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Title:

The Fire Resistance Performance Of An Uninsulated Steel Electrical Box, When Tested In Accordance With BS EN 1634-1:2014 + A1:2018

Date Of Test:

22 October 2023

Issue 1

14 March 2024

WF Report No:

537963/R

Prepared for:

JML Hardware Ltd

25 Smallshaw Close,
Asthon In Makerfield,
Wigan,
Lancashire,
WN4 9LW

0249

Test Specimen

Summary of Tested Specimen

The electrical box had overall nominal dimensions of 855 mm high by 548 mm wide, incorporating one leaf, with nominal dimensions of 772 mm high by 465 mm wide and was fitted so that it was within and facing the furnace throughout the test. The door leaf was hung within the steel box frame on a continuous, 316 mm stainless steel piano hinge, such that the leaf opened towards the heating conditions. The box and leaf were formed from a 1.5 mm steel and incorporated two stainless steel quarter turn budget locks which were engaged for the duration of the test.

Detailed drawings of the test specimen(s) and a comprehensive description of the test construction based on a detailed survey of the specimen(s) and information supplied by the sponsor of the test are included in the Test Specimen and Schedule of Components sections of this report.

Performance Criteria and Test Results

Integrity	It is required that the specimen retains its separating function, without either causing ignition of a cotton pad when applied, or permitting the penetration of a gap gauge as specified in BS EN 1634-1: 2014 + A1:2018, or resulting in sustained flaming on the unexposed surface. **These requirements were satisfied for the periods shown below:**				
Sustained flaming	68 minutes*				
Gap gauge	68 minutes*	No failure*			
Cotton pad	16 minutes				
Insulation (I_2)	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 with the exception that the limit for temperature rise for any frame member or transom member adjacent to the leaf/leaves of the doorset or openable window shall be 360°C. Insulation failure also occurs simultaneously with integrity failure as specified in BS EN 1634-1: 2014 + A1:2018. **These requirements were satisfied for the period shown below:**				
Specimen	1 minute	Exceeded mean temperature criteria			
Insulation (I_1)	The test specimen shall be evaluated against the maximum temperature rise criterion specified in EN 1363-1: 2020 (180°C).				
	1 minute				
Radiation	BS EN 1363-2: 1999 requires that the time for the measured radiation to exceed 5, 10, 15, 20 and 25 kW/m2 is reported.				
Radiation Performance	**5 kW/m^2**	**10 kW/m^2**	**15 kW/m^2**	**20 kW/m^2**	**25 kW/m^2**
	26 minutes	68 minutes*	68 minutes*	68 minutes*	68 minutes*
	*Test was discontinued after a period of 68 minutes.				
Date of Test	22 October 2023				

Signatories

Responsible Officer
S. Collins*
Technical Officer

Approved
G. Edmonds*
Senior Technical Officer

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

Report Issued

Date: 14 March 2024

Revision History

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Test Conditions

Standard

BS EN 1634-1:2014+A1:2018 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire resistance test for door and shutter assemblies and openable windows

Sampling

Warringtonfire was not involved in the sampling or selection of the tested specimen or any of the components.

The results obtained during the test only apply to the test samples as received and tested by **Warringtonfire.**

Installation

The electrical box was received on the 20 October 2023 and mounted within an aperture in a blockwork wall construction such that the leaf opened towards the heating conditions of the test. Representatives of **JML Hardware** conducted the installation on the 20th October 2023.

Conditioning

The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of 5 days. Throughout this period of time both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 17°C to 24°C and 39.0% to 72.0% respectively.

Instruction to Test

The test was conducted on the 22 October 2023 at the request of JML Hardware Ltd, the test sponsor.

Phil Leslie, a representative of the test sponsor witnessed the test.

Pre-Test Conditioning

Prior to testing, the electrical box was subjected to appropriate mechanical pre-test conditioning in accordance with the below requirements:

Test	Relevant Clause	Description	Comments
Operability	A.2.2 of EN 16034	25 cycles	25 cycles completed
Final setting	10.1.4 of EN 1634-1: 2018	1 cycle	1 cycle completed

Ambient Temperature

The ambient air temperature in the vicinity of the test construction was 20°C at the start of the test with a maximum variation of -3°C during the test.

Furnace

The furnace was controlled so that its mean temperature complied with the requirements of BS EN 1363-1: 2020 Clause 5.1 using four plate thermometers, distributed over a plane 100 mm from the surface of the test construction.

Thermocouples

Thermocouples were provided to monitor the unexposed surface of the specimen. The output of all instrumentation was recorded at no less than one minute intervals. The locations and reference numbers of the various unexposed surface thermocouples are shown in Figure 1.

Radiation

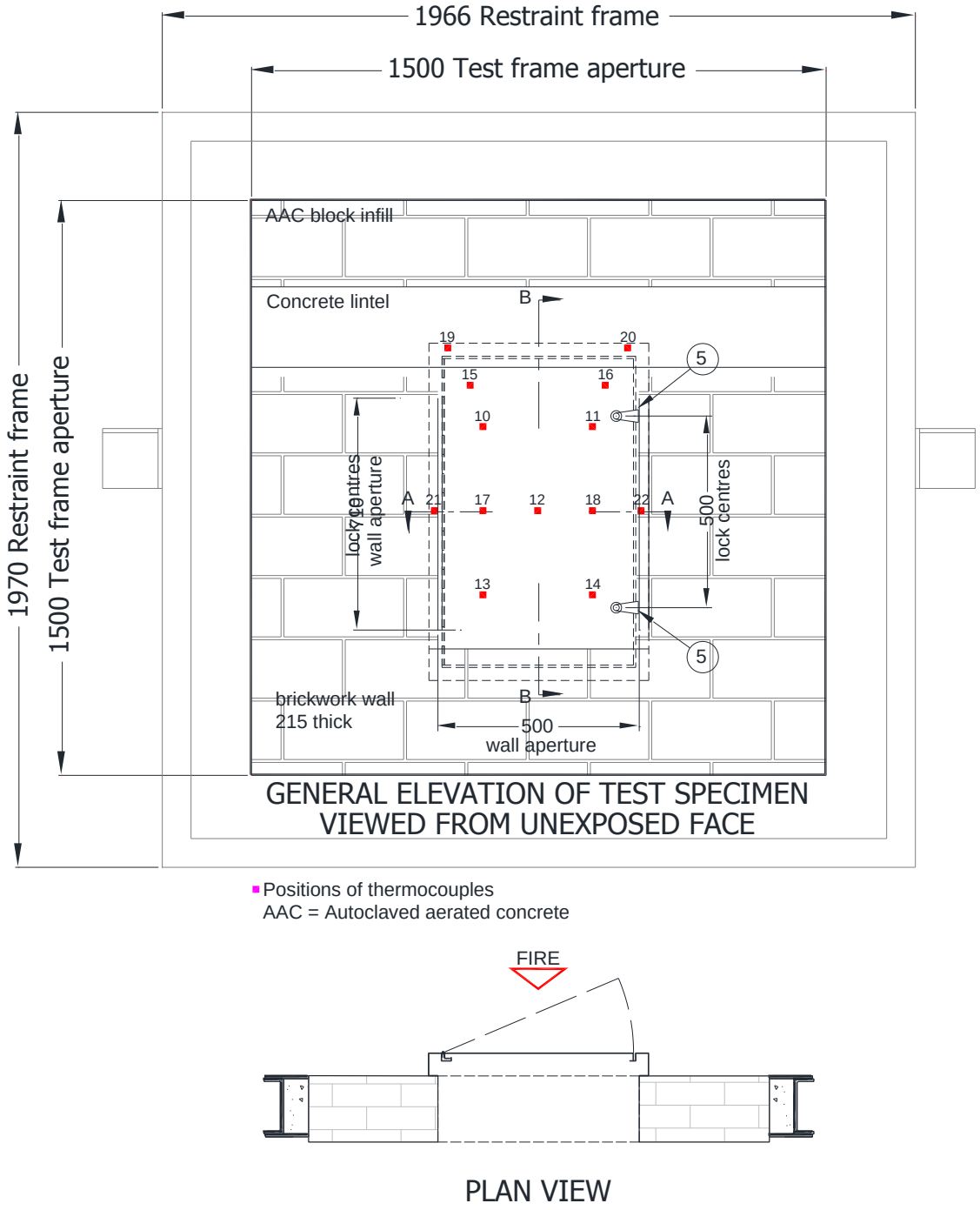
A water-cooled foil heat-flux meter was used to record the heat radiation from the electrical box. The heat flux meter was positioned at a distance of 1 metre from the centre of the electrical box.

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 EN 1363-1: 2020, clause 5.2.1 The calculated pressure differential relative to the laboratory atmosphere at the top of the specimen was 6.25 (± 5) Pa between 5 and 10 minutes and 6.25 (± 3) Pa thereafter.

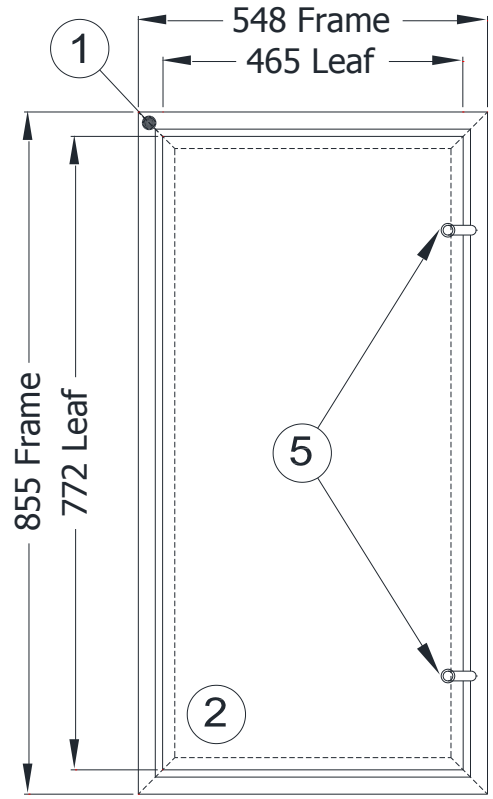
Test Construction

Figure 1 – General Elevation – Unexposed Face

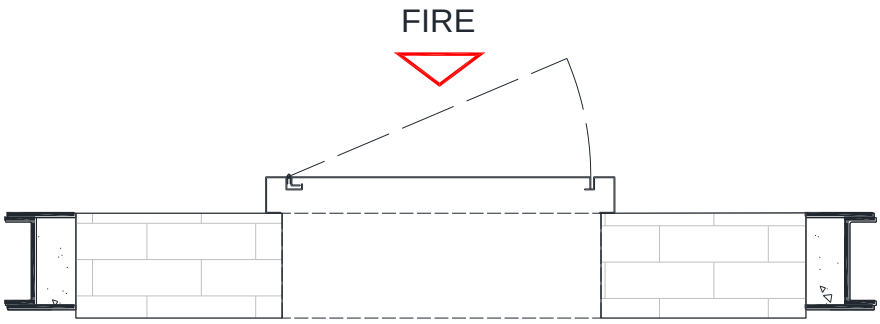


Do not scale. All dimensions are in mm

Figure 2 – Details of Doorset – Unexposed Face



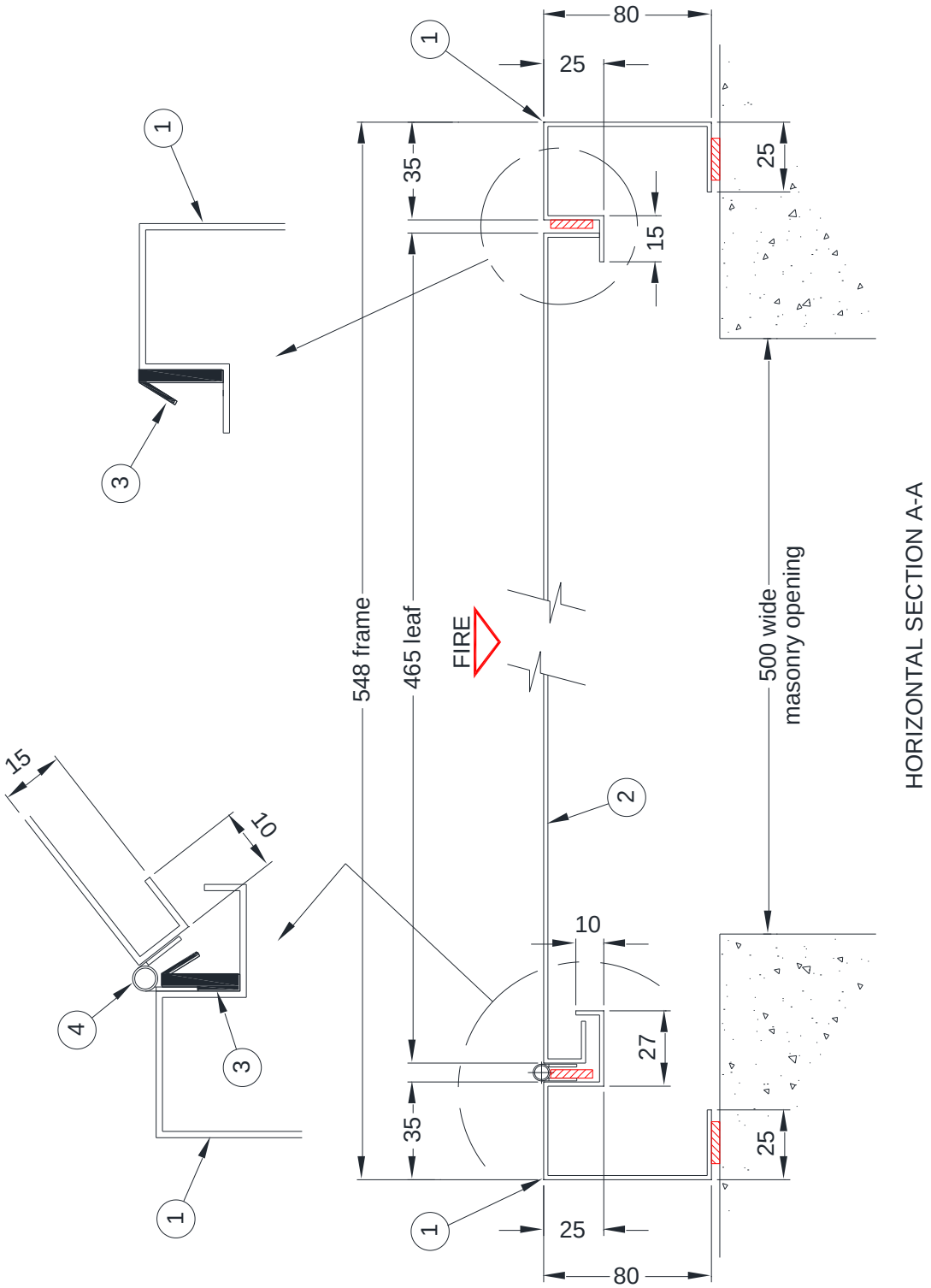
TEST CONSTRUCTION
EXPOSED FACE



HORIZONTAL SECTION THROUGH TEST CONSTRUCTION

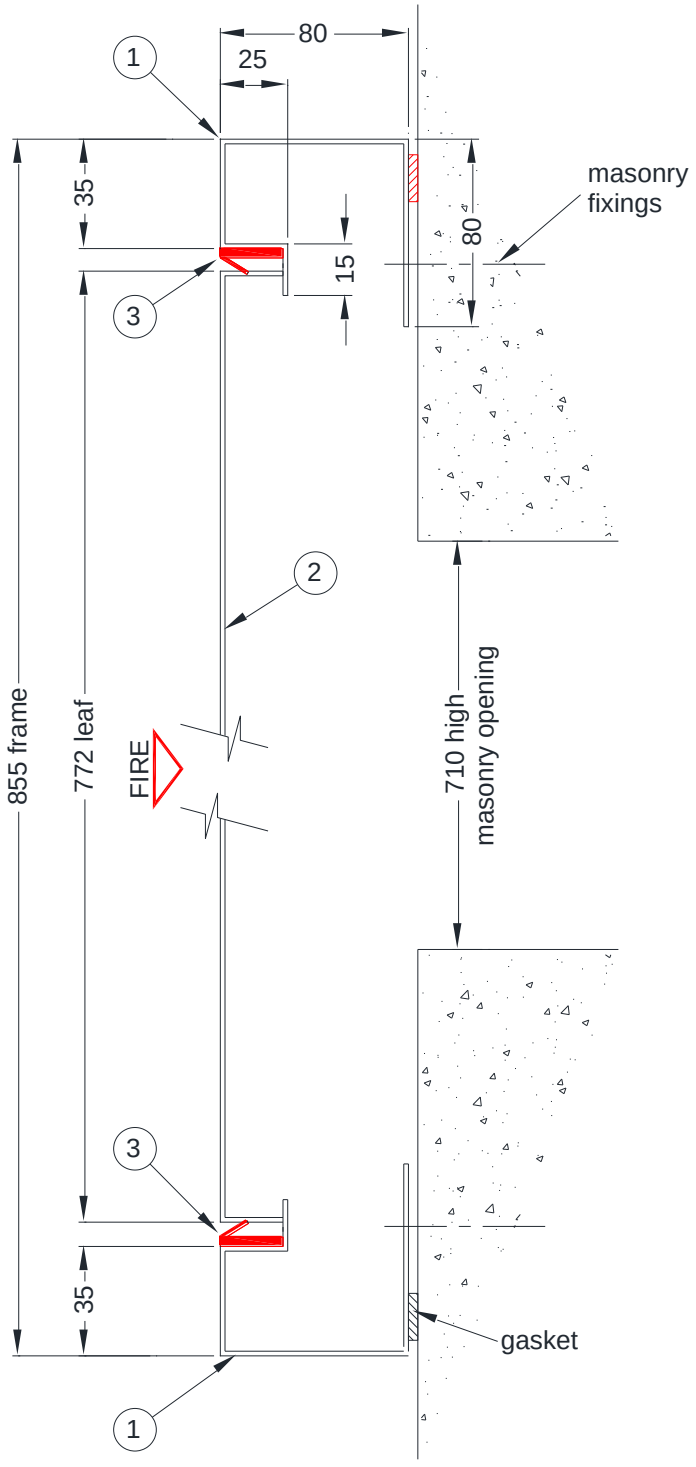
Do not scale. All dimensions are in mm

Figure 3 – Typical Horizontal Section



Do not scale. All dimensions are in mm

Figure 4 – Typical Vertical Section



VERTICAL SECTION B-B

Do not scale. All dimensions are in mm

Schedule of Components

(Refer to Figures 1 to 4)
(All values are nominal unless stated otherwise)
(All other details are as stated by the sponsor)

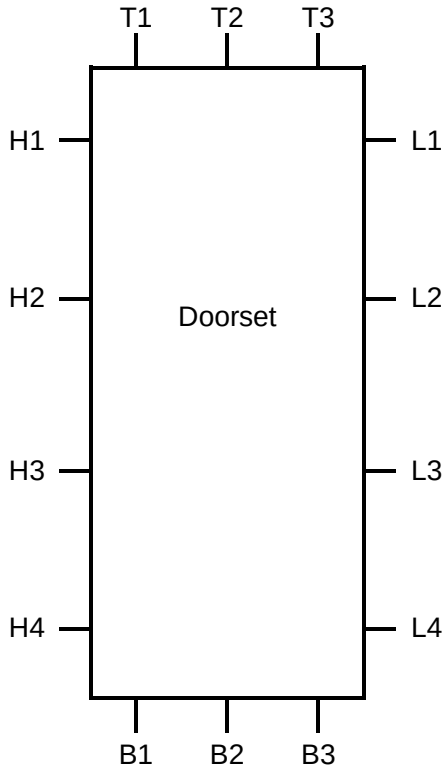
Item		Description
1. Door frame		
Material	:	Galvanised steel
Thickness	:	1.5 mm
Overall size	:	548 mm x 855 mm x 80 mm
Fixing method to masonry surround		
i. reference	:	Ankerbolts
ii. size	:	M6/8 x 75
iii. quantity	:	2 no. bolts, fixed through the top frame rebate 2 no. bolts, fixed through the bottom frame rebate 50 mm in and 15 mm down from the frame aperture
2. Door leaf		
Material	:	Galvanised steel
Thickness	:	1.5 mm
Overall size	:	465 mm x 722 mm x 22 mm
3. Door seal		
Manufacturer	:	Pyroplex
Reference	:	Safex 205 30143
Material	:	Rubber seal
Profile size	:	20 mm x 6 mm
Fixing method	:	Self-adhesive fixed along the rebate of door frame members
4. Hinge		
Manufacturer	:	JML Hardware Ltd
Type	:	Piano hinge
Material	:	Stainless steel 304
Overall blade size	:	10 mm wide x 1 mm (20swg) thick x 1315 mm long
Quantity	:	Single continuous hinge
Fixing method	:	8 no. stainless steel rivets at 100 mm centres along each blade
5. Latch		
Manufacturer	:	JML Hardware Ltd
Reference	:	Meter Box Locks
Material	:	Stainless steel 316
Quantity	:	2 no. latches fitted to the door leaf

Item		Description

Supporting Construction - supplied by Warringtonfire

Item		Description
Perimeter Sealant		
Manufacturer	:	Everbuild
Reference	:	KOS
Material	:	Fire cement
Size	:	Max. 10 mm bead
Application method	:	Cartridge gunned around the perimeter of the frame on both sides
Masonry brickwork		
Type	:	Two course
Material	:	Commons brick
Thickness	:	100 mm
Fixing method	:	Ordinary sand/cement mortar, mix 3:1
Concrete Lintel		
Type	:	Steel reinforced concrete lintel
Material	:	Steel reinforced concrete
Density	:	2400 kg/m^3
Thickness	:	355 mm
Masonry blockwork		
Type	:	Single skin
Material	:	Autoclaved aerated concrete blocks
Thickness	:	150 mm
Density	:	760 kg/m^3
Fixing method	:	Ordinary sand/cement mortar, mix 3:1
Ceramic Fibre Gasket		
Manufacturer	:	Morgan Advanced Materials
Reference	:	Superwool Plus
Material	:	High temperature insulation wool
Thickness	:	25 mm, uncompressed
Density	:	96 kg/m^3 (stated)
Fixing method	:	Compressed within the gap between the specimen and the restraint frame

Doorset clearance gaps



Doorset (mm)					
Hinge Side	Primary	Leaf to Stop	Leading Edge	Primary	Leaf to Stop
H1	9.4	0.1	L1	5.4	0.1
H2	*	0.1	L2	5.9	0.1
H3	*	0.1	L3	6.7	0.1
H4	6.1	0.1	L4	7.7	0.1
Mean	7.7		Mean	6.4	
Max	9.4		Max	7.7	
Min	6.1		Min	5.4	
Max Permitted	*10.6*		*Max Permitted*	*9.1*	
Top edge	Primary	Leaf to stop	Threshold	Primary	
T1	9.9	0.1	B1	4.7	
T2	7.5	0.1	B2	5.2	
T3	6.7	0.1	B3	5.8	
Mean	8.0		Mean	5.2	
Max	9.9		Max	5.8	
Min	6.7		Min	4.7	
Max Permitted	*11.0*		*Max Permitted*	*7.5*	

*Gap measurement not taken due to piano hinge

Test Observations

Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	
00	00	**The Test Commences.**
02	00	Steam/smoke release from the bottom, top and leading edge of specimen.
03	00	Leaf has discoloured black.
05	00	Intumescent detaching left edge.
10	00	Discolouring white.
16	00	**Cotton pad attempted mid-height left edge. Cotton pad ignited. Cotton pad integrity failure is deemed to have occurred.**
17	00	Moisture on the surface of the leaf.
17	30	Discolouring a yellowish/green colour.
21	00	Frame glowing red.
36	00	Steam/smoke release has largely ceased.
60	00	No significant visible change.
68	00	**Test discontinued at the sponsor's request.**

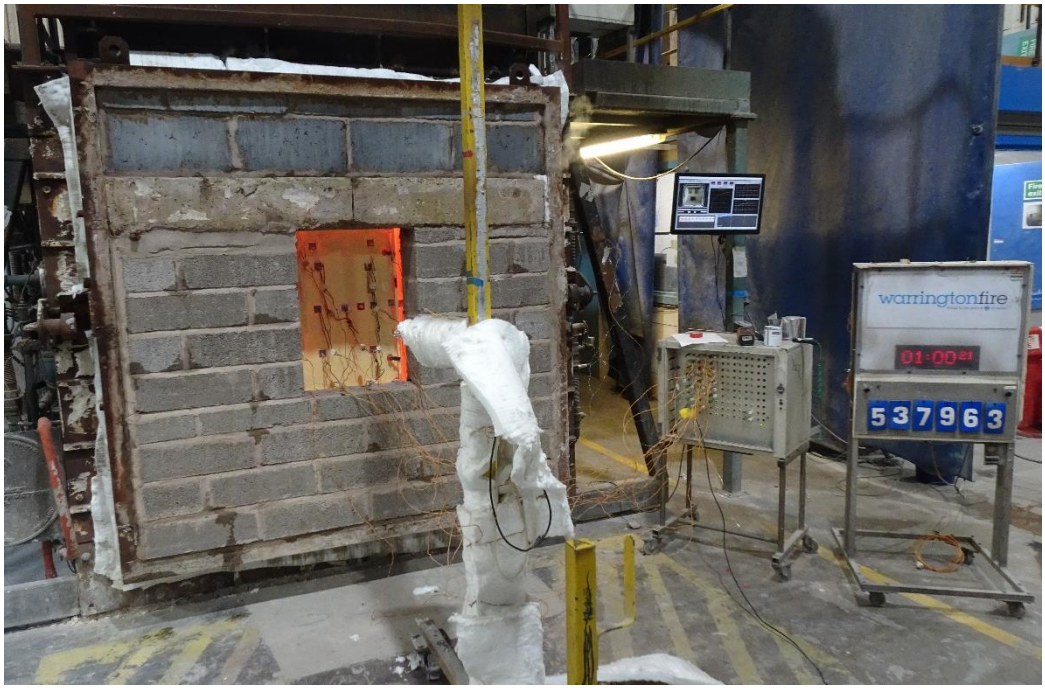
Test Photographs

The exposed face of the electrical box prior to the start of the test

The unexposed face of the electrical box prior to the start of the test

The unexposed face of the electrical box after a test duration of 30 minutes

The unexposed face of the electrical box after a test duration of 60 minutes



The exposed face of the electrical box shortly after the test

Temperature and Deflection Data

Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In BS EN 1363-1: 2020

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	20
3	502	502
6	603	603
9	663	663
12	706	706
15	739	739
18	766	766
21	789	789
24	809	809
27	826	826
30	842	842
33	856	856
36	869	869
39	881	881
42	892	892
45	902	902
48	912	912
51	921	921
54	930	930
57	938	938
60	945	945
63	953	953
66	960	960
68	964	964

Individual And Mean Temperatures Recorded On The Unexposed Surface Of The Electrical Box

Time Mins	Furnace T/C 10 Deg. C	Furnace T/C 11 Deg. C	Furnace T/C 12 Deg. C	Furnace T/C 13 Deg. C	Furnace T/C 14 Deg. C	Mean Temp Deg. C
0	21	21	20	20	20	20
1	107	108	98	80	103	99
2	248	236	139	217	271	222
3	382	370	344	372	424	378
6	503	498	489	493	524	501
9	558	553	531	560	583	557
12	600	591	570	600	625	597
15	631	620	601	637	660	630
18	658	647	625	664	682	655
21	679	670	647	687	703	677
24	697	687	665	704	717	694
27	714	702	679	719	734	710
30	729	718	695	724	747	723
33	743	733	709	747	763	739
36	754	744	720	759	773	750
39	766	756	733	772	786	763
42	776	766	743	784	797	773
45	789	778	755	795	807	785
48	799	789	762	807	817	795
51	808	801	774	819	829	806
54	816	813	779	824	834	813
57	824	824	786	831	841	821
60	833	834	793	836	849	829
63	839	840	797	840	853	834
66	844	846	802	844	857	839
68	847	851	804	848	860	842

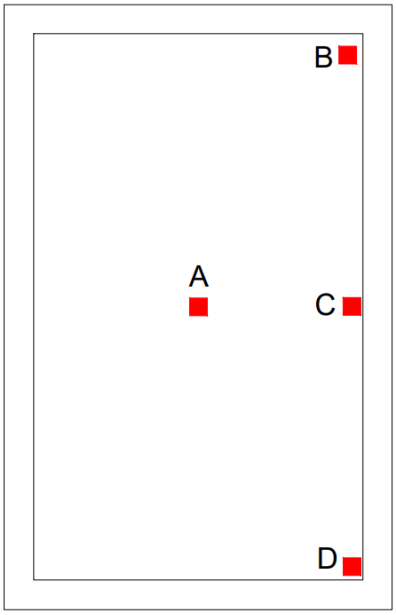
Individual Temperatures Recorded On The Electrical Box Leaf 100 mm Away From The Edges

Time Mins	Furnace T/C 15 Deg. C	Furnace T/C 16 Deg. C	Furnace T/C 17 Deg. C	Furnace T/C 18 Deg. C
0	21	22	21	21
1	105	106	97	113
2	235	222	246	267
3	371	352	394	405
6	508	488	515	523
9	570	554	568	571
12	612	597	610	610
15	647	632	643	639
18	672	660	667	665
21	692	681	686	684
24	711	698	702	698
27	729	717	714	713
30	743	732	728	728
33	757	745	740	741
36	769	757	752	753
39	782	770	764	766
42	794	781	773	777
45	812	797	785	789
48	825	813	793	798
51	835	828	807	810
54	842	835	811	820
57	848	843	819	829
60	855	849	825	840
63	859	846	824	846
66	864	841	824	852
68	867	835	826	854

Individual Temperatures Recorded On The Unexposed Surface Of The Electrical Box Frame

Time Mins	Furnace T/C 19 Deg. C	Furnace T/C 20 Deg. C	Furnace T/C 21 Deg. C	Furnace T/C 22 Deg. C
0	21	22	19	20
1	94	94	67	89
2	204	187	157	183
3	321	294	271	293
6	496	464	465	474
9	582	555	561	553
12	626	608	616	600
15	663	647	652	635
18	694	684	684	663
21	718	716	711	691
24	740	740	732	711
27	757	762	749	730
30	777	781	765	748
33	795	798	781	763
36	811	810	796	772
39	824	822	811	786
42	835	833	824	800
45	847	850	839	811
48	858	860	844	820
51	872	868	847	832
54	880	877	848	838
57	888	881	855	843
60	894	887	863	851
63	899	897	866	857
66	903	900	871	864
68	908	903	873	865

Horizontal Deflections Of The Electrical Box



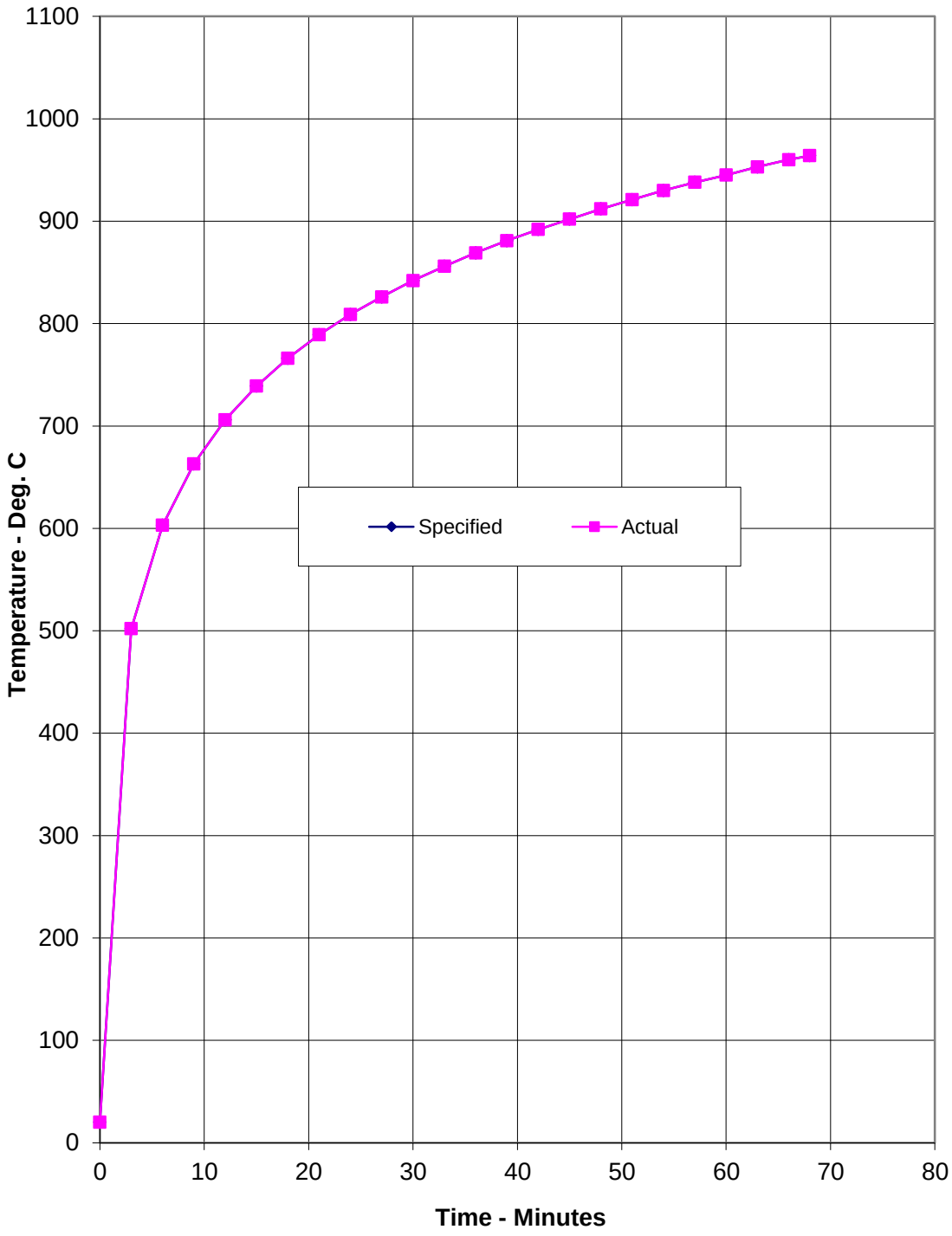
	Deflections (mm)			
Time-mins	A	B	C	D
0	0	0	0	0
10	7	0	0	-4
20	7	-8	2	-9
30	0	-1	5	-4
40	7	0	-3	3
50	10	8	1	3
60	9	43	8	35

Positive values indicate movement towards the furnace

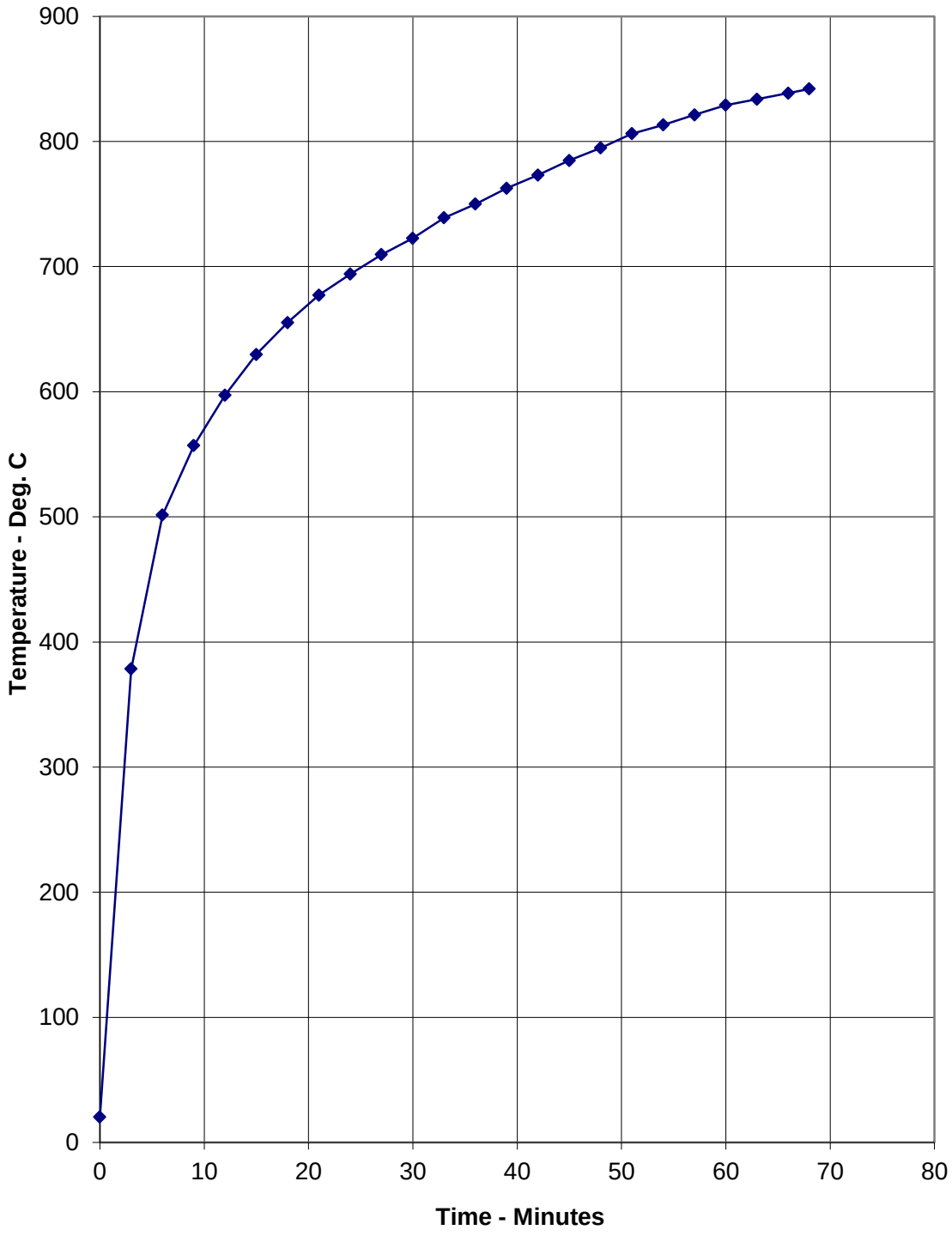
Recorded Radiation Intensity From The Electrical Box

Time Mins	Radiation Intensity kW/m^2
0	0.000
3	0.790
6	1.600
9	2.190
12	2.730
15	3.160
18	3.700
21	4.230
24	4.610
26	4.910
27	5.090
30	5.470
33	5.860
36	6.210
39	6.570
42	6.890
45	7.140
48	7.440
51	7.590
54	7.680
57	7.740
60	7.860
63	8.010
66	8.100
68	8.180

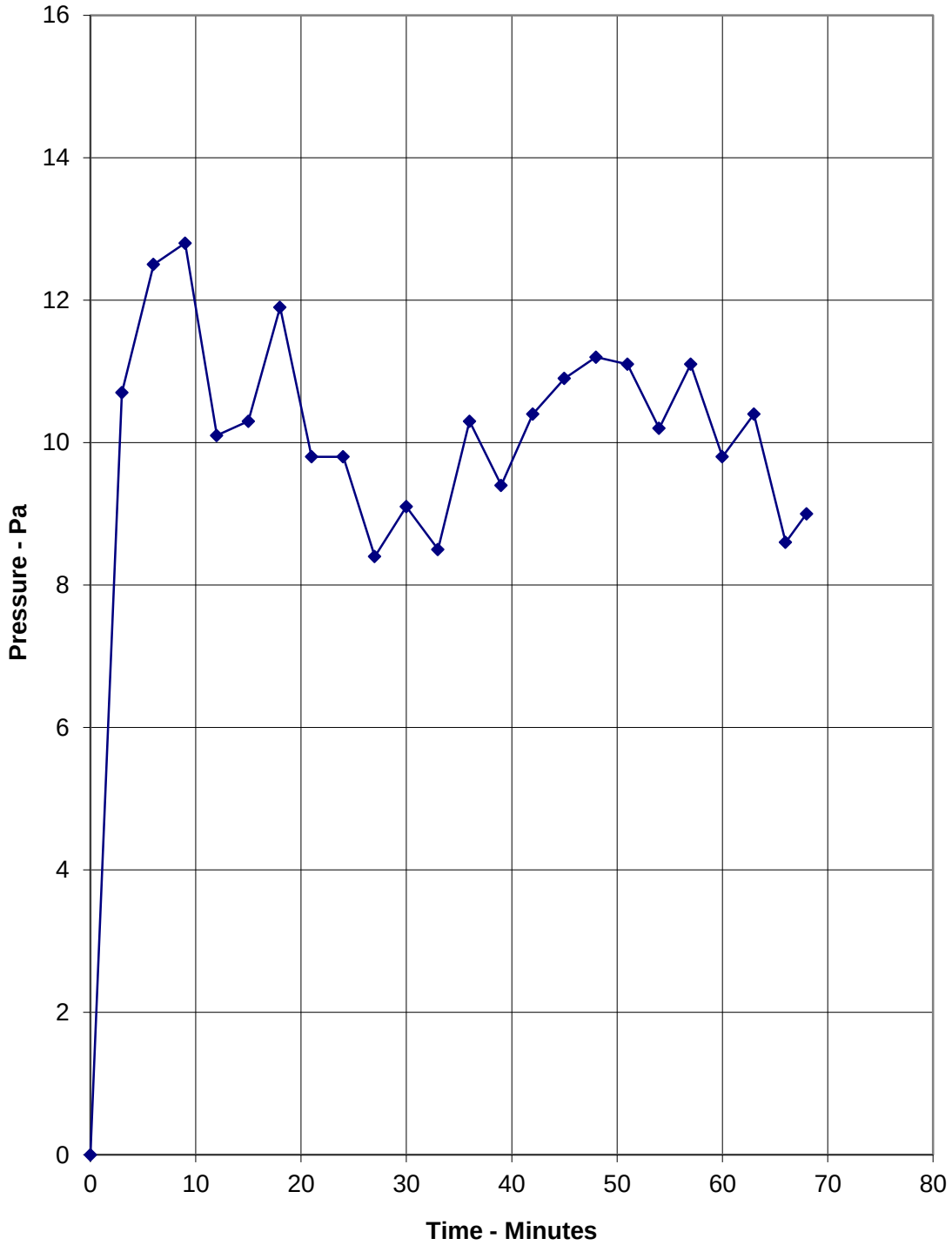
Graph Showing Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified in BS EN 1363-1: 2020



Graph Showing Mean Temperatures Recorded On The Unexposed Surface Of The Electrical Box



Graph Showing Recorded Furnace Pressure At The Head of The Electrical Box



On-going Implications

Limitations

This report details the method of construction, the test conditions and the results obtained when the specific elements of construction described herein were tested following the procedure outlined in BS EN 1363-1: 2020, and where appropriate BS EN 1363-2: 1999. Any significant deviation with respect to size, constructional details, loads, stresses, edge or end conditions other than those allowed under the field of direct application in the relevant test method is not covered by this report. Annex A of BS EN 1363-1: 2020, provides guidance information on the application of fire resistance tests and the interpretation of test data.

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

EGOLF

Certain aspects of some fire test specifications are open to different interpretations. 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

Field of Direct Application

General

The field of direct application defines the allowable changes to the test specimen following a successful fire resistance test. These variations can be applied automatically without the need for the sponsor to seek additional evaluation, calculation or approval.

Materials And Constructions, General

Unless otherwise stated in the following text, the materials and construction of the doorset or openable window shall be the same as that tested. The number of leaves and the mode of operation (e.g. sliding, single action or double action) shall not be changed.

Fixings

The number of fixings per unit length used to attach doorsets to supporting constructions may be increased, but shall not be decreased and the distance between fixings may be reduced but shall not be increased.

Building Hardware

The number of hinges and dog bolts may be increased but shall not be decreased.

NOTE 1 The number of movement restrictors such as locks and latches is not covered by direct application.

Where a doorset has been tested with a door closing device fitted, but with the retention force released in accordance with 10.1.4, the doorset may be provided either with or without that closing device, i.e. where self closing characteristics are not required.

NOTE 2 Interchange of building hardware is not covered by the field of direct application.

Permissible Size Variations

Doorsets of sizes different from those of tested specimens are permitted within certain limitations, but the variations are dependent on product type and the length of time that the performance criteria are fulfilled.

The increase and decrease of dimensions permitted by the field of direct application are applicable to the overall size and to each door leaf, each side panel and each over panel independently.

In accordance with 13.2.2.3, the dimensions (width and height) of any glass pane cannot be increased.

Test periods

The amount of variation of size permitted is dependent on whether the classification time was just reached (Category 'A') or whether an extended time (Category 'B') in accordance with the values shown in Table 1 were fulfilled before the test was concluded.

For category 'B':

Table 1 — Category B overrun requirements

Classification time (min)	All performance criteria fulfilled for at least minutes
15	18
20	24
30	36
45	52
60	68
90	100
120	132
180	196
240	260

Size variation related to product type

General

The rules to cover increase or decrease of size without additional considerations are applicable only to six main product groups:

a) hinged and pivoted doorsets and openable windows;

b) horizontally sliding and vertically sliding doorsets including sectional doorsets;

c) steel single skin folding shutters doorsets (uninsulated);

d) other sliding and folding doorsets (insulated);

e) rolling shutter doorsets;

f) openable fabric curtains.

No increases in size are permitted for doorsets which are required to satisfy radiation control levels unless the insulation criteria are also satisfied. This is because any increase in size will increase the radiation received at a fixed distance away from the door. There are calculation methods which can be used to determine acceptable size increases for such doors; however, these are beyond the scope of direct application. Doors that satisfy both the radiation control levels and insulation criteria may have their sizes increased as outlined in Annex B. This is accepted because the increase in radiation resulting from a size increase allowed under this section, for an insulated door, will be such that it will still satisfy the required radiation control levels. Size decreases are permitted for both doors which satisfy radiation control levels and those which satisfy insulation criteria and radiation control levels.

Permissible variations for each product group are detailed in Annex B which also contains some examples relating to hinged/pivoted doorsets.

Size increases for doorsets which do not fall into one of the six groups given above are the subject of extended application.

Hinged and pivoted doorsets and openable windows

For Category 'A' tests with no overrun of classification period, no increase is allowed. Unlimited reductions from the tested specimen are permitted with the exception of insulated metal doors where the size reduction is limited.

For Category 'B' tests (with specified overrun of classification period) all smaller sizes are permitted and increases in height and width are permitted as stated in Annex B.

Other changes

For smaller doorset sizes the relative positioning of movement restrictors (e.g. hinges and latches) shall remain the same as tested or any change to the distances between them will be limited to the same percentage reduction as the decrease of test specimen size.

For larger doorset sizes the following shall also apply:

a) the height of the latch above floor level shall be equal to or greater than the tested height, and such increase in height shall be at least proportional to the increase in door height;

b) the distance of the top hinge from the top of door leaf shall be equal to or less than that tested;

c) the distance of the bottom hinge from bottom of door leaf shall be equal to or less than that tested;

d) where three hinges or distortion preventers are used, the distance between the bottom of the door leaf and centre restraint shall be equal to or greater than that tested.

Gaps

The maximum size of the primary gaps identified in 7.3 is restricted to the following sizes in practice:

$$x = (a + b)/2 + 2 \text{ mm}$$

where

x is the maximum permitted gap size;

a is the maximum measured gap size;

b is the mean measured gap size.

The minimum size of the primary gaps may be reduced.

The permitted gap size may be different for different parts of the door or window.

Asymmetrical assemblies

EN 1363-1 states that for separating elements required to be fire resisting from both sides, two test specimens shall be tested (one from each direction) unless the element is fully symmetrical, i.e. the construction of the doorset is identical on both sides of the centre line when viewed in plan (from above). However, in some cases it is possible to develop rules whereby the fire resistance of an asymmetrical door assembly tested in one direction can apply when the fire exposure is from the other direction. The possibility to develop such rules increases if the consideration is limited to certain types of door assembly and on the criteria being applicable (e.g. integrity only doors). The following rules represent the minimum level of common agreement which shall be followed. The rationale behind the rules is given in Annex C.

Specific Rules

The rules governing the applicability of tests carried out in one direction to other directions are given in Table 2 and are based on the following premises:

— that each of the door leaves are themselves of symmetrical construction with the exception of the edges (e.g. lock/leading edge and hinge edge or double rebated doors);

— that any restraining/supporting elements of building hardware has been included in a test to EN 1634-1 when exposed in both directions so that they will retain their function when exposed to the heat of the test;

— that there is no change in the number of leaves or the mode of operation (e.g. sliding, swinging, single action or double action);

— that side, over and transom panels are excluded from Table 2 unless they are fully symmetrical.

Table 2 lists the type of door assembly for which rules can be generated and gives the direction in which it should be tested to cover the opposite direction. The separate columns for the integrity and insulation criteria reflect the different ability to make rules for integrity only doors as opposed to those which satisfy both criteria. A 'Yes' means that it is possible to identify the direction of test which covers the opposite direction. A 'No' indicates that it is not possible to identify the direction which will cover the opposite direction.

Table 2 — Type of doorset and direction to be tested to cover the opposite direction

Type of doorset	Direction to be tested to cover opposite direction	Integrity	Insulation	Radiation
Hinged or pivoted, timber leaf, timber frame	Opening into the furnace	yes	yes	yes
Hinged or pivoted, timber leaf, metal frame (no transom)	Opening into the furnace	yes	no	yes
Hinged, metal leaf, metal frame (not pivoted)	Opening away from Furnace	yes	no	yes
Rolling shutter	Barrel and supporting components fixed on the face of the supporting wall on the fire side	yes	no	no
Sliding/folding	Sliding/folding supporting components fixed on the face of the supporting wall on the fire side	yes	no	no
Operable fabric curtains	Not possible to define a scenario			
[a] This only applies to doors without insulation in the core and with a movement restrictor at approximately mid-height on the hinge side.				

Supporting Constructions

The fire resistance of a door assembly tested in one form of standard supporting construction may or may not apply when it is mounted in other types of construction. Generally, the rigid and flexible types are not interchangeable and rules governing the direct application within each group are given in 13.5.2 to 13.5.4. However, in some cases it is possible for the result of a test on a particular type of door assembly tested in one form of standard supporting construction to be applicable to that door assembly when mounted in a different type of standard supporting construction. Specific rules governing the situation for hinged and pivoted door assemblies are given in 13.5.4. The rationale behind the rules is given in Annex C.

Rigid standard supporting constructions (high or low density)

The fire resistance of a doorset tested in a high or low density rigid standard supporting construction as specified in EN 1363-1 can be applied to a doorset mounted in the same manner in a wall provided the density and the thickness of the wall are equal to or greater than that in which the doorset was tested.

Specific rules for hinged or pivoted doorsets

a) For timber door leaves hung in timber frames, the result of a test in a rigid standard supporting construction is applicable to that door assembly mounted in a flexible construction.

b) For timber door leaves hung in timber frames, the result of a test in a flexible standard supporting construction is applicable to that door assembly mounted in a rigid construction.

c) For timber door leaves hung in metal frames, the result of a test in a flexible standard supporting construction is applicable to that door assembly mounted in a rigid construction but not vice versa.

d) For insulated metal door leaves hung in metal frames, there is no applicability of results in rigid standard supporting construction to flexible constructions or vice versa; to cover rigid and flexible types, tests shall be undertaken in each type of standard supporting construction.

e) For uninsulated metal doors, the result of a test in a rigid standard supporting construction is applicable to that door assembly mounted in a flexible construction, but not vice versa.

The rules above assume that the fixing methods used in each type of supporting construction are appropriate to that construction. Thus for example in a), the test on the timber door leaf in a timber frame will have been carried out with appropriate fixings for timber frames in rigid constructions. The result is applicable to a timber door leaf in a timber frame mounted into a flexible construction with appropriate fixings for timber frames in flexible constructions.