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Testing. Advising. Assuring.

**Title:**

Fire Resistance Test Generally  
In Accordance With BS EN  
1634-1: 2014 On Specimens Of  
Floor Mounted Access Hatches

**Report No:**

390808



**Prepared for:**

**Panel Technologies**

49-61 Jodrell Street,  
Nuneaton,  
Warwickshire,  
England,  
CV11 5EG

**Date:** 3<sup>rd</sup> May 2018

**Notified Body No:**

0833



0249

# Summary

**Objective** To determine the fire resistance performance of specimens of floor mounted access hatch, when tested generally in accordance with BS EN 1634-1: 2014.

**Sponsor** **Panel Technologies**

49-61 Jodrell Street,  
Nuneaton,  
Warwickshire,  
England,  
CV11 5EG

**Summary of Tested Specimen**

The test assembly consisted of floor mounted specimens.

The assembly was nominally 3000 mm wide by 4000 mm long. It consisted of a steel stud framework which was clad on one face with two layers of 10 mm thick Glasroc F Multiboard.

The Access hatches were installed into an aperture within the assembly and each of dimensions 600 mm by 600 mm wide, Specimen A and 300 mm by 300 mm Specimen B.

The specimens were fitted to the they were fitted into the aperture and retained via 'flip fix' catches with the leaf opening towards the heating conditions.

If the specimen was judged against the criteria for integrity and insulation in accordance with BS EN 1634-1: 2014, then the results would be as follows:

<b>Test Results:</b>	<b>Specimen A</b>	<b>Specimen B</b>
Sustained flaming	66 Minutes*	66 Minutes*
Gap gauge	65 Minutes	66 Minutes*
Cotton Pad	10 Minutes	13 Minutes*
<b>Insulation</b>	1 Minutes	2 Minutes

\*The test duration. The test was discontinued after 66 minutes.

**Date of Test** 3<sup>rd</sup> February 2018

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# Signatories

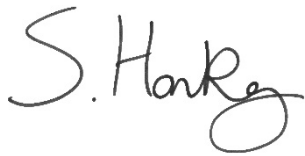
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Responsible Officer  
**N. Howard\***  
Technical Officer



Approved  
**S. Gilfedder\***  
Certification Engineer



Head of Department  
**S. Hankey\***  
Business Unit Head – Fire Resistance

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

Report Issued

Date : 3<sup>rd</sup> May 2018

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# Test Procedure

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## Introduction

The access panel doorsets are required to provide a fire separating function and were therefore tested using the principals of BS EN 1634-1: 2014 'Fire resistance tests for doors and shutter assemblies - Part 1: Fire doors and shutters'. This test report should be read in conjunction with that Standard and with BS EN 1363-1: 2012, 'Fire resistance tests - Part 1: General requirements' and BS EN 1363-2: 1999, 'Fire resistance tests - Part 2: Alternative and additional procedures'.

The specimens were judged on their ability to generally comply with the performance criteria for integrity and insulation, as required by BS EN 1634-1: 2014.

The standard only covers vertical elements but the test that was conducted using the same principles applied to a horizontally mounted specimen.

## 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 3<sup>rd</sup> February 2018 at the request of **Panel Technologies** the test sponsor.

Mr. and Mrs. D. Blenkinsopp, representatives of the test sponsor witnessed the test.

## Test Specimen Construction

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

## Installation

The access panels were mounted within apertures in a plasterboard ceiling such that the leaves opened towards the heating conditions of the test. A representative of **Exova Warringtonfire** conducted the installation of the floor assembly between the 29<sup>th</sup> January 2018 and the 2<sup>nd</sup> February 2018.

## Sampling

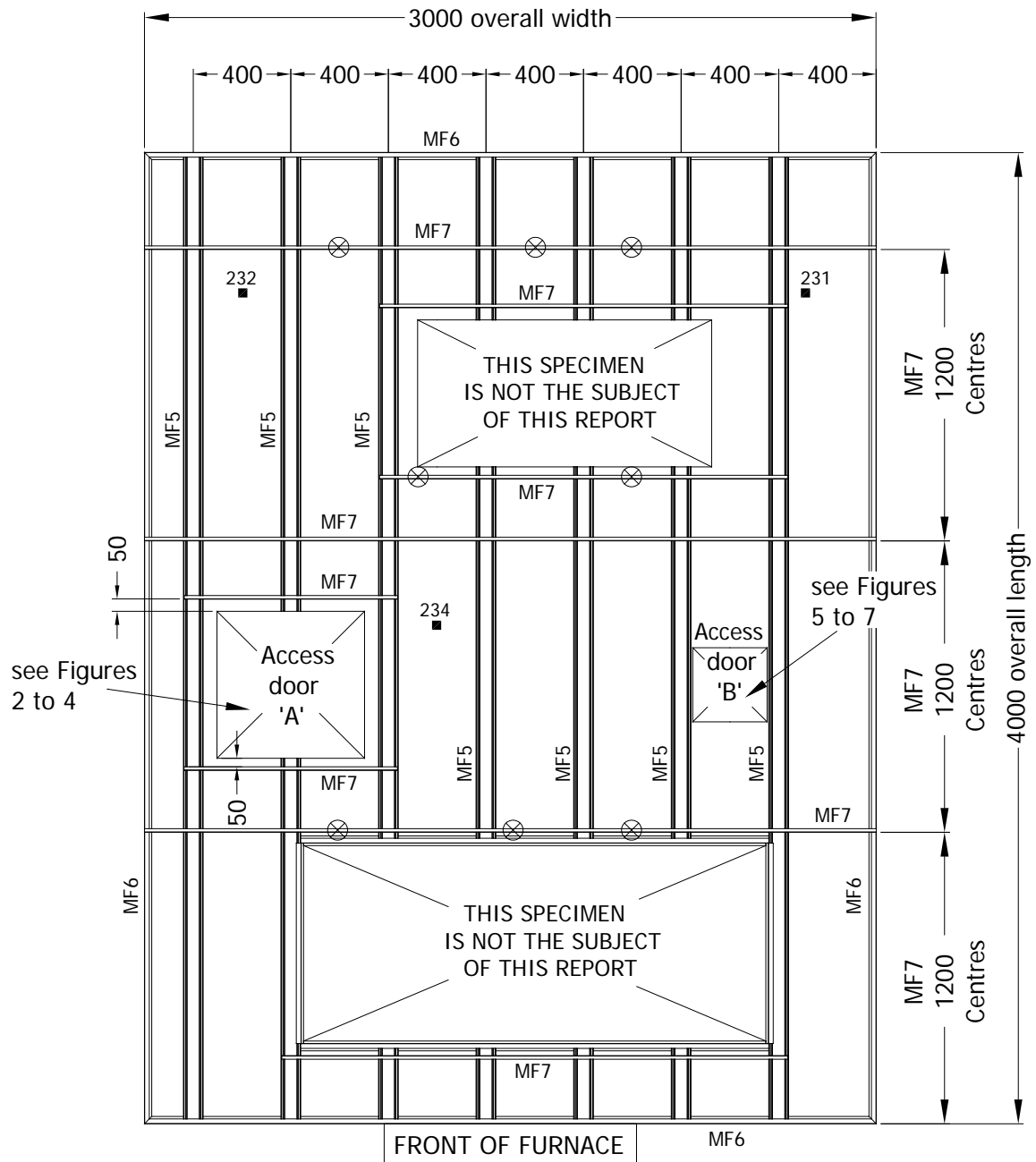
**Exova Warringtonfire** was not involved in the sampling or selection of the tested specimen or any of the components.

## Conditioning

The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of 7 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 14°C to 20°C and 46% to 81% respectively.

# Test Specimen

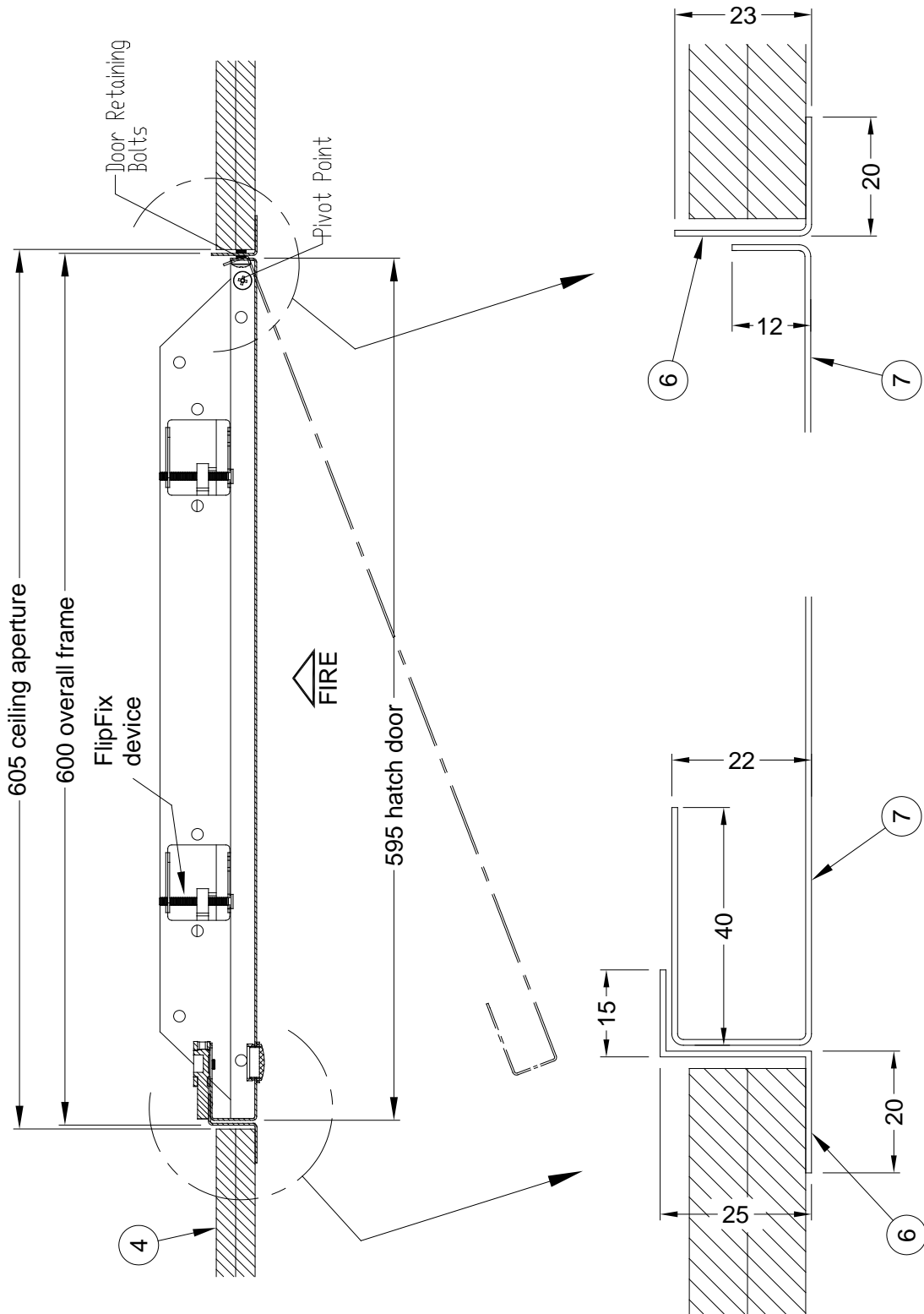
Figure 1- General plan view of ceiling assembly



- Positions of surface mounted thermocouples on unexposed face of ceiling board (Nos.231,232 & 234) (see also Figures 4 and 7 for thermocouple positions)
- ⊗ Positions of ceiling support hangers

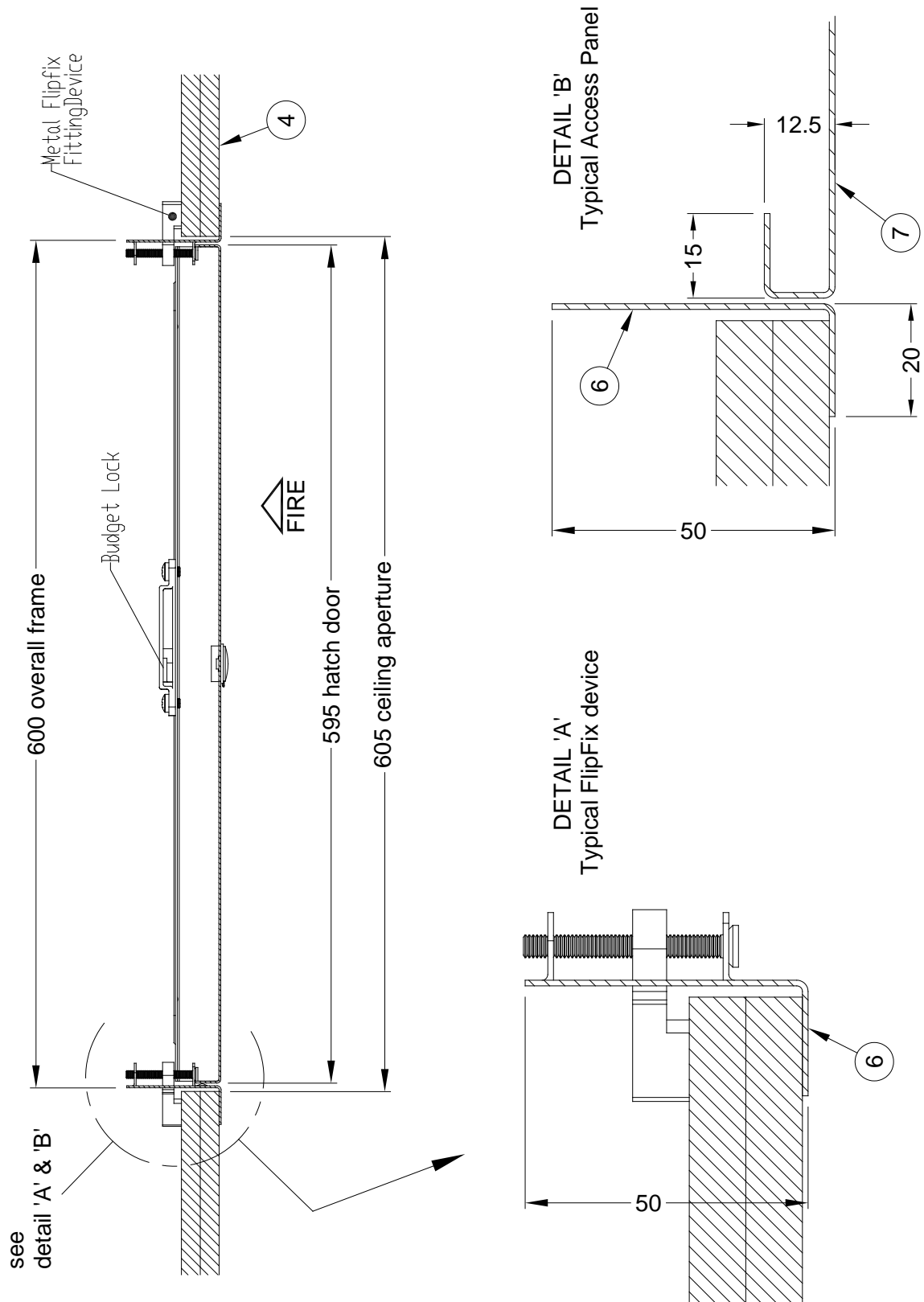
Do not scale. All dimensions are in mm

Figure 2 – Details of Access Panel 'A'



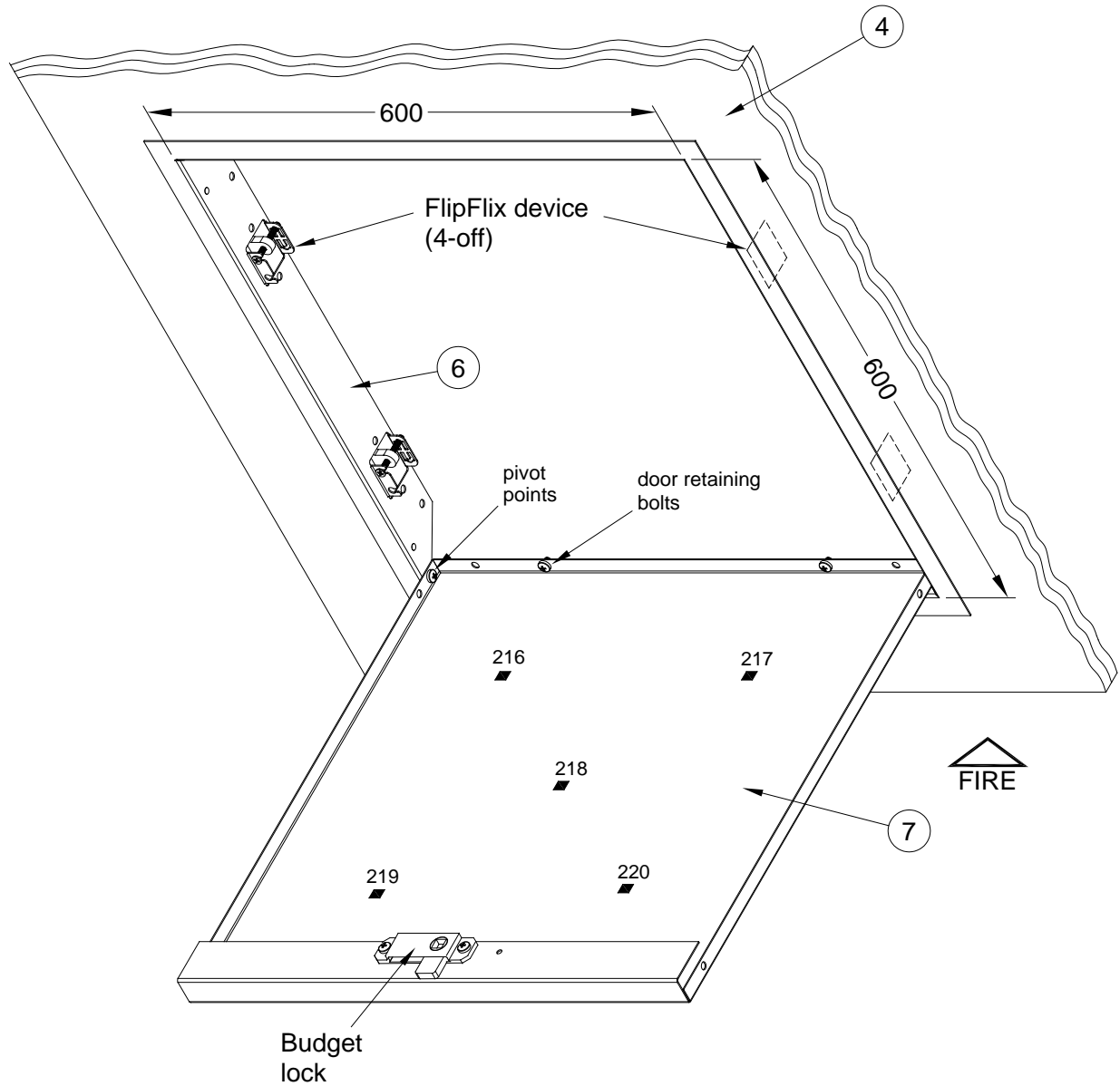
Do not scale. All dimensions are in mm

**Figure 3 – Details of Access Panel 'A'**



Do not scale. All dimensions are in mm

**Figure 4 – Details of Access Panel 'A'**

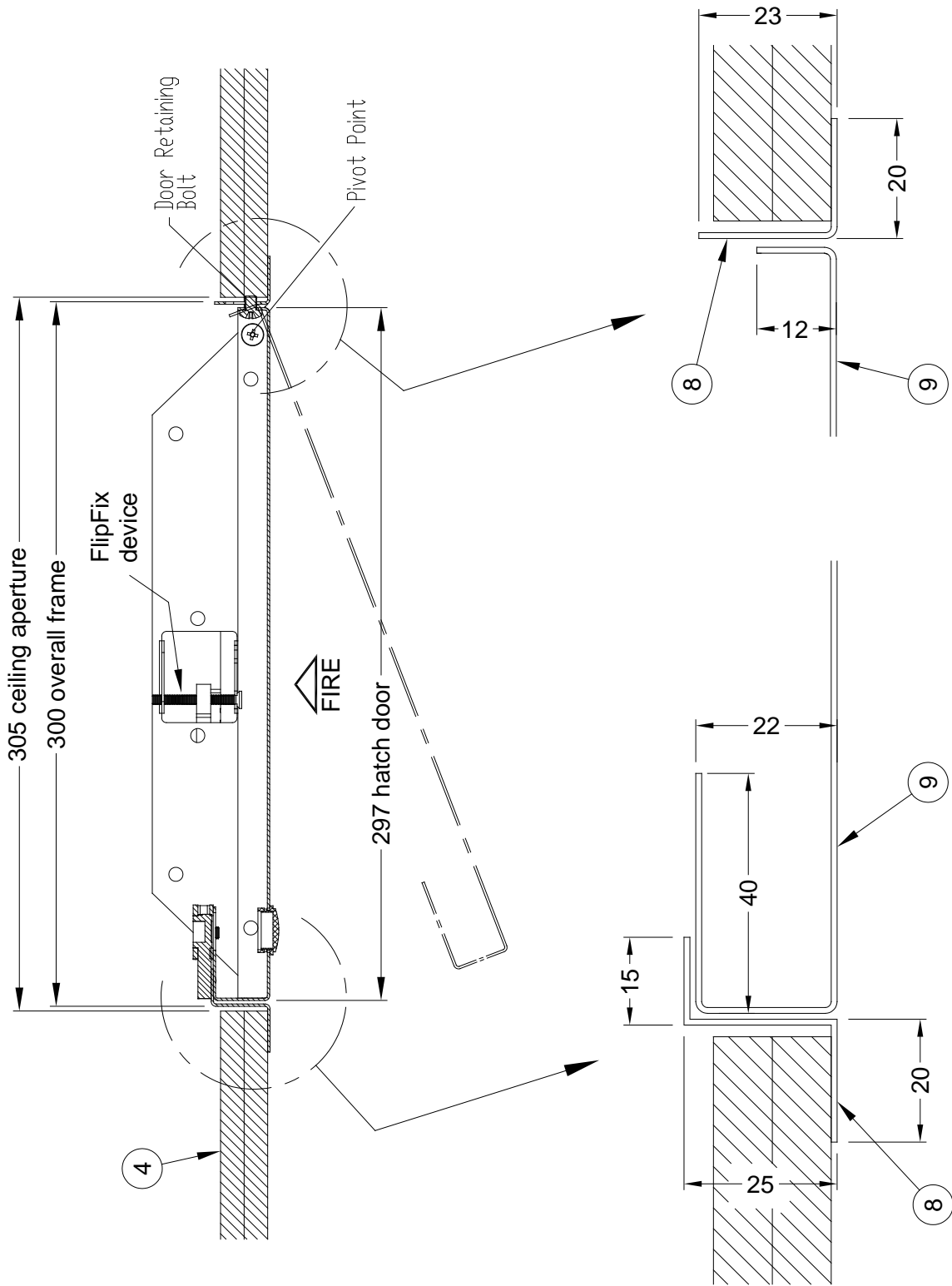


- Positions of surface mounted thermocouples on unexposed face of access door panel (nos.216 to 220)

**ISOMETRIC VIEW OF ACCESS PANEL 'A' WITHIN CEILING ASSEMBLY  
(access panel shown open for clarity)**

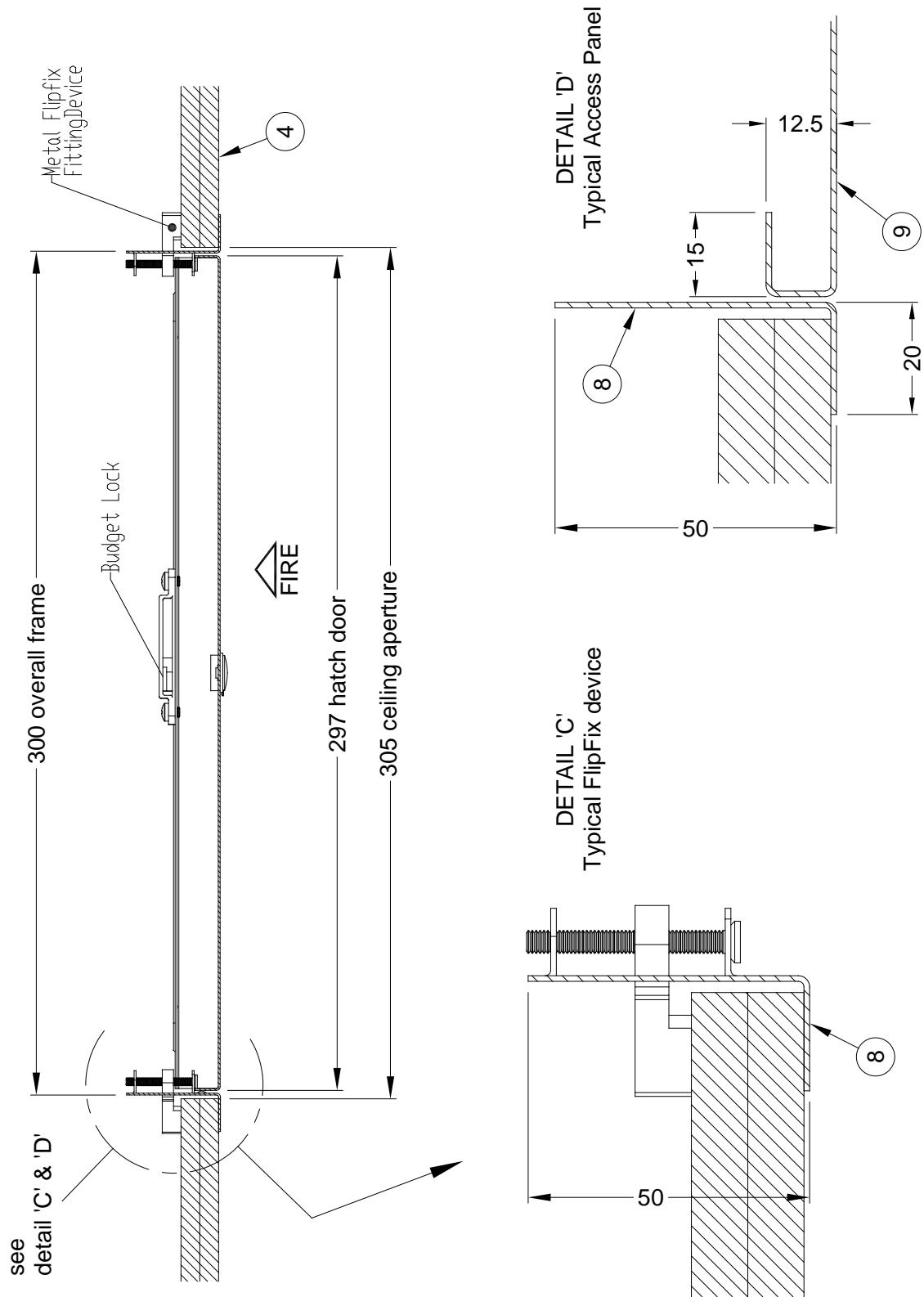
Do not scale. All dimensions are in mm

**Figure 5 – Details of Access Panel 'B'**



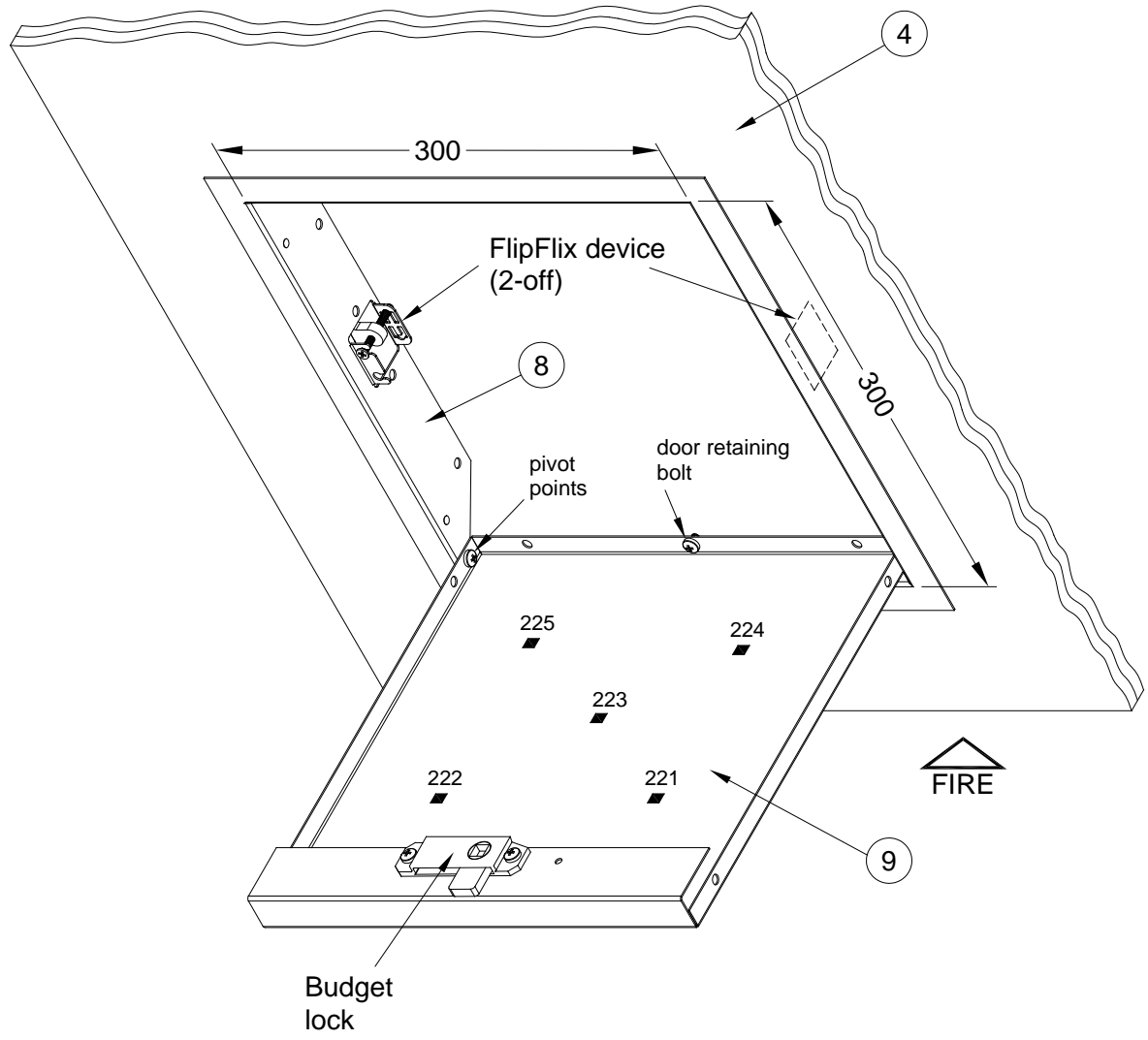
Do not scale. All dimensions are in mm

Figure 6 – Details of Access Panel 'B'



Do not scale. All dimensions are in mm

**Figure 7 – Details of Access Panel 'B'**

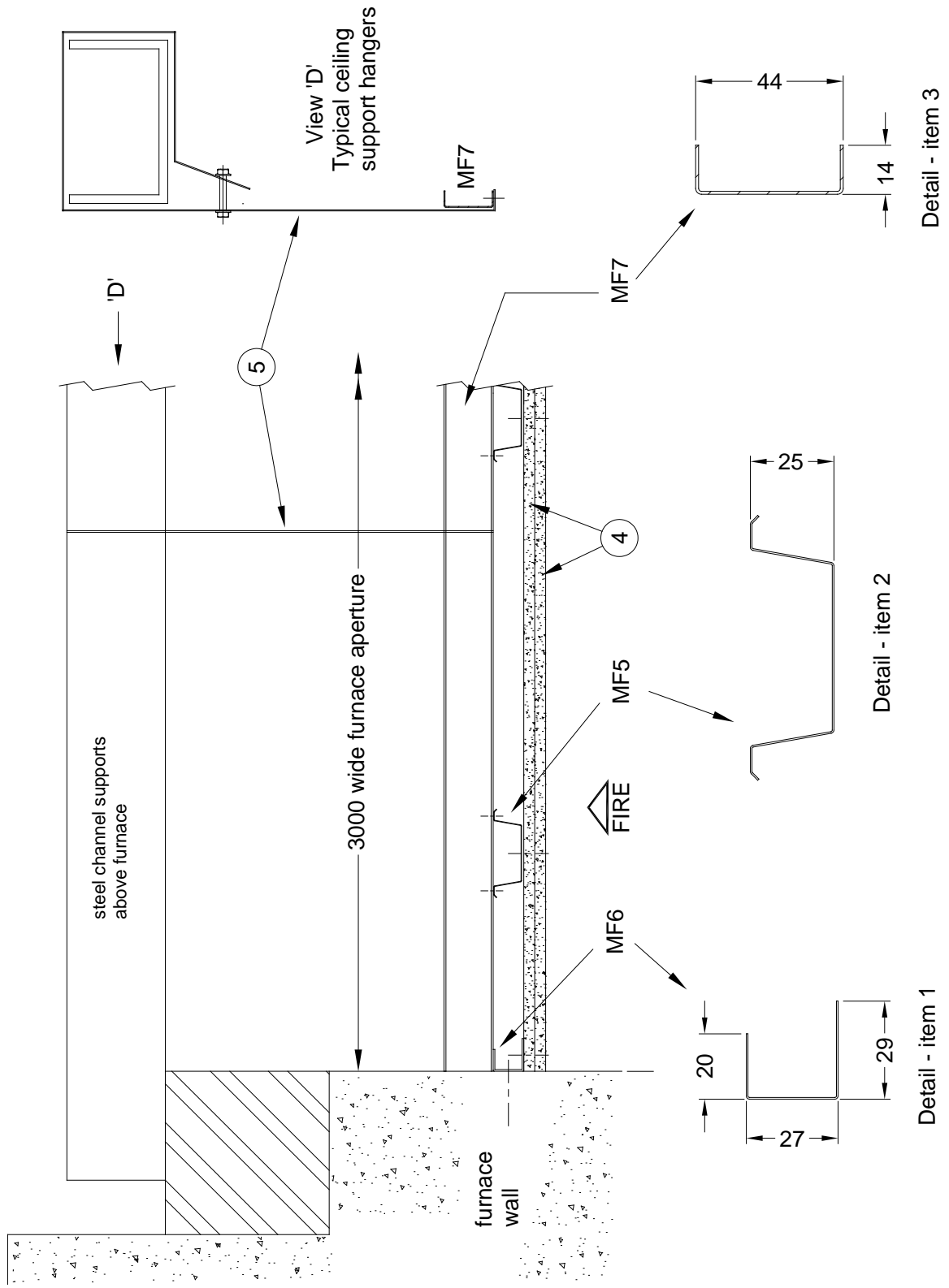


- Positions of surface mounted thermocouples on unexposed face of access door panel (nos.221 to 225)

**ISOMETRIC VIEW OF ACCESS PANEL 'B' WITHIN CEILING ASSEMBLY  
(access panel shown open for clarity)**

Do not scale. All dimensions are in mm

Figure 8 – Typical details of suspended ceiling



Do not scale. All dimensions are in mm

# Schedule of Components

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(Refer to Figures 1 to 8)  
(All values are nominal unless stated otherwise)  
(All other details are as stated by the sponsor)

<u>Item</u>	<u>Description</u>
<b>British Gypsum suspended ceiling configuration G100038 (comprising items 1 to 5)</b>	
<b>1. Ceiling perimeter channel</b>	
Reference	: Gypframe MF6
Material	: Galvanised mild steel formed channel
Thickness	: 0.6 mm
Overall section size	: See Figure 8
Fixing method	: Fixed to the concrete lining of the specimen restraint frame using 7.5 mm diameter x 40 mm long Multi-Fix masonry screws at 600 mm centres.
<b>2. Ceiling secondary support sections</b>	
Reference	: Gypframe MF5
Material	: Galvanised mild steel section
Thickness	: 0.6 mm
Overall section size	: See Figure 8
Fixing method	: Sections were fitted longitudinally at 400 mm centres, with each end fitted within the perimeter channel. Sections were also fixed to the primary support channels (see item 3).
<b>3. Ceiling primary support channel</b>	
Reference	: Gypframe MF7
Material	: Galvanised mild steel formed channel
Thickness	: 1.2 mm
Overall section size	: See Figure 8
Fixing method	: Primary sections fitted laterally across the ceiling on top of the longitudinally fitted secondary sections (item 2) at positions shown on Figure 1. Both sections fixed together at each intersection using 2 no. 13 mm Gyproc 13 mm wafer head jack-point steel screws.
<b>4. Ceiling boards</b>	
Reference	: Glasroc F Multiboard
Material	: Glass-reinforced gypsum plasterboard
Thickness	: 2 no. layers, each layer 10 mm thick
Supplied board size	: 1200 mm x 2400 mm
Density	: 1007 kg/m <sup>3</sup> (stated)
Fixing method	: Gyproc drywall screws at 150 mm centres along the perimeter MF6 channels (item 1) and along the MF5 sections (item 2). 25 mm long screws for first layer boards and 40 mm long screws for the second layer. Board joints of each layer were staggered with respect to each other.

## 5. Ceiling support hangers

Type	:	Metal fixing band
Reference	:	Simpson Strong Tie FB20A
Fixing method	:	Upper end of the band was secured by being strapped around steel support channels which were installed above the ceiling assembly for the purpose of the test. The lower end of the band was screw fixed to the MF7 primary support channel using a single 13 mm wafer head jack-point steel screw. See Figure 8.
Quantity	:	For positions of the hangers, see Figure 1.

## Access panel assembly 'A' (consisting of items 6 & 7)

### 6. Mounting frame

Material	:	Zinc mild steel, powder coated finish
Thickness	:	0.9 mm steel
Frame size	:	600 mm x 600 mm
Fixing method	:	Clamped within the opening in the ceiling plasterboard panels using 4 no. metal FLipFix devices.

### 7. Door panel

Material	:	Zinc mild steel, powder coated finish
Thickness	:	0.9 mm steel

## Access panel assembly 'B' (consisting of items 8 & 9)

### 8. Mounting frame

Material	:	Zinc mild steel, powder coated finish
Thickness	:	0.9 mm steel
Frame size	:	300 mm x 300 mm
Fixing method	:	Clamped within the opening in the ceiling plasterboard panels using 2 no. metal FLipFix devices.

### 9. Door panel

Material	:	Zinc mild steel, powder coated finish
Thickness	:	0.9 mm steel

# Instrumentation

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<b>General</b>	The instrumentation was provided in accordance with the requirements of the Standard.
<b>Furnace</b>	The furnace was controlled so that its mean temperature complied with the requirements of BS EN 1363-1: 2012 Clause 5.1 using eight plate thermometers, distributed over a plane 100 mm from the surface of the test constructions.
<b>Thermocouple Allocation</b>	<p>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.</p> <p>The locations and reference numbers of the various unexposed surface thermocouples are shown in Figures 4 and 7.</p>
<b>Roving Thermocouple</b>	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.
<b>Integrity Criteria</b>	Cotton pads and gap gauges were available to evaluate the integrity of the specimen.
<b>Furnace Pressure</b>	After the first five minutes of testing, the furnace pressure was controlled to maintain a slightly positive pressure relative to the pressure of the laboratory. The furnace atmospheric pressure was measured and controlled such that, 100 mm below the soffit of the specimen assembly, the differential pressure was calculated to be 20 (+0 -3) Pa.

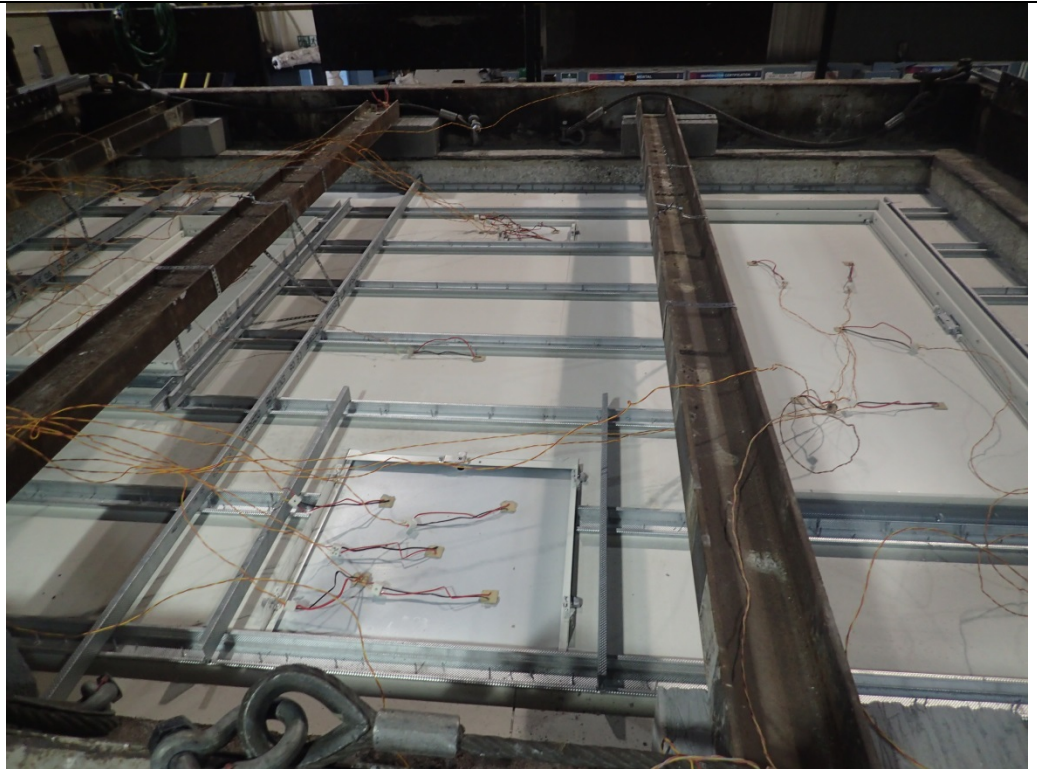
# Test Observations

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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 20°C at the start of the test with a maximum variation of 1°C during the test.
00	00	The test commences.
01	00	Specimen B begins to discolour.
02	00	Smoke release from Specimens A and B is evident.
10	00	A cotton pad integrity test is performed over the leaf of Specimen A. The pad ignites. <b>Cotton pad integrity failure is deemed to occur.</b>
13	00	A cotton pad integrity test is performed over the leaf of Specimen B. The pad ignites. <b>Cotton pad integrity failure is deemed to occur.</b>
28	30	Viewed from the exposed face: Specimens A & B are flat to the ceiling,
30	00	Specimens A & B continue to satisfy the integrity criteria.
45	00	Viewed from the exposed face: the first layer of board detaches from the ceiling creating gaps onto the second layer.
60	00	Specimens A & B satisfy the test criteria apart from cotton pad.
65	00	Specimen A fails gap gauge along the right leading edge.
66	00	<b>Test Discontinued.</b>

## Test Photographs

The unexposed face of the assembly during the test



The unexposed face of the assembly during the test



# Temperature 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	32
2	445	442
4	544	545
6	603	541
8	646	663
10	678	692
12	706	706
14	728	718
16	748	753
18	766	775
20	781	788
22	796	802
24	809	813
26	820	824
28	832	830
30	842	840
32	852	848
34	860	857
36	869	872
38	877	881
40	885	888
42	892	896
44	899	903
46	906	909
48	912	916
50	918	923
52	924	929
54	930	935
56	935	939
58	940	943
60	945	948
62	950	953
64	955	957
66	960	961

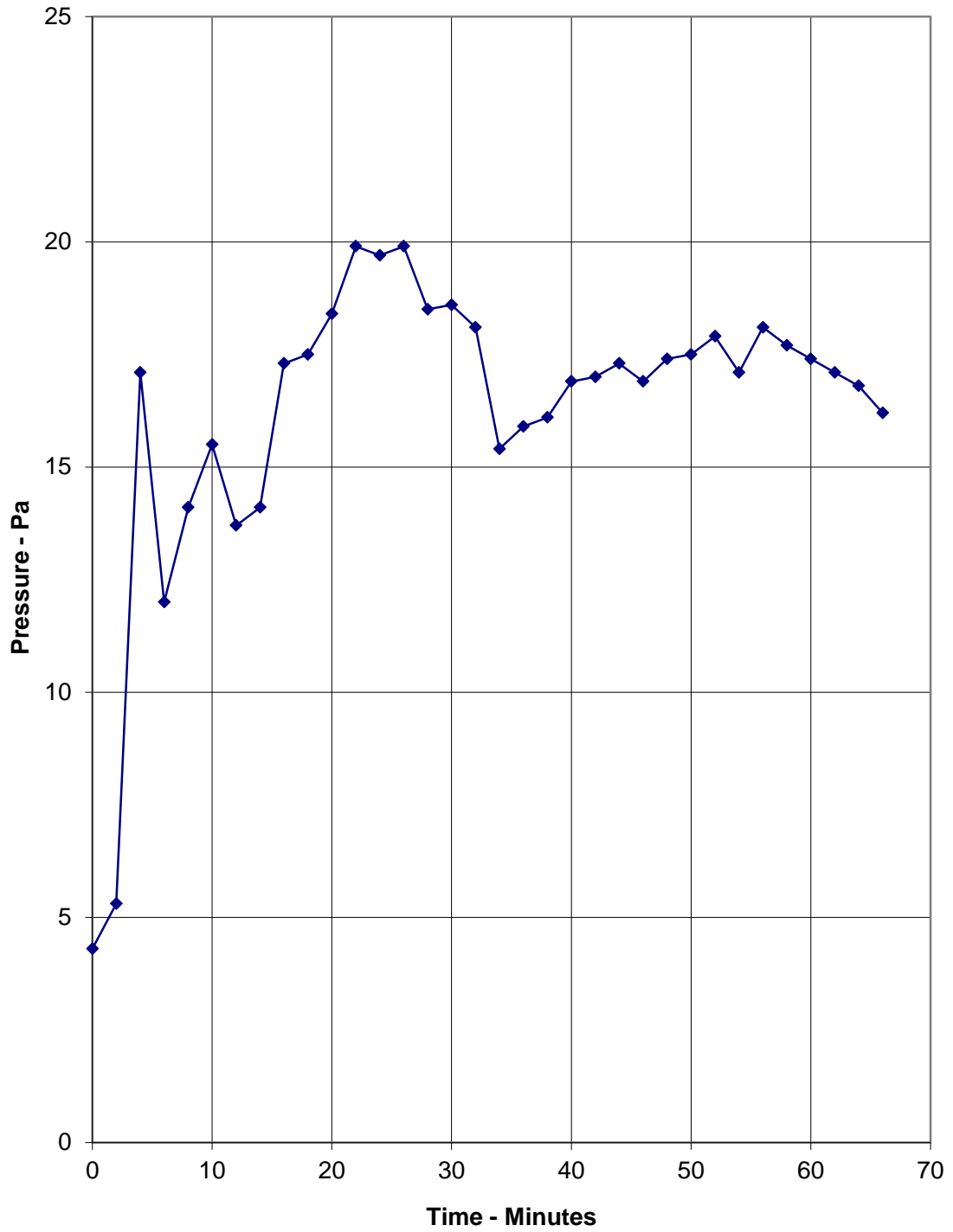
**Individual And Mean Temperatures Recorded On The Unexposed Surface Of Access Hatch A**

Time Mins	T/C Number 216 Deg. C	T/C Number 217 Deg. C	T/C Number 218 Deg. C	T/C Number 219 Deg. C	T/C Number 220 Deg. C	Mean Temp Deg. C
0	34	35	35	36	37	35
2	350	370	372	382	388	372
4	469	483	499	505	509	493
6	463	468	484	490	481	477
8	488	495	506	523	502	503
10	528	540	545	555	539	541
12	539	549	554	564	545	550
14	548	557	562	573	555	559
16	566	576	582	600	580	581
18	574	579	585	610	581	586
20	591	594	602	628	597	602
22	606	604	615	641	607	615
24	620	620	629	654	619	628
26	630	629	639	664	628	638
28	642	642	648	672	636	648
30	652	652	658	680	642	657
32	660	657	665	689	650	664
34	669	664	674	697	649	671
36	686	682	691	712	660	686
38	696	690	700	712	665	693
40	702	700	707	716	673	700
42	713	711	718	723	678	709
44	716	713	724	725	680	712
46	724	725	731	730	690	720
48	732	732	744	742	707	731
50	744	743	753	752	460	690
52	750	750	761	754	441	691
54	760	757	772	764	466	704
56	766	762	781	771	457	707
58	773	767	787	776	478	716
60	778	771	794	782	463	718
62	789	775	801	789	487	728
64	794	785	809	800	508	739
66	804	788	815	807	507	744

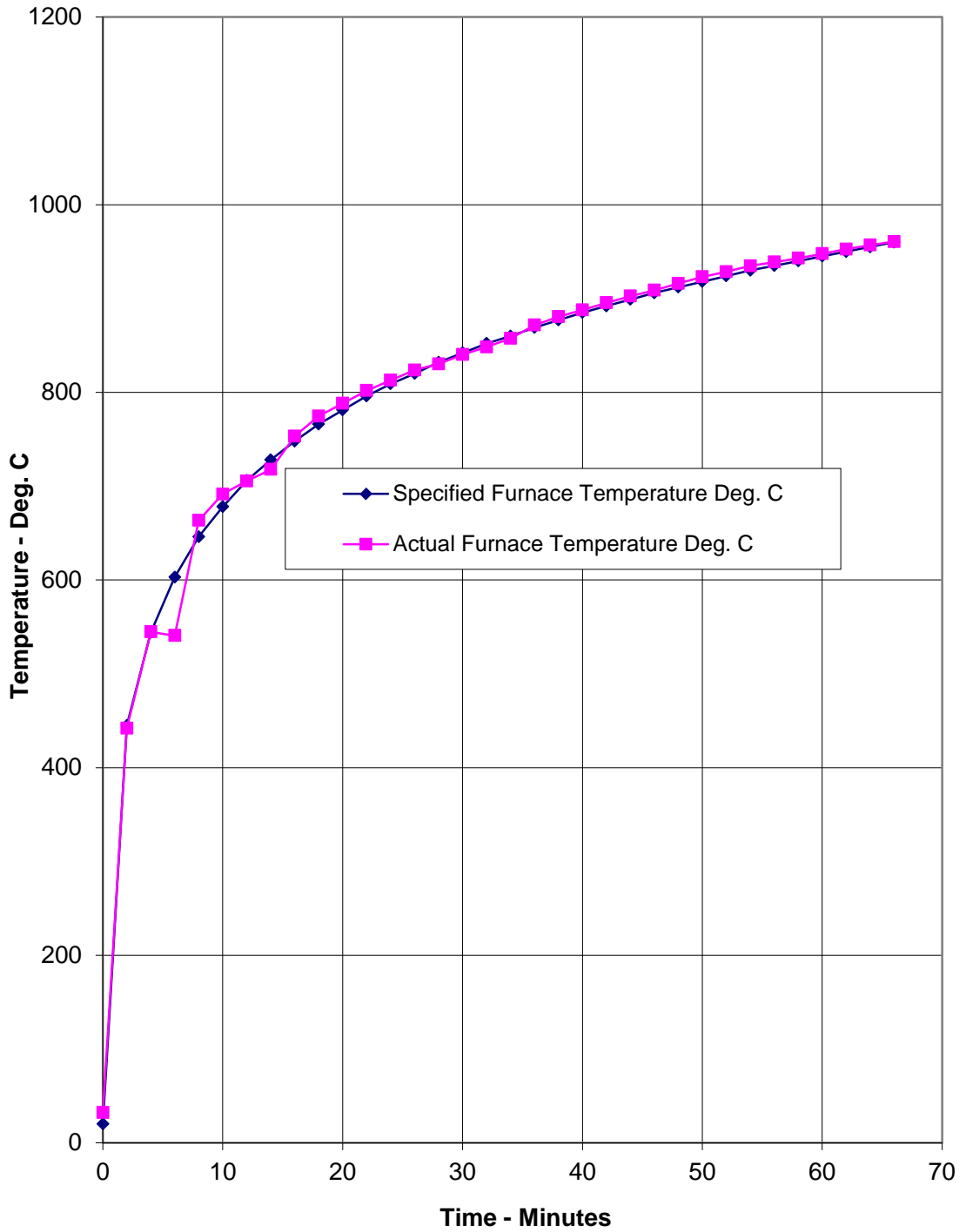
**Individual Temperatures Recorded On The Unexposed Surface Of Access Hatch B**

Time Mins	T/C Number 221 Deg. C	T/C Number 222 Deg. C	T/C Number 223 Deg. C	T/C Number 224 Deg. C	T/C Number 225 Deg. C	Mean Temp Deg. C
0	31	29	32	30	30	30
2	47	187	141	176	129	136
4	35	259	236	259	230	204
6	38	292	280	331	269	242
8	40	306	310	325	291	254
10	41	352	417	374	361	309
12	43	382	394	362	360	308
14	45	380	394	384	361	313
16	50	397	426	419	390	336
18	51	405	418	443	403	344
20	54	419	430	446	413	352
22	57	425	454	448	426	362
24	59	436	482	471	437	377
26	60	437	482	486	442	381
28	60	440	495	485	444	385
30	64	450	514	503	460	398
32	66	446	512	494	453	394
34	68	442	538	495	470	403
36	70	442	561	500	485	412
38	84	453	559	521	492	422
40	95	440	518	527	473	411
42	111	456	551	538	485	428
44	117	483	568	542	517	445
46	116	475	553	546	509	440
48	122	483	569	554	514	448
50	128	480	578	560	517	453
52	132	508	590	567	536	467
54	133	511	601	577	535	471
56	135	514	601	569	545	473
58	138	545	639	581	554	491
60	142	556	643	594	555	498
62	140	551	641	608	567	501
64	142	556	652	615	574	508
66	144	566	650	612	568	508

**Recorded Furnace Pressure 100 mm Below The Assembly**



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



# Performance Criteria and Test Results

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## Integrity

It is required that the specimens retain their 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, or resulting in sustained flaming on the unexposed surface.

**These requirements were satisfied for the periods shown below:**

	Specimen A	Specimen B
<b>Sustained flaming</b>	66 Minutes*	66 Minutes*
<b>Gap gauge</b>	65 Minutes	66 Minutes*
<b>Cotton Pad</b>	10 Minutes	13 Minutes*

\*The test duration. The test was discontinued after 66 minutes.

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## Insulation

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 (except on the door frame, where the maximum temperature rise shall not exceed 360°C). Insulation failure also occurs simultaneously with integrity failure as specified in BS EN 1634-1: 2014.

**These requirements were satisfied for the periods shown below:**

1 Minutes

2 Minutes

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## Ongoing Implications

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### Limitations

This report details the method of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in BS EN 1363-1: 2012, 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: 2012, 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.

## Conclusions

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### Evaluation against objective

Two specimens of floor mounted access panels have been subjected to a fire resistance test in generally accordance with BS EN 1634-1: 2014 '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'. This test report should be read in conjunction with that Standard and with BS EN 1363-1: 2012, 'Fire resistance tests - Part 1: General requirements'

The evaluation of the access panels against the requirements of BS EN 1634-1: 2014 showed that the access panels satisfied the requirements for the following periods.

Test Results:	Specimen A	Specimen B
Sustained flaming	66 Minutes*	66 Minutes*
Gap gauge	65 Minutes	66 Minutes*
Cotton Pad	10 Minutes	13 Minutes
Insulation	1 Minutes	2 Minutes

\*The test duration. The test was discontinued after 66 minutes.