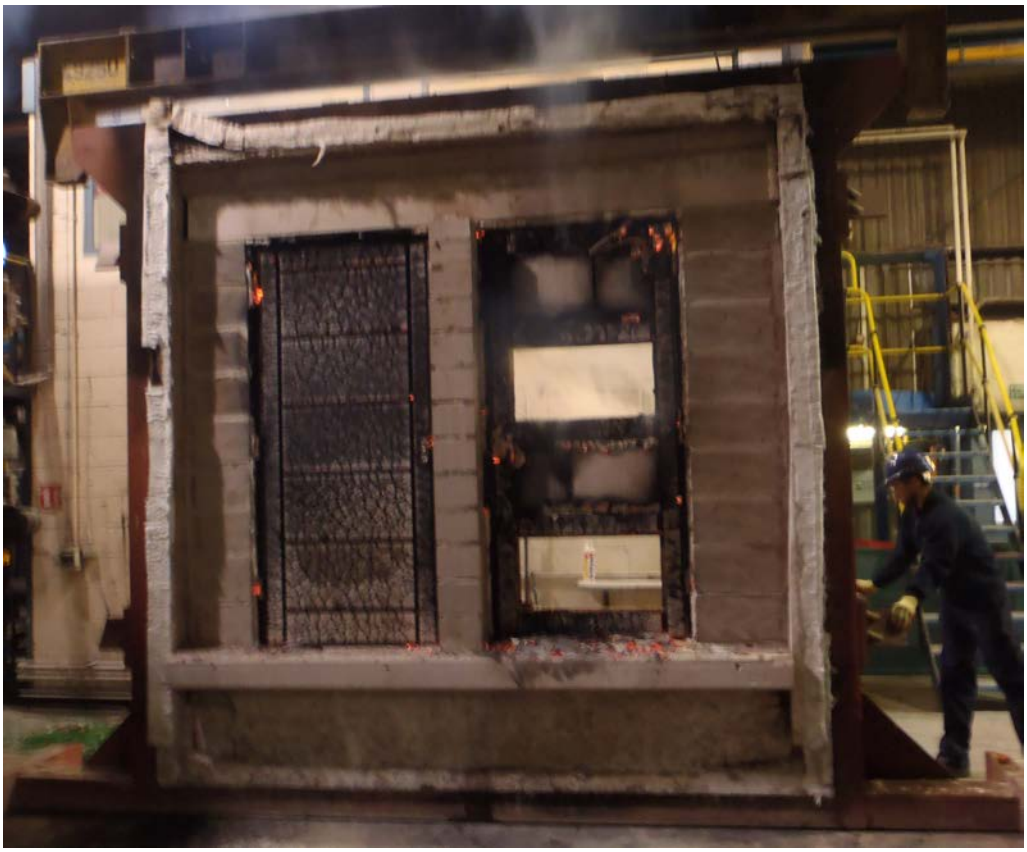
The unexposed face of the doorsets after 20 minutes of testing

The unexposed face of the doorsets after 25 minutes of testing



The unexposed face of the doorsets after 30 minutes of testing

The exposed face of the doorsets immediately after the test



Temperature and Deflection Data

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

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	19
1	349	387
2	445	412
3	502	495
4	544	512
5	576	565
6	603	746
7	626	695
8	646	572
9	663	631
10	678	670
11	693	687
12	706	706
13	717	723
14	728	754
15	739	741
16	748	721
17	757	738
18	766	775
19	774	783
20	781	792
21	789	795
22	796	790
23	802	789
24	809	794
25	815	816
26	820	828
27	826	838
28	832	803
29	837	797
30	842	827
31	847	833
32	852	851
33	856	864
34	860	881

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

Time Mins	T/C Number 2 Deg. C	T/C Number 3 Deg. C	T/C Number 4 Deg. C	T/C Number 5 Deg. C	T/C Number 6 Deg. C	Mean Temp Deg. C
0	13	13	13	13	13	13
1	13	13	13	13	13	13
2	13	13	13	13	13	13
3	13	14	13	13	13	13
4	13	13	13	13	14	13
5	13	14	13	14	14	14
6	13	15	13	15	15	14
7	13	14	13	17	17	15
8	13	14	14	20	20	16
9	13	14	14	24	24	18
10	14	15	14	28	28	20
11	14	15	15	32	32	22
12	15	15	15	35	36	23
13	16	16	16	39	40	25
14	18	17	17	43	44	28
15	20	18	18	47	48	30
16	21	20	20	52	52	33
17	24	22	21	56	57	36
18	26	24	23	60	62	39
19	28	26	25	64	68	42
20	31	28	27	68	76	46
21	33	31	29	71	85	50
22	36	33	31	73	92	53
23	38	35	33	75	94	55
24	40	37	35	77	95	57
25	43	40	37	79	*	50
26	45	42	39	83		52
27	47	44	41	91		56
28	48	46	43	94		58
29	50	47	45	93		59
30	52	49	47	93		60
31	54	51	49	93		62
32	56	53	50	91		63
33	58	57	51	89		64
34	59	57	53	88		64

*Thermocouple fallen away from the specimen

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

Time Mins	T/C Number 7 Deg. C	T/C Number 8 Deg. C	T/C Number 9 Deg. C	T/C Number 10 Deg. C	T/C Number 11 Deg. C	Mean Temp Deg. C
0	14	15	15	15	15	15
1	14	15	15	15	15	15
2	14	15	15	15	15	15
3	14	15	15	15	15	15
4	14	15	15	15	15	15
5	14	15	15	15	15	15
6	15	15	15	15	15	15
7	15	15	15	15	15	15
8	14	15	15	15	15	15
9	15	15	15	15	15	15
10	15	15	15	15	15	15
11	15	16	15	15	15	15
12	15	16	16	15	15	15
13	15	16	16	16	15	16
14	16	17	16	16	16	16
15	16	17	17	17	16	17
16	17	18	18	17	17	17
17	18	19	18	18	18	18
18	19	20	19	19	18	19
19	20	20	20	20	19	20
20	20	21	21	21	20	21
21	21	22	22	22	21	22
22	22	23	23	23	22	23
23	23	24	24	24	23	24
24	24	26	25	25	24	25
25	25	27	26	26	25	26
26	26	28	27	27	26	27
27	28	29	29	28	28	28
28	29	31	30	30	29	30
29	31	33	32	32	31	32
30	32	35	34	34	32	33
31	34	36	36	36	34	35
32	36	38	37	37	36	37
33	38	40	39	39	38	39
34	39	41	41	41	40	40

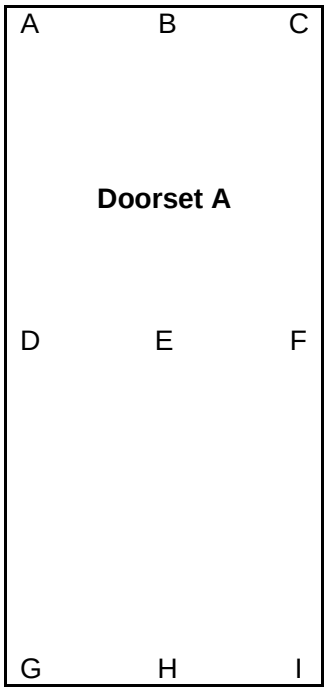
Individual Temperatures Recorded On The Frame Of Doorset A

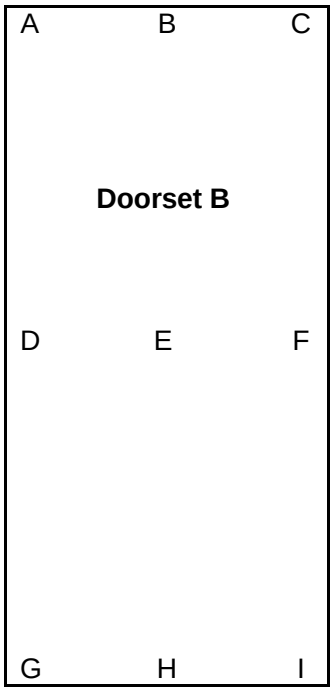
Time Mins	T/C Number 12 Deg. C	T/C Number 13 Deg. C	T/C Number 14 Deg. C
0	14	15	14
1	14	15	14
2	14	15	14
3	14	15	14
4	14	15	14
5	14	16	14
6	14	16	15
7	14	16	15
8	14	16	15
9	14	16	15
10	14	16	15
11	14	16	15
12	14	16	15
13	15	17	16
14	15	17	16
15	15	17	17
16	15	18	16
17	15	18	17
18	15	19	17
19	16	20	17
20	16	21	17
21	16	22	17
22	17	23	18
23	17	24	18
24	18	25	19
25	18	26	19
26	19	27	20
27	20	27	21
28	21	28	22
29	21	29	22
30	22	30	23
31	23	31	25
32	24	32	26
33	25	33	28
34	26	34	30

Individual Temperatures Recorded On The Frame Of Doorset B

Time Mins	T/C Number 15 Deg. C	T/C Number 16 Deg. C	T/C Number 17 Deg. C
0	10	11	11
1	10	11	11
2	10	11	11
3	10	11	11
4	10	11	11
5	10	13	11
6	10	15	11
7	10	14	11
8	10	13	11
9	10	13	11
10	10	13	11
11	10	12	11
12	11	12	11
13	11	12	11
14	11	12	11
15	12	12	11
16	12	13	12
17	13	13	12
18	14	13	12
19	15	14	12
20	15	15	13
21	16	16	13
22	17	18	14
23	18	19	15
24	18	20	16
25	19	21	16
26	20	23	18
27	22	24	19
28	23	25	20
29	24	25	21
30	26	26	23
31	27	27	25
32	29	28	26
33	30	29	28
34	32	30	30

Deflection Of The Door Leaf On Doorset A During The Test



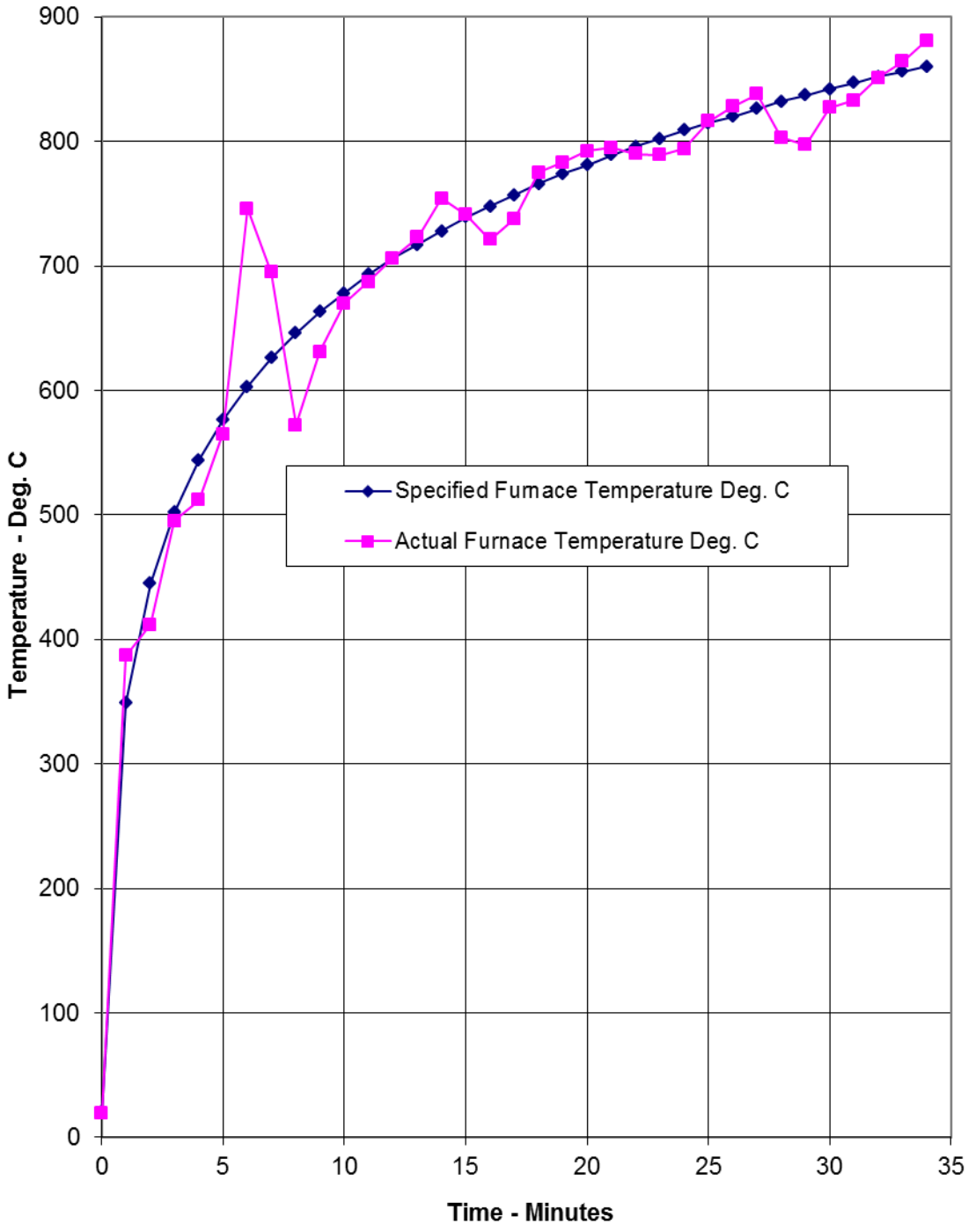


Doorset A									
Deflections – mm									
TIME mins	A	B	C	D	E	F	G	H	I
0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	1	0	0	-2	0
10	5	4	6	0	0	3	-1	0	3
15	2	0	13	0	9	15	0	5	13
20	0	0	16	2	4	10	0	5	20
25	7	2	18	2	5	13	2	1	17
30	14	5	22	4	10	13	2	5	20

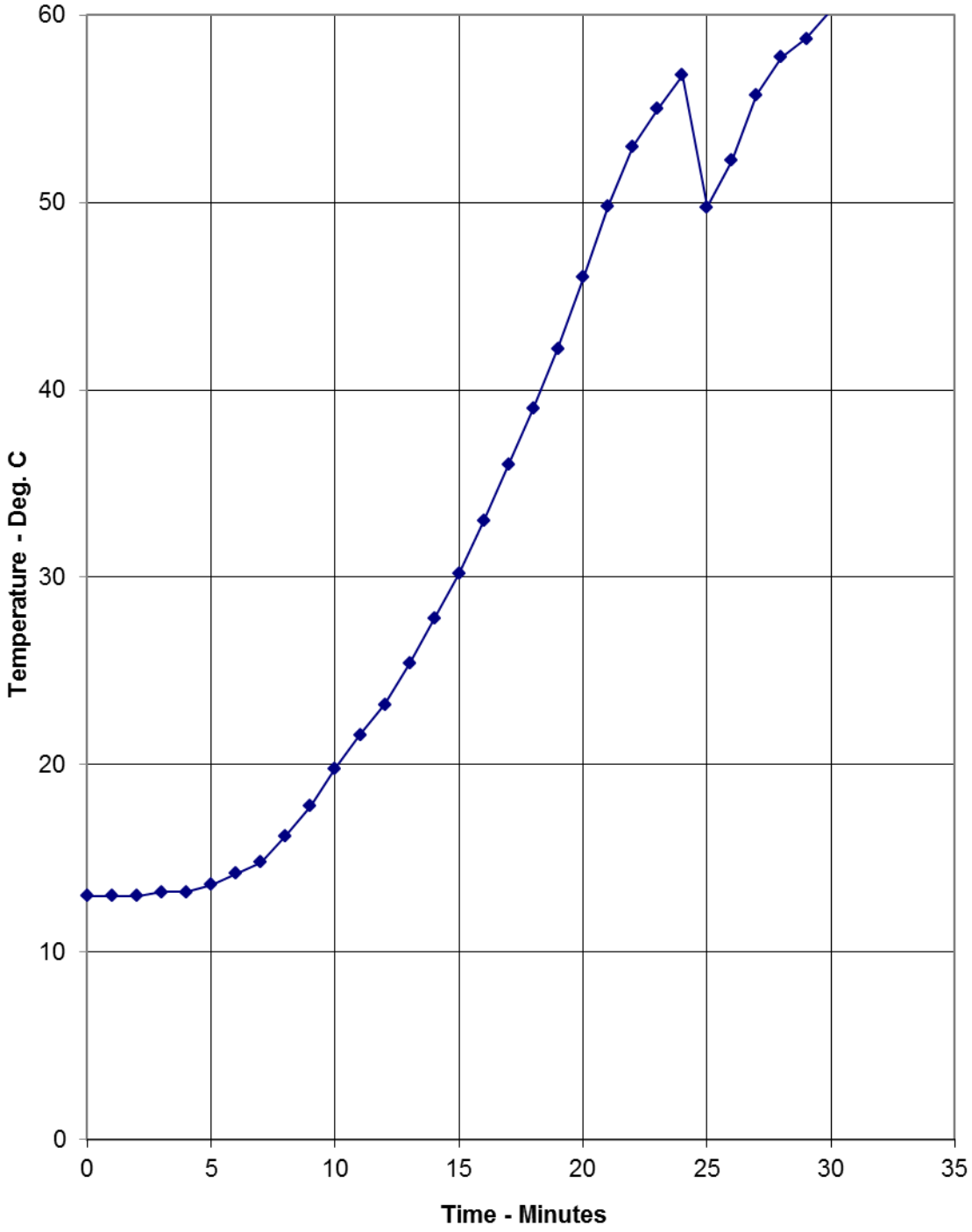
Doorset B									
Deflections – mm									
TIME mins	A	B	C	D	E	F	G	H	I
0	0	0	0	0	0	0	0	0	0
5	2	0	2	7	10	0	5	3	10
10	-3	2	1	12	13	0	0	4	12
15	2	0	2	13	15	0	3	5	11
20	4	3	2	18	18	4	5	5	11
25	7	3	5	17	12	2	8	6	11
30	7	2	4	15	11	3	6	4	13

Positive values indicate movement towards the furnace chamber

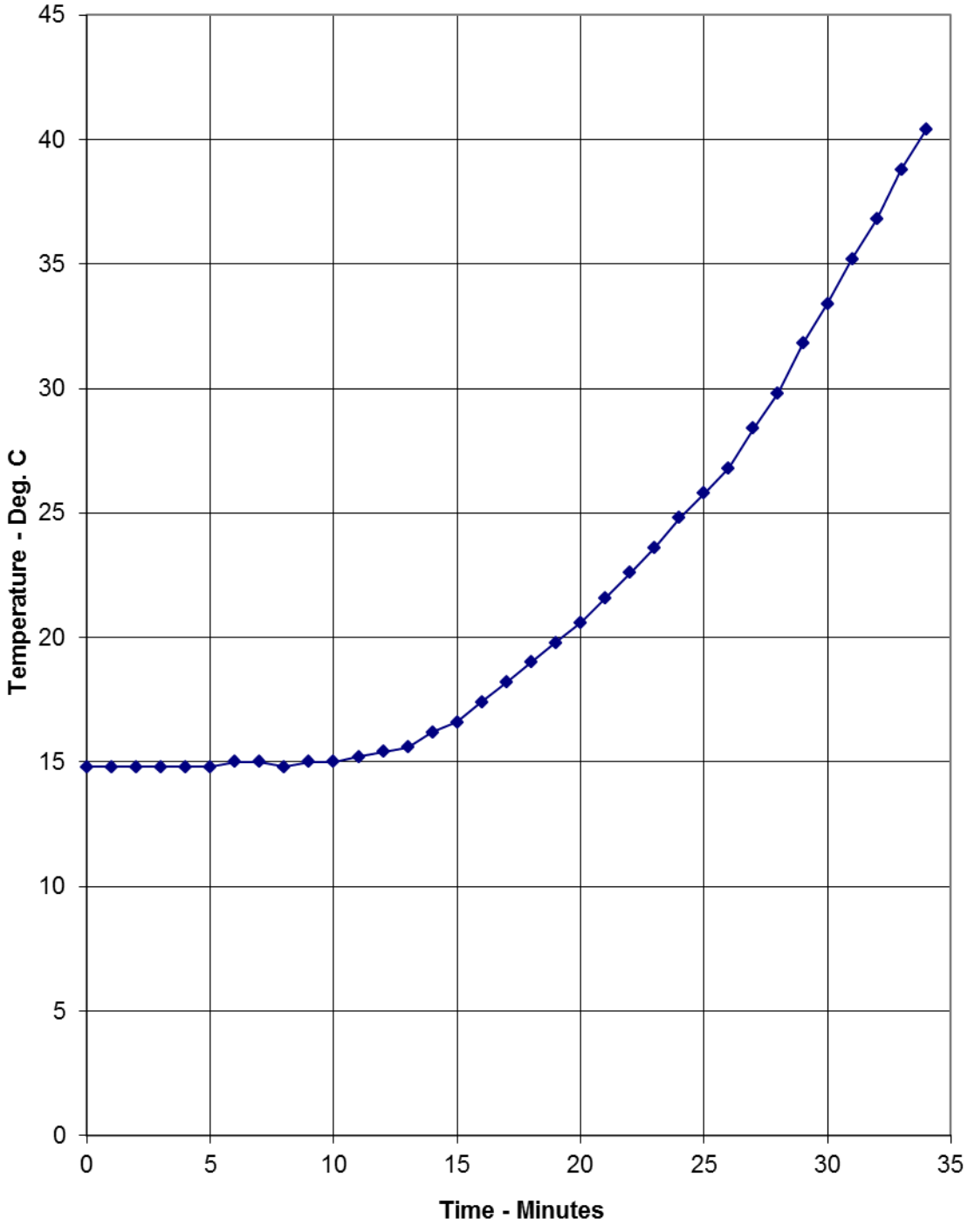
Graph Showing Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In The Standard



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 the test duration 34 minutes by Doorset A and 34 minutes for Doorset B.

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 the test duration of 34 minutes by Doorset A and 34 minutes for Doorset B.

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

Two fully insulated single-acting, single-leaf doorsets mounted within a masonry wall have been subjected to a fire resistance test in accordance with BS 476: Part 22: 1987, Clause 6.

The evaluation of the doorsets against the requirements of BS 476: Part 22: 1987, Clause 6 showed that they satisfied the requirements for the periods stated below:

Test Results:	Doorset A	Doorset B
Integrity	34 Minutes*	34 Minutes*
Insulation	34 Minutes*	34 Minutes*

* The test duration. The test was discontinued after a period of 34 minutes.