# test report

## Title:

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

### WF Report No:

159515



### Prepared for:

### Astroflame (Fire seals) Limited. Unit 8 IO Centre Stephenson Road Segensworth Fareham

PO15 5RU

Date:

19<sup>th</sup> September 2007

# **Notified Body No:**

0833





# Summary

Objective	To determine the fire resistance performance of two specimens of fully insulated, single-acting, single-leaf doorsets, fitted with Astroflame 'Astro Strip FS' when tested in accordance with BS 476: Part 22: 1987.
Sponsors	Astroflame (Fireseals) Ltd, Unit 8 IO Centre, Stephenson Road, Segensworth, Fareham, PO15 5RU
Summary of Tested Specimen	For the purposes of the test the doorsets were referenced 'A and B'.
	<b>Doorset A</b> was referenced CF 240 and had overall dimensions of 2090 mm high by 1000 mm wide and incorporated a door leaf of overall dimensions of 2045 mm bigh by 926 mm wide by 44 mm thick. The door leaf comprised a graduated

by 1000 mm wide and incorporated a door leaf of overall dimensions of 2045 mm high by 926 mm wide by 44 mm thick. The door leaf comprised a graduated density chipboard core with 3 mm thick medium density fibreboard (MDF) facings and hardwood lippings to the head and vertical edges. The leaf was hung within a softwood frame on three Royde and Tucker hinges referenced 'Hi-Load 102'. The door leaf incorporated an Astroflame intumescent seal of nominal dimensions 10 mm by 4 mm referenced 'Astro Strip FO'.

**Doorset B** was referenced CF 160 and had overall dimensions of 2080 mm high by 1000 mm wide and incorporated a door leaf of overall dimensions of 2038 mm high by 925 mm wide by 44 mm thick. The door leaf comprised Flaxboard core, a softwood perimeter framework comprising whitewood stiles and rails, 3 mm thick medium density fibreboard (MDF) facings and hardwood lippings to the vertical edges. The leaf was hung within a softwood frame on three Royde and Tucker hinges referenced 'Hi-Load 102'. The door leaf incorporated an Astroflame intumescent seal of nominal size 10 mm by 4 mm referenced 'Astro Strip FS'.

The door leaves were orientated such that they opened towards the heating conditions of the test. The doorsets included a surface mounted overhead door closer on their exposed face and a mortice latch which was positioned at the approximate mid-height of each doorset. Each doorset was rendered unlatched for the test duration.

Test Results:	Doorset A	Doorset B				
Integrity	38 minutes	35 minutes				
Insulation	38 minutes	35 minutes				
	The test was discontinued after a period of 40 minutes.					
Date of Test	21 <sup>st</sup> November 2006					

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WF Test Report No. 159515 Page 3 of 29

# **Signatories**

would

Responsible Officer **N. Howard\*** Testing Officer

Approved S. Hankey\* **Technical Consultant** 

\* For and on behalf of Bodycote warringtonfire .

Report Issued Date : 19<sup>th</sup> September 2007

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4



### CONTENTS

# PAGE NO.

SUMMARY	2
SIGNATORIES	3
TEST PROCEDURE	5
TEST SPECIMEN	6
SCHEDULE OF COMPONENTS	9
DOORSET CLEARANCE GAPS	11
INSTRUMENTATION	
TEST OBSERVATIONS	
TEST PHOTOGRAPHS	
TEMPERATURE AND DEFLECTION DATA	
PERFORMANCE CRITERIA AND TEST RESULTS	
ONGOING IMPLICATIONS	
CONCLUSIONS	





# **Test Procedure**

Introduction	The doorsets were 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 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 ToThe test was conducted on the 21st November 2006 on behalf of AstroflameTest(Fire seals) Ltd.
  - Mr. S. West a representative of Astroflame (Fire seals) Ltd witnessed the test.
- Test Specimen<br/>ConstructionA comprehensive description of the test construction is given in the Schedule of<br/>Components. The description is based on a detailed survey of the specimen and<br/>information supplied by the sponsor of the test.
- **Installation** The doorsets were mounted within an aperture provided in a masonry wall construction such that the door leaves opened towards the heating conditions of the test. A representative of Bodycote **warringtonfire** conducted the installation of the doorsets on the 20<sup>th</sup> November 2006.



# **Test Specimen**

Figure 1- Elevation of Test Specimen and Unexposed Face Thermocouples



Do not scale. All dimensions are in mm





Do not scale. All dimensions are in mm







Do not scale. All dimensions are in mm





# **Schedule of Components**

(Refer to Figures 1 to 3) (All values are nominal unless stated otherwise) (All other details are as stated by the sponsor)

### <u>Item</u>

# **Description**

1. Door Frame		
Material	:	Pine, softwood
Density	:	568 kg/m <sup>3</sup>
Overall section size	:	69 mm x 35 mm, with 25 mm x 12 mm planted stop
Jambs to head jointing method	:	Stub mortice & screwed, using 75 mm long x 4 mm
Eiving method to measure surround		Sarawad
Details of Screws	:	Screwed
i. type	:	Countersunk head woodscrews into plastics plugs
ii. overall size	:	100 mm long x 5.4 mm diameter
iii. centres	:	4 no. along the closing jamb, 6 no. along the hinged jamb approximately 100 mm above and below each hinge
2. Door Leaf 'A'		
Manufacturer	:	Premdor Crosby Ltd.
Certifire reference and label number Construction	:	CF 240, A087725
i. core	:	Graduated density chipboard 38 mm thick
ii. faces	:	Veneer faced MDF, 3 mm thick
iii. lippings	:	6 mm thick hardwood, to vertical edges and top edge
3. Door Leaf 'B'		
Manufacturer	:	Jeld Wen UK Ltd.
Certifire reference and label number Construction	:	CF 160, A1374315
i. stiles and rails	:	Softwood 32 mm x 38 mm
ii. core	:	Flaxboard 38 mm thick
iii. faces	:	Veneer faced medium density fibreboard (MDF), 3 mm
iv. lippings	:	Hardwood 8 mm thick, to vertical edges only
4. Door Leaf 'A' Intumescent Seal		
Manufacturer	:	Astroflame (Fireseals) Ltd.
Material	:	Graphite insert in a polyvinyl chloride, PVC, carrier
Reference	:	Astrostrip FO
Overall size	:	10 mm x 4 mm, carrier
Fitting method	:	Self adhered into a groove located centrally in the vertical edges and top edge of each leaf. The seals

were interrupted at the latch forend and hinge positions



### <u>Item</u>

# **Description**

Manufacturer       :       Astroftame (Freseats) Ltd.         Material       :       Graphile insert in a polyvinyl chloride, PVC, carrier w         Reference       :       Astrostrip FS         Overall size       :       10 mm x 4 mm, carrier         Fitting method       :       Self adhered into a groove located centrally in t         vertical edges and top edge of each leaf. The se were interrupted at the latch forend and hinge positio         6. Hinges         Manufacturer       :       Royde & Tucker Ltd         Reference       :       H 102-RR-B2P         Primary material       :       Bright zinc plated steel         Size       :       100 mm long by 13.7 mm diameter         ii. material       :       Steel         ii. material       :       Steel         iii. material       :       Steel         iii. sizes       :       29 mm long by 5.1 mm diameter         v. maximum distance of fixing screws       :       5 off         v. maximum distance of fixing screws       :       5 off         v. maximum distance of fixing screws       :       5 off         ii. oronge       :       5 off         V. tatch batt       :       5 fore         Maufacturer	J. DODI ECAI D Intumescent Scal		
Material       : Graphite insert in a polyvinyl chloride, PVC, carrier w brush seal.         Reference       : Astrostrip FS         Overall size       : 10 mm x 4 mm, carrier         Fitting method       : Self adhered into a groove located centrally in i vertical edges and top edge of each leaf. The se were interrupted at the latch forend and hinge positio         6. Hinges       .         Manufacturer       : Royde & Tucker Ltd         Reference       : H 102-FR-B2P         Primary material       : Bright zinc plated steel         Size       : 100 mm long by 35 mm wide by 3 mm thick         Fixings       : 100 mm long by 35 mm wide by 3 mm thick         i. knuckle       : 100 mm long by 35 mm wide by 3 mm thick         Fixings       : Steel         ii. number off per blade       : 5 off         v. number	Manufacturer	:	Astroflame (Fireseals) Ltd.
Reference in Satrostrip FS Overall size in the set of t	Material	:	Graphite insert in a polyvinyl chloride, PVC, carrier with
Reference       :       Astrostrip FS         Overall size       :       10 mm x 4 mm, carrier         Fitting method       :       Self adhered into a groove located centrally in 1         vertical edges and top edge of each leaf. The see were interrupted at the latch forend and hinge positio         6. Hinges         Manufacturer       :       Royde & Tucker Ltd         Reference       :       H 102-FR-BZP         Primary material       :       Bright zinc plated steel         Size       :       100 mm long by 3.7 mm diameter         ii.       hutokle       :       104 mm long by 5.1 mm diameter         ii.       strastrast       :       26 mm         Isses       :       27 mm long by 5.1 mm diameter       :         iv. number off per blade       :       5 off       :         v. maximum distance of fixing screws       :       26 mm       :         Bedding material       :       None       :         7. Latch       :       Reference       :       :         Manufacturer       :       Sign mx 25 mm       :       :         ii. strike plate       :       :       :       :       :         iii. tasing       :       <			brush seal.
Overall size       :       10 mm x 4 mm, carrier         Fitting method       :       Self adhered into a groove located centrally in 1 vertical edges and top edge of each leaf. The se were interrupted at the latch forend and hinge positio         6. Hinges       Manufacturer       :       Royde & Tucker Ltd         Reference       :       H 102-FR-BZP         Primary material       :       Bright zinc plated steel         Size       :       100 mm long by 35 mm wide by 3 mm thick         Fikings       :       100 mm long by 35 mm wide by 3 mm thick         Fikings       :       29 mm long by 5.1 mm diameter         ii. material       :       Steel         with sizes       :       20 mm long by 5.1 mm diameter         ii. sizes       :       26 mm         Bedding material       :       None         7. Latch       Manufacturer       :         Manufacturer       :       Magnet         ii. strike plate       :       57 mm x 21 mm         ii. strike plate       :       57 mm x 21 mm         ii. casing       :       21 mm x 14 mm x 64 mm long         iv. latch bolt       :       14.5 mm x 10.9 mm with 8 mm throw         Operation of latch       :       Disengaged	Reference	:	Astrostrip FS
Fitting method       :       Self adhered into a groove located centrally in i revircial edges and top edge of each leaf. The se were interrupted at the latch forend and hinge positio         6. Hinges       Manufacturer       :       Royde & Tucker Ltd         Reference       :       H 102-FR-B2P         Primary material       ::       Bright zinc plated steel         Size       :       104 mm long by 13.7 mm diameter         ii.       blades       :       100 mm long by 35 mm wide by 3 mm thick         Fixings       :       20 mm long by 5.1 mm diameter         ii.       ii.       steel       :         iii. sizes       :       20 mm long by 5.1 mm diameter         iv. number off per blade       :       5 off         v. maximum distance of fixing screws       from face of door leaf       :         from face of door leaf       :       26 mm         Bedding material       :       None         7. Latch       Magnet         Reference       :       Br 63 mm tubular mortice latch         Material       :       Steel         Overall size       :       57 mm x 21 mm         ii. fore plate       :       57 mm x 21 mm         iii. strike plate       :       57 mm x 21 mm	Overall size	:	10 mm x 4 mm, carrier
6. Hinges       were interrupted at the latch forend and hinge positio         6. Hinges       Manufacturer       Royde & Tucker Ltd         Reference       :       H 102-FR-BZP         Primary material       :       Bright zinc plated steel         Size       :       104 mm long by 13.7 mm diameter         ii. blades       :       100 mm long by 35 mm wide by 3 mm thick         Fixings       :       Steel         ii. material       :       Steel         iii. straterial       :       Steel         iii. straterial       :       Steel         iii. straterial       :       Steel         iii. naterial       :       Steel         iii. strate       :       26 mm         Bedding material       :       None         7. Latch       :       Magnet         Reference       :       Br 63 mm tubular mortice latch         Material       :       Steel         V: latch bott       :       14.5 mm x 10.9 mm with 8 mm throw         Operation of latch       :       Disengaged         : fore plate       :       57 mm x 21 mm         : ii. strike plate       :       S7 mm x 24 mm x 64 mm long         : iv.	Fitting method	:	Self adhered into a groove located centrally in t
6. Hinges         Manufacturer       :       Royde & Tucker Ltd         Reference       :       H 102-FR-BZP         Primary material       :       Bright zinc plated steel         Size       :       100 mm long by 13.7 mm diameter         ii.       blades       :       100 mm long by 35 mm wide by 3 mm thick         Fixings       :       100 mm long by 35 mm wide by 3 mm thick         Fixings       :       Steel         ii.       material       :       Steel         iii. staks       :       29 mm long by 5.1 mm diameter         iv. number off per blade       :       5 off         v. maximum distance of fixing screws       :       76 mm         from face of door leaf       :       26 mm         Bedding material       :       None         Vestarturer       :       Magnet         Reference       :       Br 6.3 mm tubular mortice latch         Material       :       Steel         Overall size       :       11 mm x 14 mm x 64 mm long         ii.       strike plate       :       57 mm x 21 mm         iii. casing       :       21 mm x 14 mm x 64 mm long         Volaperation of latch       :			vertical edges and top edge of each leaf. The sea were interrupted at the latch forend and hinge position
Manufacturer       :       Royde & Tucker Ltd         Reference       :       H 102-FR-BZP         Primary material       :       Bright zinc plated steel         Size       :       100 mm long by 13.7 mm diameter         ii.       blades       :       100 mm long by 35 mm wide by 3 mm thick         Fixings       :       100 mm long by 5.1 mm diameter         ii.       steel       :       29 mm long by 5.1 mm diameter         ii.       steel       :       5 off         v. maximum distance of fixing screws       :       26 mm         from face of door leaf       :       None         7. Latch       Manufacturer       :       Magnet         Reference       :       Br 63 mm tubular mortice latch         Material       :       Steel         Overall size       :       57 mm x 21 mm         ii.       strike plate       :       58 mm x 25 mm         ii.       strike plate       :       58 mm x 21 mm         iii.       strike plate       :       57 mm x 21 mm         iii.       asing       :       21 mm x 14 mm x 64 mm long         V. latch bott       :       14.5 mm x 10.9 mm with 8 mm throw <t< td=""><td>6. Hinges</td><td></td><td></td></t<>	6. Hinges		
Reference       :       H 102-FR-BZP         Primary material       :       Bright zinc plated steel         Size       :       Idv mm long by 13.7 mm diameter         ii. blades       :       100 mm long by 35 mm wide by 3 mm thick         Fixings       :       100 mm long by 35 mm wide by 3 mm thick         Fixings       :       29 mm long by 5.1 mm diameter         ii. material       :       Steel         iii. sizes       :       29 mm long by 5.1 mm diameter         iv. number off per blade       :       5 off         v. maximum distance of fixing screws       from face of door leaf       :         from face of door leaf       :       26 mm         Bedding material       :       None         7. Latch	Manufacturer	:	Royde & Tucker Ltd
Primary material:Bright zinc plated steelSize:104 mm long by 13.7 mm diameterii. blades:100 mm long by 35 mm wide by 3 mm thickFixings:100 mm long by 35 mm wide by 3 mm thickii. hype:Countersunk head wood screwsii. material:Steelii. sizes:29 mm long by 5.1 mm diameteriv. number off per blade:5 offv. maximum distance of fixing screwsfrom face of door leaf:from face of door leaf:26 mmBedding material:None7. LatchManufacturer:MagnetReference:Br 63 mm tubular mortice latchMaterial:SteelOverall size:57 mm x 21 mmii. strike plate:57 mm x 14 mm x 64 mm longiv. latch bott:14.5 mm x 10.9 mm with 8 mm throwOperation of latch:DisengagedFixing method:ScrewedBedding material:NoneLever handles:102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plateB. Overhead Door Closer:StrassManufacturer:DormaReference:TS 73V:ii. doorset B::doorset B:55 NmMaximum obser moment:22 Nm::doorset B::20 Nm	Reference	:	H 102-FR-BZP
i.       knuckle       :       104 mm long by 13.7 mm diameter         ii.       blades       :       100 mm long by 35 mm wide by 3 mm thick         ik.       type       :       Countersunk head wood screws         ii.       material       :       Steel         ii.       steel       :       29 mm long by 5.1 mm diameter         iv. number off per blade       :       5 off         v. number off per blade       :       5 off         v. number off oor leaf       :       26 mm         Bedding material       :       None         7. Latch         Manufacturer       :       Magnet         Reference       :       Br 63 mm tubular mortice latch         Material       :       Steel         Overall size       :       57 mm x 21 mm         ii.       tark plate       :       57 mm x 10.9 mm with 8 mm throw         Operation of latch       :       Disengaged         ii. material       :       Screwed         Bedding material       :       None         Lever handles       :       102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         Bedding material       :       Dorm	Primary material Size	:	Bright zinc plated steel
ii. blades : 100 mm long by 35 mm wide by 3 mm thick Fixings : i. type : Countersunk head wood screws : ii. material : Steel : iii. sizes : 29 mm long by 5.1 mm diameter : v. number off per blade : 5 off : v. maximum distance of fixing screws from face of door leaf : 26 mm Bedding material : None 7. Latch Manufacturer : Magnet : Reference : Br 63 mm tubular mortice latch Material : Steel Overall size : i. fore plate : 58 mm x 25 mm ii. strike plate : 57 mm x 21 mm iii. casing : 21 mm x 14 mm x 64 mm long iv. latch bolt : 14.5 mm x 10.9 mm with 8 mm throw Operation of latch : Disengaged Fixing method : Screwed Bedding material : None Ever handles : i. manufacturer : Magnet ii. overall size : 102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate 8. Overhead Door Closer Manufacturer : Dorma Reference : TS73V Fitting : Exposed face of each doorset Maximum opening moment i. doorset A : 25 Nm ii. doorset A : 25 Nm ii. doorset B : 20 Nm	i. knuckle	:	104 mm long by 13.7 mm diameter
Fixings i. type i. type i. type i. type i. type i. countersunk head wood screws ii. material ii. sizes ii. stres ii. stres ii. stres ii. stres iii. stres	ii. blades	:	100 mm long by 35 mm wide by 3 mm thick
i.       type       :       Countersunk head wood screws         ii.       material       :       Steel         iii.       sizes       :       29 mm long by 5.1 mm diameter         iv. number off per blade       :       5 off         v. maximum distance of fixing screws       :       26 mm         Bedding material       :       None <b>7. Latch</b> Manufacturer       :       Magnet         Reference       :       Br 63 mm tubular mortice latch         Material       :       Steel         Overall size       :       57 mm x 25 mm         i.       :       fore plate       :         ii.       :       57 mm x 21 mm         iii.       :       Steel       Operation of latch         v. latch bolt       :       14.5 mm x 10.9 mm with 8 mm throw         Operation of latch       :       Disengaged         Fixing method       :       Screwed         Bedding material       :       None         Lever handles       :       Immaterial       :         ii.       manufacturer       :       Magnet         iii.       material       :       Brass	Fixings		
ii. material : Steel iii. sizes : 29 mm long by 5.1 mm diameter iv. number off per blade : 5 off v. maximum distance of fixing screws from face of door leaf : 26 mm Bedding material : None 7. Latch Manufacturer : Magnet Reference : Br 63 mm tubular mortice latch Material : Steel Overall size i. fore plate : 58 mm x 25 mm ii. casing : 21 mm x 14 mm x 64 mm long iv. latch bolt : 14.5 mm x 10.9 mm with 8 mm throw Operation of latch : Disengaged Fixing method : Screwed Bedding material : None Lever handles i. manufacturer : Magnet ii. overall size : 58 mm x 25 mm iii. casing : 21 mm x 14 mm x 64 mm long iv. latch bolt : 14.5 mm x 10.9 mm with 8 mm throw Operation of latch : Disengaged Fixing method : Screwed Bedding material : None Lever handles i. manufacturer : Magnet ii. overall size : 102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate 8. Overhead Door Closer Manufacturer : Dorma Reference : TS73V Fitting : Exposed face of each doorset Maximum opening moment i. doorset A : 41 Nm ii. doorset B : 55 Nm Maximum closer moment i. doorset A : 25 Nm ii. doorset B : 20 Nm	i. type	:	Countersunk head wood screws
iii. sizes       :       29 mm long by 5.1 mm diameter         iv. number off per blade       :       5 off         v. maximum distance of fixing screws       :       26 mm         from face of door leaf       :       26 mm         Bedding material       :       None         7. Latch         Manufacturer       :       Magnet         Reference       :       Br 63 mm tubular mortice latch         Material       :       Steel         Overall size       :       :         i.       fore plate       :       58 mm x 25 mm         ii. casing       :       21 mm x 14 mm x 64 mm long       iv         iv. latch bolt       :       21 mm x 14 mm x 64 mm long       iv         vi. latch bolt       :       21 mm x 14 mm x 64 mm long       iv         vi. latch bolt       :       21 mm x 14 mm x 64 mm long       iv         vi. latch bolt       :       21 mm x 14 mm x 64 mm long       iv         vi. latch bolt       :       21 mm x 14 mm x 64 mm long       iv         ii. cosing       :       21 mm x 14 mm x 64 mm long       iv         ii. adotscherer       :       Disengaged       :         Fixing method <td>ii. material</td> <td>:</td> <td>Steel</td>	ii. material	:	Steel
iv. number off per blade       5 off         v. maximum distance of fixing screws       26 mm         from face of door leaf       26 mm         Bedding material       None         7. Latch	iii. sizes	:	29 mm long by 5.1 mm diameter
<ul> <li>v. maximum distance of fixing screws from face of door leaf</li> <li>i. 26 mm</li> <li>Bedding material</li> <li>i. None</li> </ul> 7. Latch 7. Latch 8. Magnet Reference <ul> <li>Br 63 mm tubular mortice latch</li> <li>Material</li> <li>Steel</li> </ul> Overall size <ul> <li>i. fore plate</li> <li>57 mm x 25 mm</li> <li>ii. strike plate</li> <li>57 mm x 14 mm x 64 mm long</li> <li>iv. latch bolt</li> <li>14.5 mm x 10.9 mm with 8 mm throw</li> <li>Operation of latch</li> <li>Brding material</li> <li>None</li> </ul> Lever handles <ul> <li>i. manufacturer</li> <li>ii. material</li> <li>iii. overall size</li> <li>iii. overall size</li> <li>iii. overall size</li> <li>iii. adorset A</li> <li>i. doorset A</li> <li>i. doorset B</li> <li>i. doorset B</li> <li>i. doorset B</li> <li>20 Nm</li> </ul>	iv. number off per blade	:	5 off
from face of door leaf : 26 mm Bedding material : None 7. Latch Manufacturer : Magnet Reference : Br 63 mm tubular mortice latch Material : Steel Overall size i. fore plate : 58 mm x 25 mm ii. strike plate : 57 mm x 21 mm iii. casing : 21 mm x 14 mm x 64 mm long iv. latch bolt : 14.5 mm x 10.9 mm with 8 mm throw Operation of latch : Disengaged Fixing method : Screwed Bedding material : None Lever handles i. manufacturer : Magnet ii. naterial : Brass iii. overall size : 102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate 8. Overhead Door Closer Manufacturer : Dorma Reference : TS73V Fitting : Exposed face of each doorset Maximum opening moment i. doorset A : 41 Nm i. doorset B : 25 Nm ii. doorset B : 25 Nm ii. doorset B : 20 Nm	v. maximum distance of fixing screws		
Bedding material       : None         7. Latch       Manufacturer         Manufacturer       : Magnet         Reference       : Br 63 mm tubular mortice latch         Material       : Steel         Overall size       :         i. fore plate       : 58 mm x 25 mm         ii. strike plate       : 57 mm x 21 mm         iii. casing       : 21 mm x 14 mm x 64 mm long         iv. latch bolt       : 14.5 mm x 10.9 mm with 8 mm throw         Operation of latch       : Disengaged         Fixing method       : Screwed         Bedding material       : None         Lever handles       :         i. manufacturer       : Magnet         ii. overall size       : 102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       : TS73V         Maufacturer       : Dorma         Reference       : TS73V         Fitting       : Exposed face of each doorset         Maximum opening moment       : 41 Nm         i. doorset A       : 41 Nm         i. doorset A       : 25 Nm         ii. doorset B       : 20 Nm	from face of door leaf	:	26 mm
7. Latch       Magnet         Manufacturer       :       Magnet         Reference       :       Br 63 mm tubular mortice latch         Material       :       Steel         Overall size       :       .         i.       fore plate       :       58 mm x 25 mm         ii.       strike plate       :       57 mm x 21 mm         iii.       casing       :       21 mm x 14 mm x 64 mm long         iv.       latch bolt       :       14.5 mm x 10.9 mm with 8 mm throw         Operation of latch       :       Disengaged         Fixing method       :       Screwed         Bedding material       :       None         Lever handles       :       in material         i.       material       :       Brass         iii.       overall size       :       102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       :       Manufacturer       :         Manufacturer       :       Dorma       Reference         Reference       :       TS73V       Fitting       :         fitting       :       :       41 Nm       :         i.<	Bedding material	:	None
Manufacturer       :       Magnet         Reference       :       Br 63 mm tubular mortice latch         Material       :       Steel         Overall size       :       58 mm x 25 mm         ii.       fore plate       :       57 mm x 21 mm         iii.       casing       :       21 mm x 14 mm x 64 mm long         iv.       latch bolt       :       14.5 mm x 10.9 mw with 8 mm throw         Operation of latch       :       Disengaged         Fixing method       :       Screwed         Bedding material       :       None         Lever handles       :       ii. material         ii.       operational size       :       102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       :       Manufacturer       :         Manufacturer       :       Dorma       Reference         :       doorset A       :       41 Nm         :       doorset A       :       55 Nm         Maximum closer moment       :       55 Nm         ii.       doorset B       :       20 Nm	7. Latch		
Reference:Br 63 mm tubular mortice latchMaterial:SteelOverall size:Steelii. orre plate:58 mm x 25 mmii. strike plate:57 mm x 21 mmiii. casing:21 mm x 14 mm x 64 mm longiv. latch bolt:14.5 mm x 10.9 mm with 8 mm throwOperation of latch:DisengagedFixing method:ScrewedBedding material:NoneLever handles:Intervalii. overall size:102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate8. Overhead Door Closer:DormaManufacturer:DormaReference:TS73VFitting:Exposed face of each doorsetMaximum opening moment:41 Nm:::::::::::::::::::::::.	Manufacturer	:	Magnet
Material:SteelOverall size:58 mm x 25 mmi.fore plate:58 mm x 25 mmii.strike plate:57 mm x 21 mmiii.casing:21 mm x 14 mm x 64 mm longiv.latch bolt:14.5 mm x 10.9 mm with 8 mm throwOperation of latch:DisengagedFixing method:ScrewedBedding material:NoneLever handles:Nonei.manufacturer:ii.overall size:102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate8.Overhead Door CloserManufacturer:DormaReference:TS73VFitting:Exposed face of each doorsetMaximum opening moment:41 Nmi.doorset A:25 NmMaximum closer moment:25 Nmii.doorset B:20 Nm	Reference	:	Br 63 mm tubular mortice latch
Overall size       :       58 mm x 25 mm         ii. strike plate       :       57 mm x 21 mm         iii. casing       :       21 mm x 14 mm x 64 mm long         iv. latch bolt       :       14.5 mm x 10.9 mm with 8 mm throw         Operation of latch       :       Disengaged         Fixing method       :       Screwed         Bedding material       :       None         Lever handles       :       manufacturer         i.       manufacturer       :       Magnet         iii. overall size       :       102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       :       Manufacturer       :         Manufacturer       :       Dorma       :         Reference       :       TS73V       :         Fitting       :       Exposed face of each doorset         Maximum opening moment       :       41 Nm       :         i.       doorset B       :       55 Nm         Maximum closer moment       :       20 Nm       -	Material	:	Steel
i. tore plate       : 58 mm x 25 mm         ii. strike plate       : 57 mm x 21 mm         iii. casing       : 21 mm x 14 mm x 64 mm long         iv. latch bolt       : 14.5 mm x 10.9 mm with 8 mm throw         Operation of latch       : Disengaged         Fixing method       : Screwed         Bedding material       : None         Lever handles       :         i. manufacturer       : Magnet         ii. overall size       : 102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       :         Manufacturer       : Dorma         Reference       : TS73V         Fitting       : Exposed face of each doorset         Maximum opening moment       :         i. doorset A       : 41 Nm         ii. doorset B       : 55 Nm         Maximum closer moment       : 25 Nm         i. doorset B       : 20 Nm	Overall size		50 05
<ul> <li>ii. strike plate</li> <li>iii. casing</li> <li>iiii. casing</li> <li>iiii. casing</li> <li>iiii. casing<!--</td--><td>i. fore plate</td><td>:</td><td>58 mm x 25 mm</td></li></ul>	i. fore plate	:	58 mm x 25 mm
III. casing       :       21 mm x 14 mm x 64 mm long         iv. latch bolt       :       14.5 mm x 10.9 mm with 8 mm throw         Operation of latch       :       Disengaged         Fixing method       :       Screwed         Bedding material       :       None         Lever handles       :       Magnet         i. manufacturer       :       Magnet         ii. material       :       Brass         iii. overall size       :       102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       :       Manufacturer         Manufacturer       :       Dorma         Reference       :       TS73V         Fitting       :       Exposed face of each doorset         Maximum opening moment       :       55 Nm         i. doorset A       :       41 Nm         ii. doorset B       :       55 Nm         Maximum closer moment       :       20 Nm	II. strike plate	:	57 mm x 21 mm
IV. latch bolt       :       14.5 mm x 10.9 mm with 8 mm throw         Operation of latch       :       Disengaged         Fixing method       :       Screwed         Bedding material       :       None         Lever handles       :       None         i.       manufacturer       :       Magnet         ii.       material       :       Brass         iii.       overall size       :       102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       :       Dorma         Reference       :       TS73V         Fitting       :       Exposed face of each doorset         Maximum opening moment       :       55 Nm         i.       doorset A       :       41 Nm         ii.       doorset A       :       25 Nm         Maximum closer moment       :       20 Nm       -	III. casing	:	21 mm x 14 mm x 64 mm long
Operation of latch       :       Disengaged         Fixing method       :       Screwed         Bedding material       :       None         Lever handles       :       Magnet         i.       manufacturer       :       Magnet         ii.       material       :       Brass         iii.       overall size       :       102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       :       :       Dorma         Reference       :       TS73V         Fitting       :       Exposed face of each doorset         Maximum opening moment       :       41 Nm         i.       doorset A       :       55 Nm         Maximum closer moment       :       25 Nm         i.       doorset A       :       25 Nm         ii.       doorset B       :       20 Nm	iv. latch bolt	:	14.5 mm x 10.9 mm with 8 mm throw
Fixing method       :       Screwed         Bedding material       :       None         Lever handles       :       Magnet         ii. material       :       Brass         iii. overall size       :       102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       :       20 rma         Reference       :       TS73V         Fitting       :       Exposed face of each doorset         Maximum opening moment       :       41 Nm         i. doorset A       :       45 Nm         Maximum closer moment       :       25 Nm         i. doorset A       :       25 Nm         ii. doorset B       :       20 Nm	Operation of latch	:	Disengaged
Bedding material       : None         Lever handles       :         i. manufacturer       : Magnet         ii. material       : Brass         iii. overall size       : 102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       :         Manufacturer       : Dorma         Reference       : TS73V         Fitting       : Exposed face of each doorset         Maximum opening moment       :         i. doorset A       : 41 Nm         ii. doorset B       : 55 Nm         Maximum closer moment       :         i. doorset A       : 25 Nm         ii. doorset B       : 20 Nm	FIXING METNOG	:	Screwed
<ul> <li>i. manufacturer</li> <li>i. material</li> <li>ii. overall size</li> <li>iii. 102 mm long x 17 mm diameter tapering to 13 m complete with 117 mm x 38 mm backing plate</li> <li>8. Overhead Door Closer</li> <li>Manufacturer</li> <li>Reference</li> <li>Isposed face of each doorset</li> <li>Maximum opening moment</li> <li>i. doorset A</li> <li>i. doorset B</li> <li>i. doorset A</li> <li>i. doorset B</li> <li>i. doorset A</li> <li>i. 25 Nm</li> </ul>	Beading material	:	None
<ul> <li>i. manufacturer</li> <li>ii. material</li> <li>iii. overall size</li> <li>iii. doorset A</li> <li>iiii. doorset B</li> <li>iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii</li></ul>			Magnet
<ul> <li>in internal</li> <li>iii. overall size</li> <li>iii. overall size</li> <li>iii. overall size</li> <li>iii. overall size</li> <li>iii. doorset B</li> <li>iii. doorset B</li> <li>iii. doorset B</li> <li>iii. doorset B</li> <li>iiii. doorset B</li> <li>iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii</li></ul>	i. manufacturer	:	Prace
8. Overhead Door Closer       intribug x 17 mm diameter tapening to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm diameter tapening to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm diameter tapening to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm diameter tapening to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm diameter tapening to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm diameter tapening to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm diameter tapening to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm diameter tapening to 13 m complete with 117 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm x 38 mm backing plate         8. Overhead Door Closer       intribug x 17 mm x 38 mm backing plate         9. Overhead Door Closer       intribug x 17 mm x 38 mm backing plate         10. Overhead Door Closer       intribug x 17 mm x 38 mm backing plate         10. Overhead Door Closer Moment       intribug x 17 mm x 38 mm backing plate         10. Overhead Door Closer Mom x 10 mm x 10 mm x 10 mm x 10 mm x	II. IIIaleliai III. ovorallisizo	:	DIdSS
8. Overhead Door CloserManufacturer:DormaReference:TS73VFitting:Exposed face of each doorsetMaximum opening moment:41 Nmi. doorset A:55 NmMaximum closer moment:i. doorset A:i. doorset A:i. doorset B:25 Nmii. doorset B:20 Nm		•	complete with 117 mm x 38 mm backing plate
Manufacturer:DormaReference:TS73VFitting:Exposed face of each doorsetMaximum opening moment:41 Nmi.doorset A:55 NmMaximum closer moment:25 Nmii.doorset B:20 Nm	8. Overhead Door Closer		
Reference:TS73VFitting:Exposed face of each doorsetMaximum opening moment:Exposed face of each doorseti. doorset A:41 Nmii. doorset B:55 NmMaximum closer moment:25 Nmii. doorset A:20 Nm	Manufacturer	:	Dorma
Fitting:Exposed face of each doorsetMaximum opening moment:i. doorset A:ii. doorset B:Maximum closer moment:ii. doorset A:ii. doorset B:25 Nmii. doorset B:20 Nm	Reference	:	TS73V
Maximum opening momenti. doorset A: 41 Nmii. doorset B: 55 NmMaximum closer momenti. doorset A: 25 Nmii. doorset B: 20 Nm	Fitting	:	Exposed face of each doorset
i. doorset A : 41 Nm ii. doorset B : 55 Nm Maximum closer moment i. doorset A : 25 Nm ii. doorset B : 20 Nm	Maximum opening moment		
ii. doorset B : 55 Nm Maximum closer moment i. doorset A : 25 Nm ii. doorset B : 20 Nm	i doorset A	:	41 Nm
Maximum closer momenti. doorset A: 25 Nmii. doorset B: 20 Nm		:	55 Nm
i. doorset A : 25 Nm ii. doorset B : 20 Nm	ii. doorset B		
ii. doorset B : 20 Nm	ii. doorset B Maximum closer moment		
	ii. doorset A Maximum closer moment i. doorset A	:	25 Nm



# **Doorset Clearance Gaps**

Door Ref.	Gap Dimension in mm at Positions													
٨	1	2	3	4	5	6	7	8*	9*	10*	11	12	13	14
A	3.6	2.8	2.8	3.2	3.4	3.6	3.9	6.0	5.8	5.3	3.3	3.0	3.6	4.2
P	15	16	17	18	19	20	21	22*	23*	24*	25	26	27	28
Ь	3.0	1.4	2.8	3.4	3.1	3.3	3.3	6.2	5.7	5.5	3.2	3.1	3.5	3.7
А	Me	ean	3	.4	Maximum		3.9		Ν	Minimum		2	.8	
В	Me	ean	3	.7	N	Maximum		3	3.7 Minimum		1	.4		

\* Dimension not included in calculations <sup>#</sup> 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 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 specimen and the output of all instrumentation was recorded at no less than one minute intervals as follows:
Thermocouples 2 to 6 Doorset A and	At five positions on each doorset, one approximately at the centre and one at approximately the centre of each quarter section of the doorset.
7 to 11 Doorset B	
Thermocouples 12 to 14 Doorset A and 15 to 17 Doorset B	At three positions at the approximate centre of each frame 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 specimen 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 specimen to hot gases.
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 at the top of the doorsets was 8.3 ( $\pm$ 2) Pa.





# **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 $11^{\circ}$ C at the start of the test with a maximum variation of $+1^{\circ}$ C during the test.
00	00	The test commences.
02	45	Slight smoke release is evident from the top hinge position of Doorset A.
03	30	Slight smoke release is evident from the top hinge position of Doorset B.
04	30	The smoke release to each doorset increases in volume.
06	00	Smoke release is evident from the latch position of each doorset.
06	30	Both doorsets have ignited on the exposed surface which creates large amounts of flaming within the furnace chamber.
08	00	The exposed facing of each doorset has fallen away into the furnace chamber.
09	00	Doorset A visibly distorts over its entire surface area.
12	00	The smoke release to Doorset A increases from the head of the leaf.
16	20	A black discolouration is evident from the top hinge position of Doorset A & B.
17	00	Distortion is evident to the bottom left corner of door leaf B.
19	30	The leaves of each doorset have fallen onto the threshold position.
22	00	A black discolouration is evident to the top corners of Doorset B.
28	50	Intermittent flames are evident from the latch position of Doorset A.
32	00	An area of burn through to the bottom hinge position of Doorset A is evident
33	00	An area of burn through is evident to the extreme bottom left of Doorset B, flickers of flame issue from this position.

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Time

mins secs

- **35 30** An area of glowing is evident to the top left hand corner of the door leaf B. A cotton pad is applied and ignites. **Integrity failure of Doorset B is deemed to occur.**
- **37 00** Burn through is evident to the top hinge position of Doorset B.
- **37 50** Sustained flames issue from the area of burn through to Doorset B at its bottom left hand position.
- **38 30** Sustained flames issue from the head of Doorset A. Integrity failure of Doorset A is deemed to occur.
- 40 00 The test is discontinued at the request of the sponsor.



WF Test Report No. 159515 Page 15 of 29

# **Test Photographs**

The exposed face of the doorset 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 39 minutes of testing





WF Test Report No. 159515 Page 18 of 29

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	Specified	Actual
	Furnace	Furnace
Mins	Temperature	Temperature
	Deg. C	Deg. C
0	20	20
2	445	456
4	544	554
6	603	678
8	646	693
10	678	688
12	706	709
14	728	712
16	748	746
18	766	763
20	781	782
22	796	801
24	809	821
26	820	813
28	832	833
30	842	848
32	852	850
34	860	854
36	869	878
38	877	880
40	885	876





TimeT/CT/CT/CT/CNumberNumberNumberNumberNumberMins23456Deg. CDeg. CDeg. CDeg. CDeg. C	Mean Temperature Deg. C 15 15
NumberNumberNumberNumberMins23456Deg. CDeg. CDeg. CDeg. CDeg. CDeg. C	Temperature Deg. C 15 15
Mins         2         3         4         5         6           Deg. C         Deg. C         Deg. C         Deg. C         Deg. C         Deg. C	Deg. C 15 15
Deg. C Deg. C Deg. C Deg. C Deg. C	Deg. C 15 15
	15 15
0 15 15 15 16 16	15
2 15 15 15 16 16	15
4 15 15 15 15 16	15
6 15 15 15 15 16	15
8 15 15 15 15 16	15
10 16 15 16 16 16	16
12 17 16 17 16 17	17
14 18 17 19 18 19	18
16 20 19 21 20 21	20
18 22 21 24 23 24	23
20 25 24 27 25 27	26
22 28 27 30 28 30	29
24 32 30 33 32 33	32
26 36 34 37 35 37	36
28 39 38 41 39 41	40
30 43 42 45 43 44	43
32 47 46 48 47 47	47
34 51 50 52 50 51	51
36 55 54 56 54 54	55
38 60 58 61 59 58	59
40 64 63 65 64 63	64

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





Timo	T/C	T/C	T/C	T/C	T/C	Mean
TITIC	Number	Number	Number	Number	Number	Tomporaturo
Mins	7	g		10	11	remperature
1011113	Deg C					
0	16	16	16	15	16	16
2	16	16	16	15	16	16
4	16	16	16	15	16	16
6	16	16	16	15	15	16
8	16	16	16	15	15	16
10	17	16	16	16	16	16
12	21	18	19	20	18	19
14	25	21	22	24	21	23
16	30	25	26	29	25	27
18	34	30	30	34	28	31
20	38	34	35	38	33	36
22	42	38	38	42	38	40
24	46	42	42	46	43	44
26	49	46	46	50	48	48
28	53	49	50	54	53	52
30	56	53	54	57	57	55
32	60	57	58	61	62	60
34	64	60	62	65	66	63
36	67	64	66	69	70	67
38	71	67	70	73	74	71
40	74	71	73	77	78	75

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





Time	T/C	T/C	T/C
	Number	Number	Number
Mins	12	13	14
	Deg. C	Deg. C	Deg. C
0	16	16	16
2	16	16	16
4	16	16	16
6	16	16	16
8	16	16	16
10	16	16	16
12	16	16	16
14	27	16	16
16	26	16	17
18	25	17	18
20	27	17	18
22	28	18	19
24	28	19	20
26	28	20	21
28	29	22	22
30	29	23	24
32	31	25	26
34	32	27	28
36	34	29	30
38	36	31	33
40	84	33	36

# Individual Temperatures Recorded On The Frame of Doorset A



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<b>T</b> <sup>1</sup>	<b>T</b> /O	<b>T</b> /O	<b>T</b> /O	
Time	T/C	T/C	1/0	
	Number	Number	Number	
Mins	15	16	17	
	Deg. C	Deg. C	Deg. C	
0	13	13	12	
2	13	13	12	
4	13	13	12	
6	13	13	12	
8	13	13	12	
10	13	13	12	
12	13	13	12	
14	13	14	12	
16	14	14	13	
18	15	15	14	
20	16	15	14	
22	18	16	15	
24	19	17	16	
26	21	18	18	
28	22	19	20	
30	24	20	21	
32	26	22	23	
34	28	23	25	
36	30	25	27	
38	32	27	30	
40	34	31	33	

# Individual Temperatures Recorded On The Frame of Doorset B



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## Deflection Of The Door Leaves During The Test



	Doorset A								
	Deflections – mm								
TIME mins	А	В	С	D	E	F	G	Н	Ι
5	-2	0	0	-1	19	1	2	1	0
10	0	0	2	0	25	4	6	3	-1
15	1	0	1	1	24	5	6	2	0
20	2	0	1	1	14	3	6	2	0
25	-1	-2	-1	-1	-6	1	5	2	0
30	0	-1	0	0	-4	1	5	2	0

	Doorset B								
	Deflections – mm								
TIME mins	А	В	С	D	E	F	G	Н	Ι
5	3	3	1	3	20	2	6	4	1
10	5	3	3	4	25	3	8	6	6
15	4	4	2	5	20	4	11	8	7
20	3	4	3	5	9	2	10	7	5
25	3	3	3	5	-3	0	7	4	5
30	4	3	3	7	-4	2	4	1	5

Positive values indicate movement towards the furnace \* Measurements discontinued due to unsafe conditions





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



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WF Test Report No. 159515 Page 26 of 29

# Graph Showing Mean Temperatures Recorded On The Unexposed Surface Of Doorset A



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WF Test Report No. 159515 Page 27 of 29

# Graph Showing Mean Temperatures Recorded On The Unexposed Surface Of Doorset B



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# **Performance Criteria and Test Results**

- Integrity It is required that there is no collapse of the specimens, no sustained flaming on the unexposed surface and no loss of impermeability. These requirements were satisfied for a period of 38 minutes by Doorset A and 35 minutes Doorset B, failure at these times was due to sustained flaming on the unexposed surface of each doorset.
- 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 38 minutes for Doorset A and 35 minutes Doorset B after which times integrity failure occurred.

# **Ongoing Implications**

### Limitations

The results relate only to the behaviour of the specimen 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 specimen 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 leaf 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.

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# Conclusions

Evaluation against objective	Two specimens of 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: 1 Clause 6 showed that it satisfied the requirements the periods stated below:			
Test Results:	Doorset A	Doorset B		
Look a south a				
Integrity	38 minutes	35 minutes		

The test was discontinued after a period of 40 minutes.









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