BM TRADA

Fire Resistance Testing

Sponsor:

Fire Proofing Services Ltd
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CONFIDENTIAL

Report: BMT/FEI/F15003C

Ad hoc fire resistance test performed on a steel access hatch fitted within a British Gypsum 60 minute specification ceiling membrane section

Test conducted to the temperature and pressure conditions of BS476: Part 20: 1987 (and current FTSG Resolutions where applicable)

Test date: 19th January 2015

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

1 Introduction

Three access hatches were installed into a ceiling membrane section fixed within a refractory lined steel restraint frame above a 1.5m x 1.5m furnace, only one of which is subject to this report.

The access hatch was fitted opening in towards the furnace.

2 Specimen verification

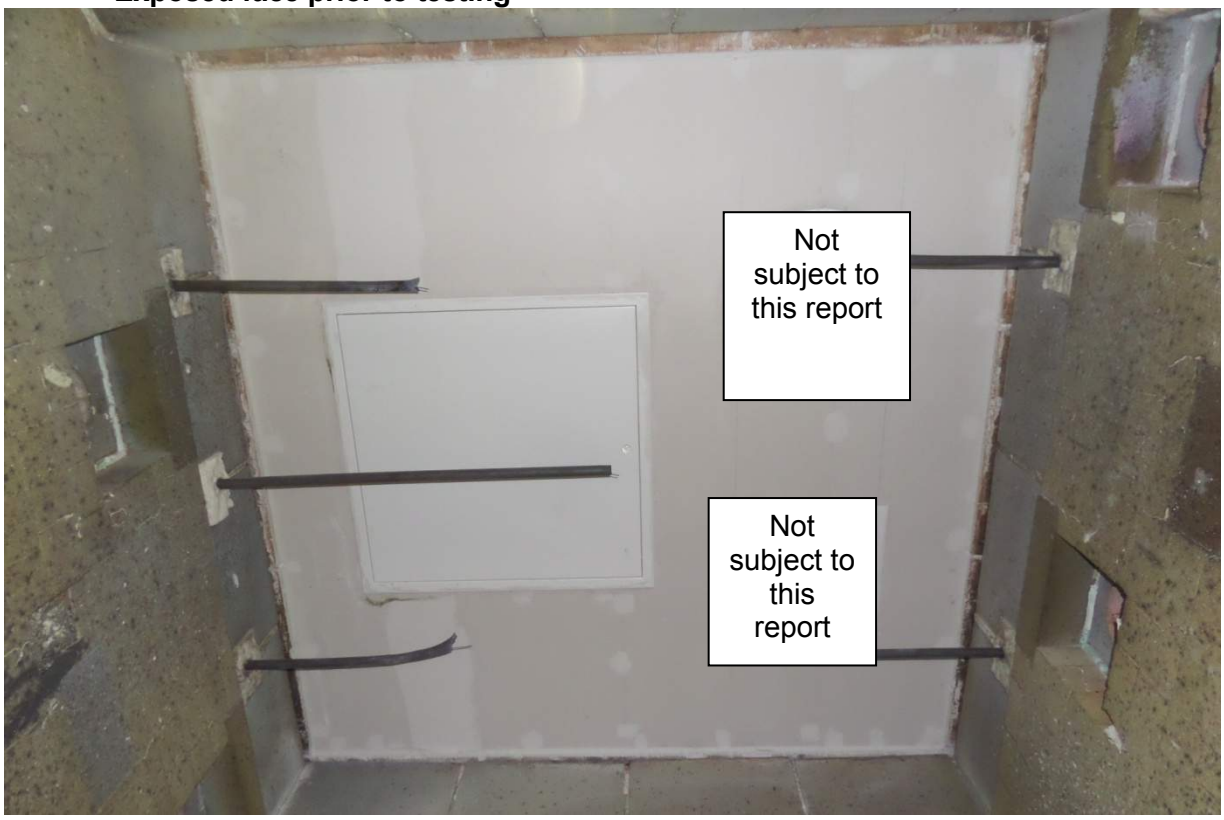
The steel access hatch was manufactured and supplied for test by the client and delivered on 12th January 2015.

3 Description of supporting construction

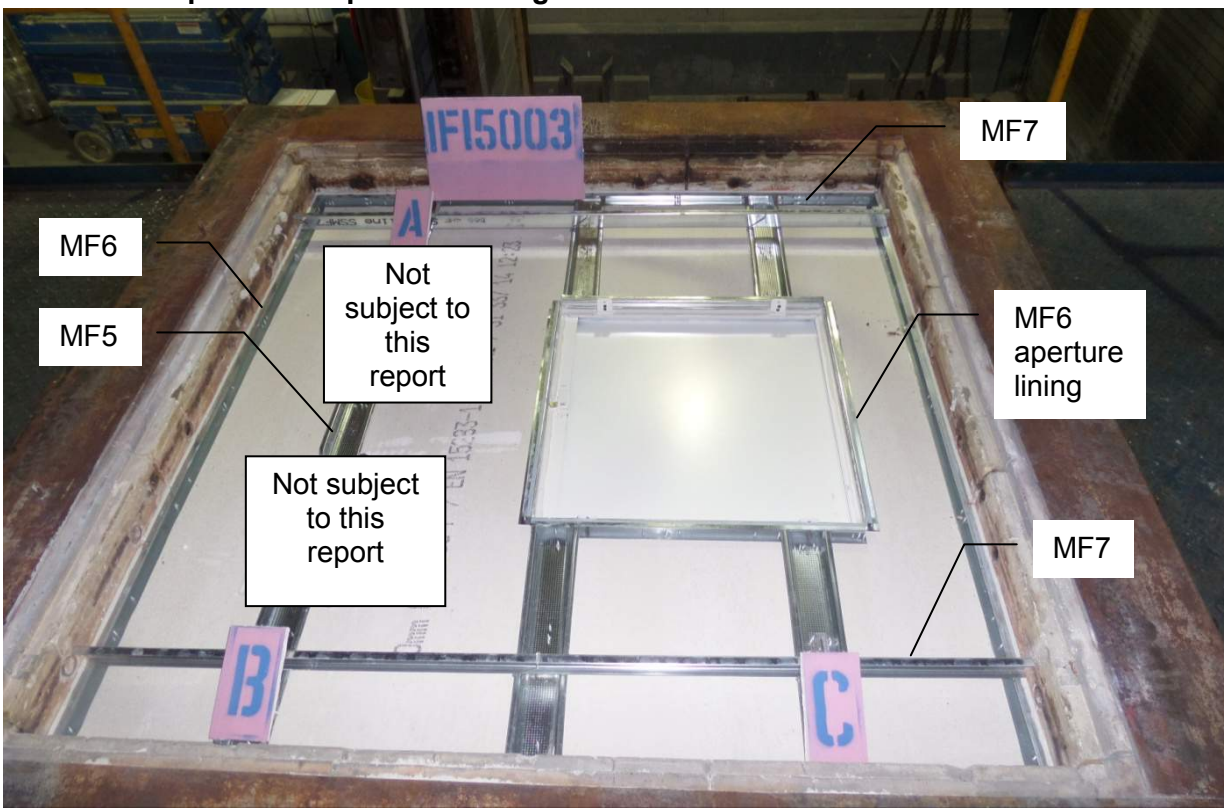
BM TRADA constructed a section of British Gypsum (BG) CasoLine MF 120 minute ceiling membrane within a refractory lined steel restraint frame.

The client installed the access hatch into a 604mm x 604mm aperture in the ceiling section.

Exposed face prior to testing



Unexposed face prior to testing



4 Description of the ceiling membrane construction

Reference British Gypsum CasoLine MF 60 minute system ref. C106003

The 1500mm x 1500mm ceiling construction comprised BG Gypframe M6F Primary Support Channel around the ring beam and BG Gypframe MF5 Ceiling Section fitted within the MF6 Primary Support Channel profile at 375mm centres. 2No. sections of BG Gypframe MF7 Primary Support Channel were fitted one to each side of the hatch apertures, at 90º to the MF5 ceiling section, extending to the MF6 Support Channel around the ceiling section. The ceiling system was clad with 3No. layers of 10mm thick BG Glasroc F (GRG) multiboard, the first layer fixed with 25mm long Drywall screws, the second layer with 32mm long Drywall screws and the third layer with 42mm long Drywall screws, all fitted at 230mm centres.

The MF5 channel was fully interrupted at the area of the specimen aperture.

No insulation was fitted.

The access hatch aperture was lined with MF6 Support Channel.

No suspension fixings were used due to the 1500mm x 1500mm size of the test specimen ceiling section, which was supported on all four sides.

5 Description of test specimens (refers to clients drawings in appendix 1)

Access hatch

The access panel leaf measured 600mm long x 600mm wide x 23mm thick, comprising powder coated 0.8mm thick steel tray profile, welded at the corners, with 15mm wide platforms on the side and hanging edges, and a 37mm wide platform on the closing edge.

The frame comprised 0.8mm thick powder coated steel 'Z' section, 26mm high x 25mm wide with a 15mm wide integral stop. The frame was welded at the corners. The frame was fixed into the aperture with 4 No. 'flip clip' adjustable fixings. 2 No fixings were present on 2 opposing edges, 85mm from the hanging and closing corners.

The access panel was hinged on two Ø5mm steel bolts on one edge, with a Ø5mm steel bolt and threaded insert engaging into a hole in the frame. An engaged budget type latch (79mm x 22mm) was welded centrally on the platform of the opposite edge.

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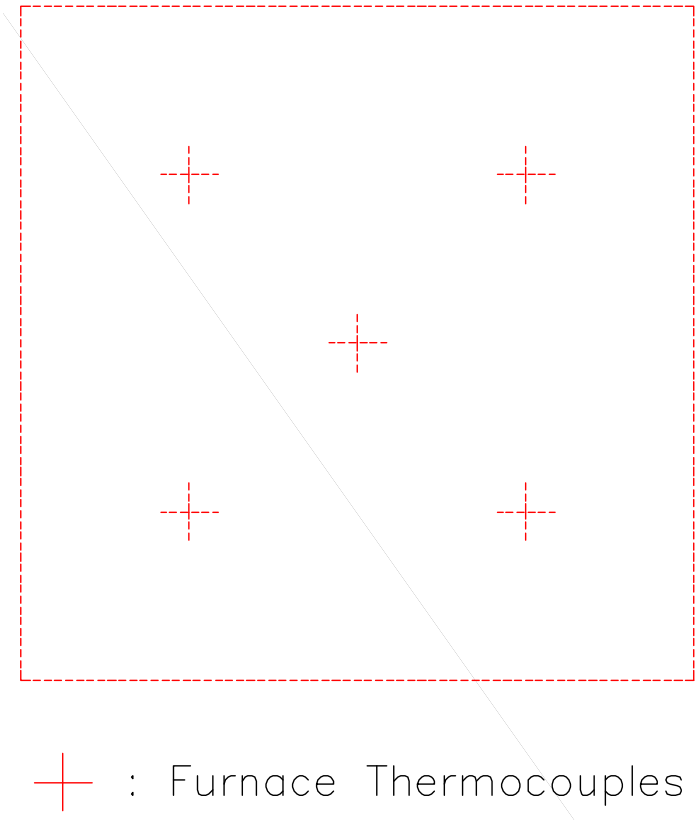
6 Test conditions

6.1 Where areas of the test specification are ambiguous or open to interpretation the Fire Test Study Group Resolutions No's 70, 71 and 72 have been followed (further specific details are available on request). These Resolutions provide basis of common agreements between the fire test laboratories which are members of this Group.

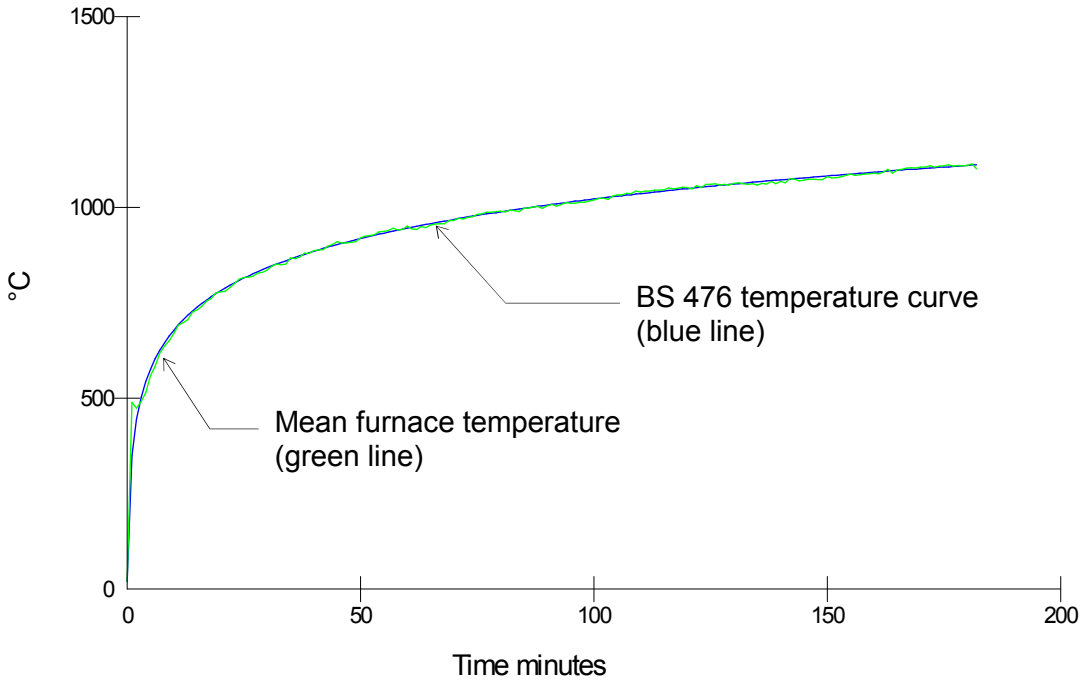
6.2 The ambient temperature of the test area at commencement of test was 10°C.

6.3 After the first 5 minutes of the test, the furnace pressure was maintained at 13.2 ± 5 Pa and after 10 minutes was maintained at 13.2 ± 3 Pa, equating to 20Pa at the underside of the ceiling soffit. The pressure readings have been tabulated in Appendix 2.

6.4 The furnace was controlled to follow the temperature/time relationship specified in BS 476: Part 20: 1987 as closely as possible, using the average of five thermocouples suitably distributed within the furnace. The temperatures recorded are shown graphically below:



Furnace Temperature



6.5 The specimen was declared uninsulated, so no thermocouples were fitted

7 Observations

All comments relate to the unexposed face unless otherwise specified.

Time (minutes)	
01.00	There is smoke issuing from the hatch.
05.30	There is discolouration to the face of the hatch.
08.00	There is further discolouration to the hatch.
09.20	There is an increase in smoke issuing from the hatch.
22.00	The paint is bubbling and flaking away.
45.00	No visual change to the hatch observed.
75.00	No visual change to the hatch observed.
90.00	No visual change to the hatch observed.
105.00	No visual change to the hatch observed.
112.00	Exposed face, the first layer of ceiling board is falling away.
120.00	No visual change to the hatch observed.
135.00	No visual change to the hatch observed.
170.00	No visual change to the hatch observed.
182.00	Test terminated.

8 Primary observations

Time (minutes)	
00.00	Test started.
90.00	No visual change to the hatch observed.
120.00	No visual change to the hatch observed.
135.00	No visual change to the hatch observed.
170.00	No visual change to the hatch observed.
182.00	Test terminated.

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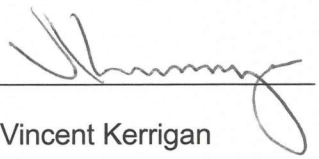
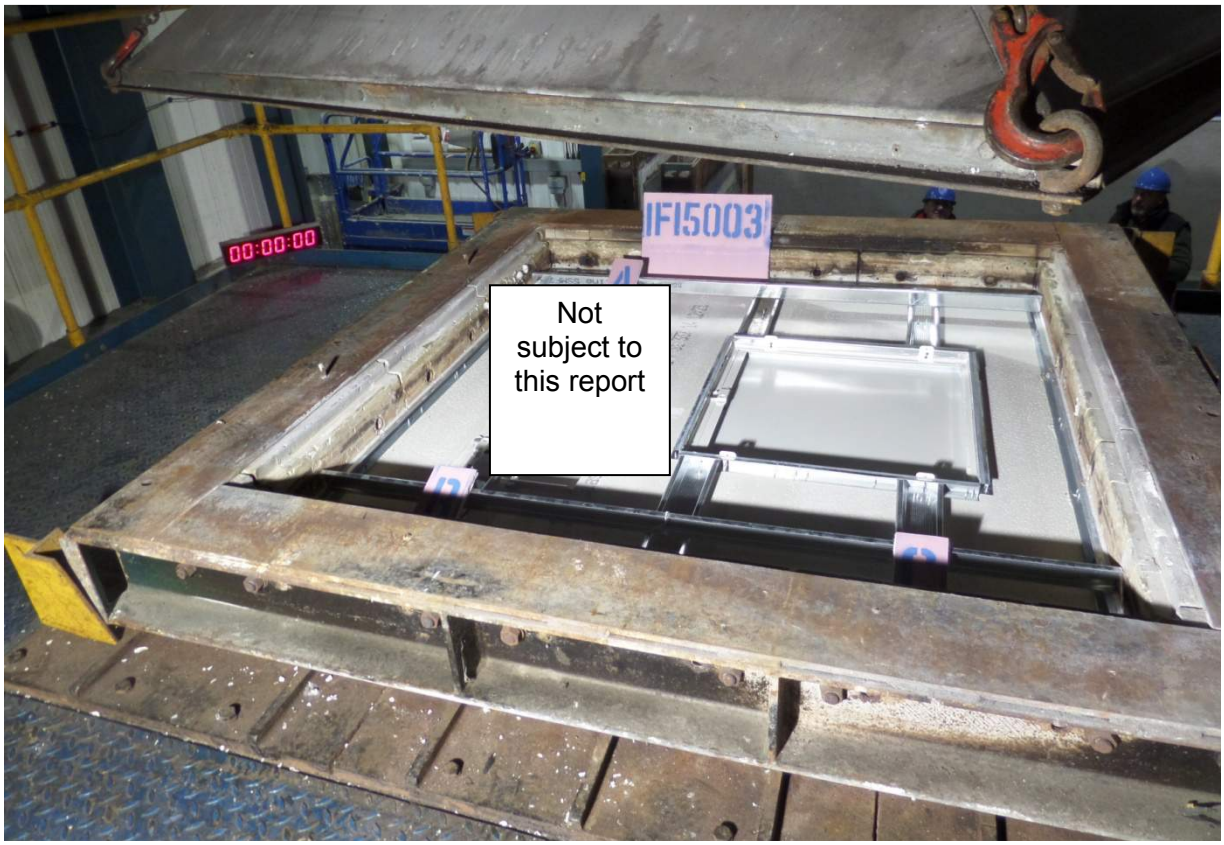
9 Limitations

This test report relates to an investigation which utilised the test methodology given in BS 476 Part 20: 1987; the full requirements of the Standard were not, however, complied with. The information is provided for the test sponsor's information only and should not be used to demonstrate performance against the Standard nor compliance with a regulatory requirement. The test was not conducted under the requirements of UKAS accreditation.

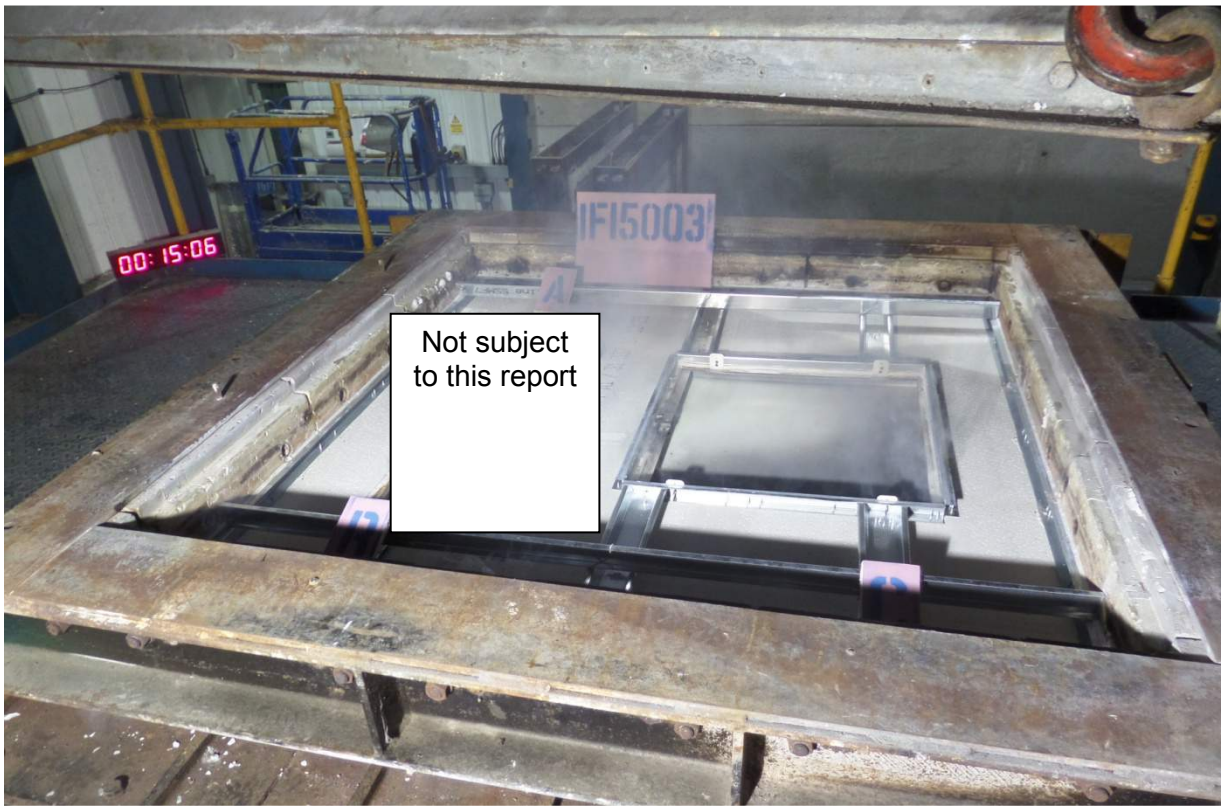
	Written by:	Checked by:	Authorised by:
Signature:			
Name:	Ashley Babb	Robert Axe	Vincent Kerrigan
Title:	Senior Technical Officer	Lead Technical Officer	Technical Manager
Date of issue:	18.03.2015	18.03.2015	18-03-2015

10 Photographs

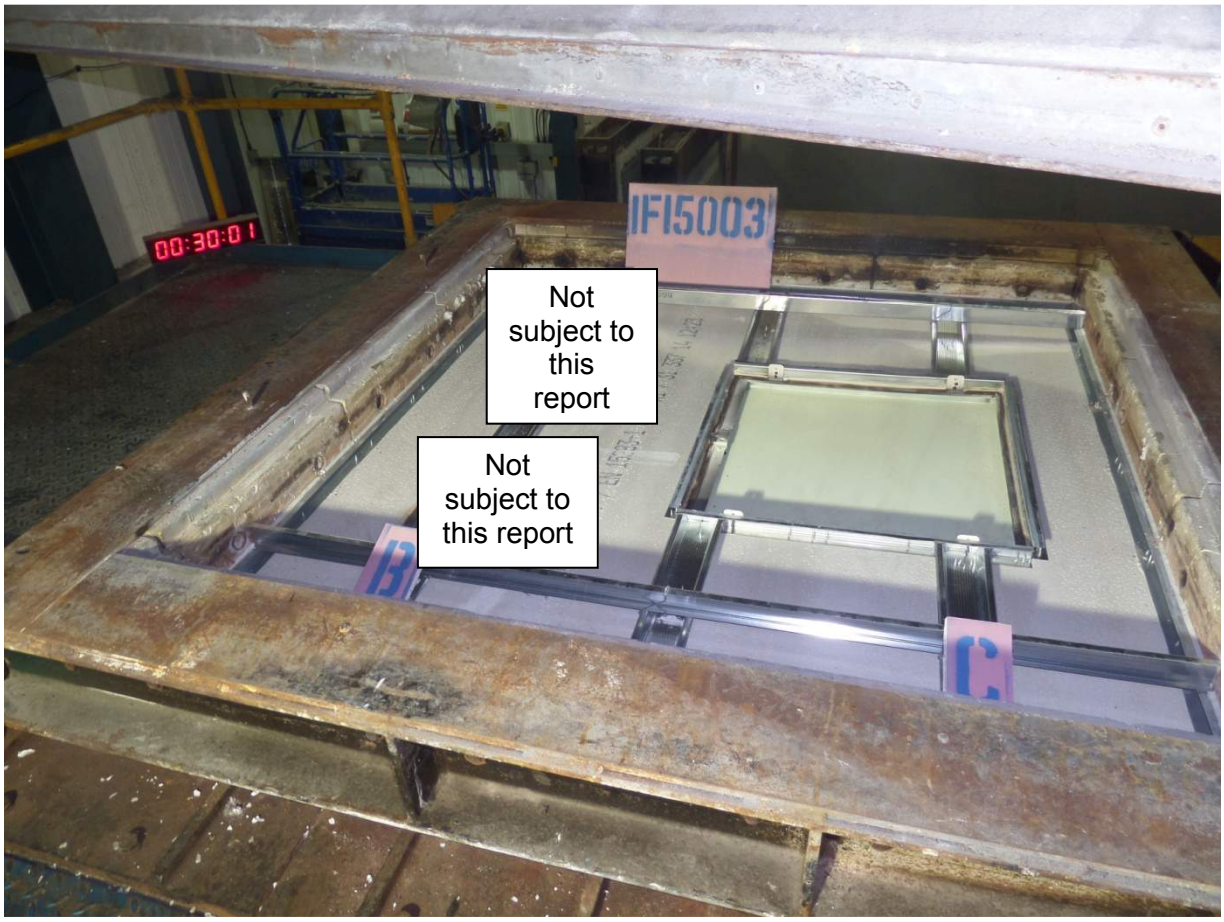
At start of test



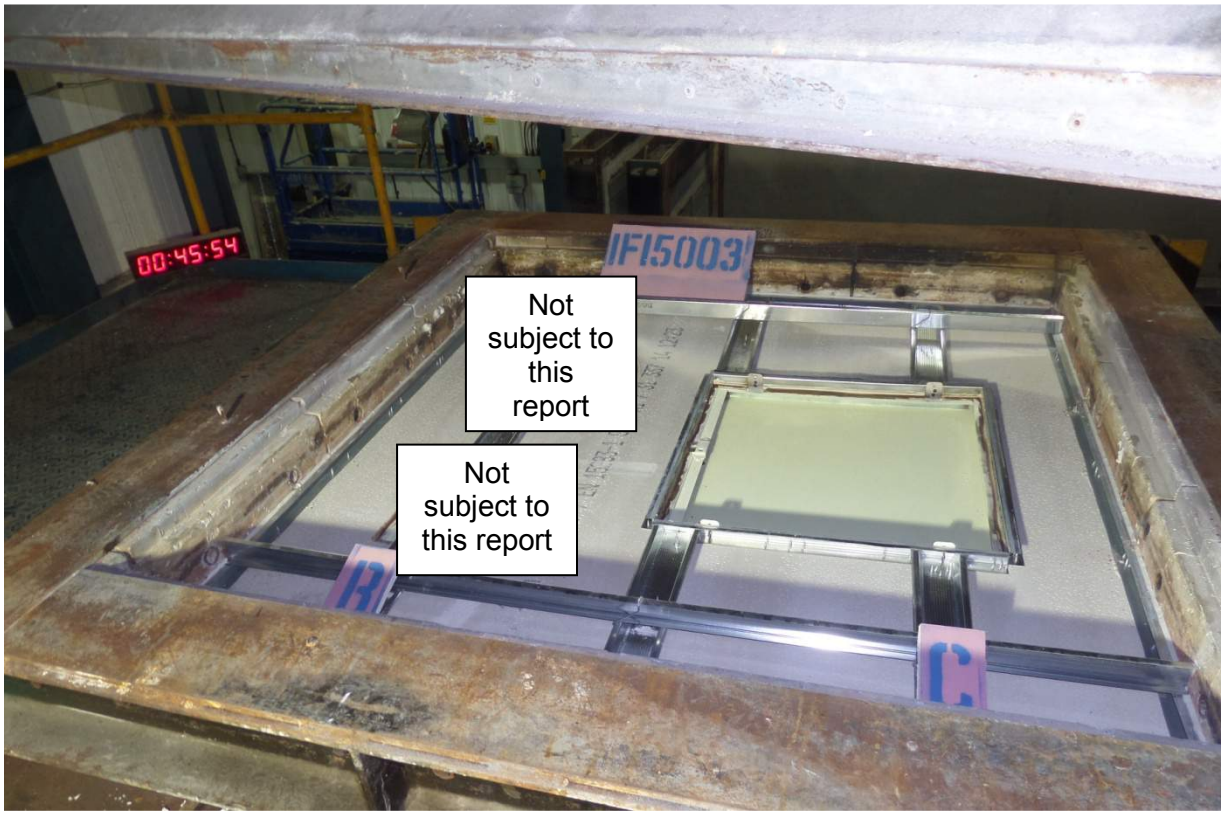
After 15 minutes



After 30 minutes



After 45 minutes



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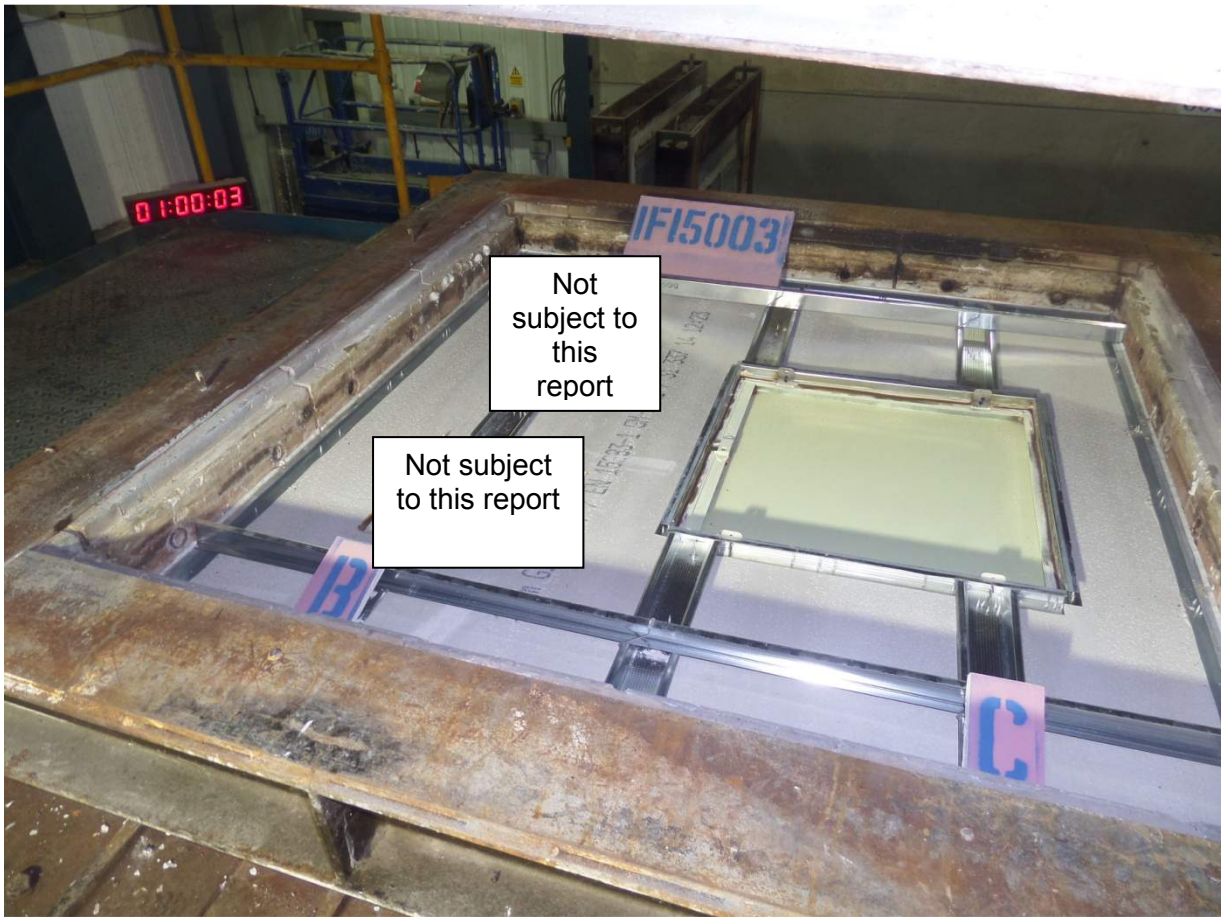
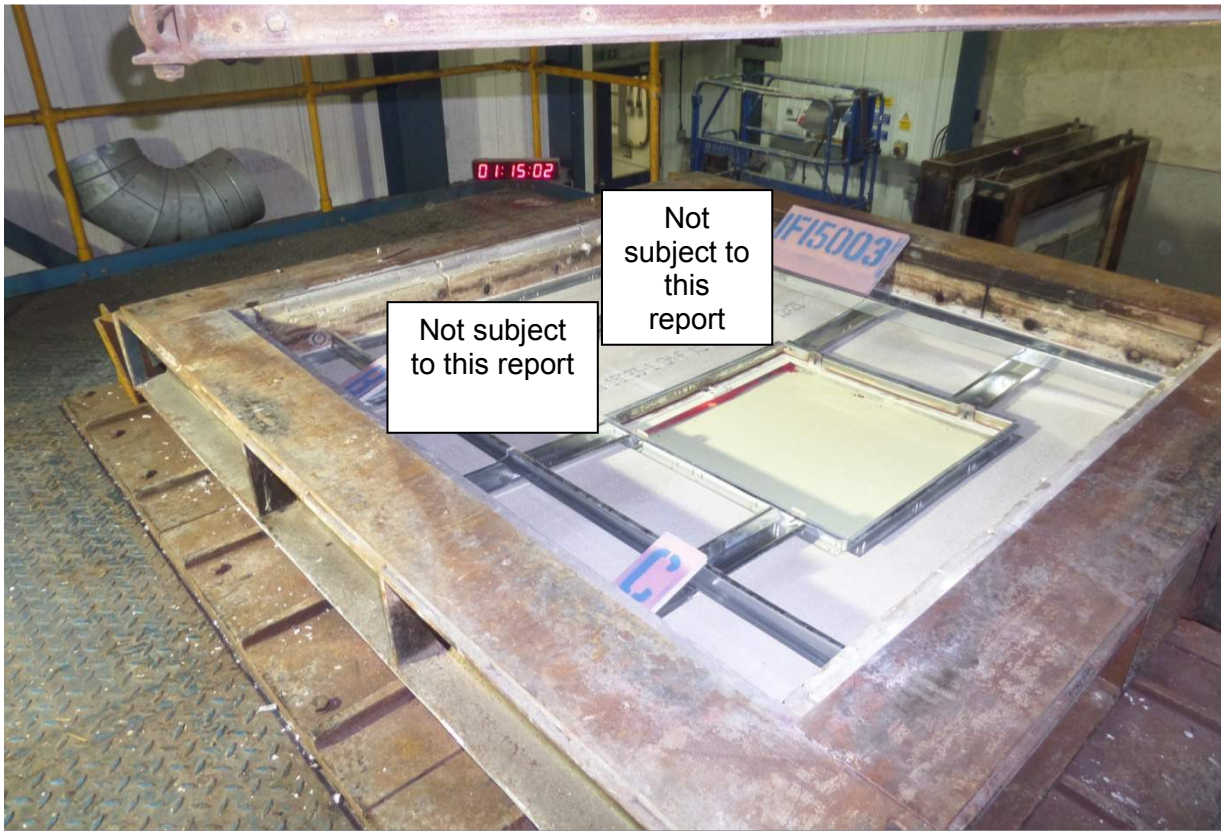
After 60 minutes



After 75 minutes



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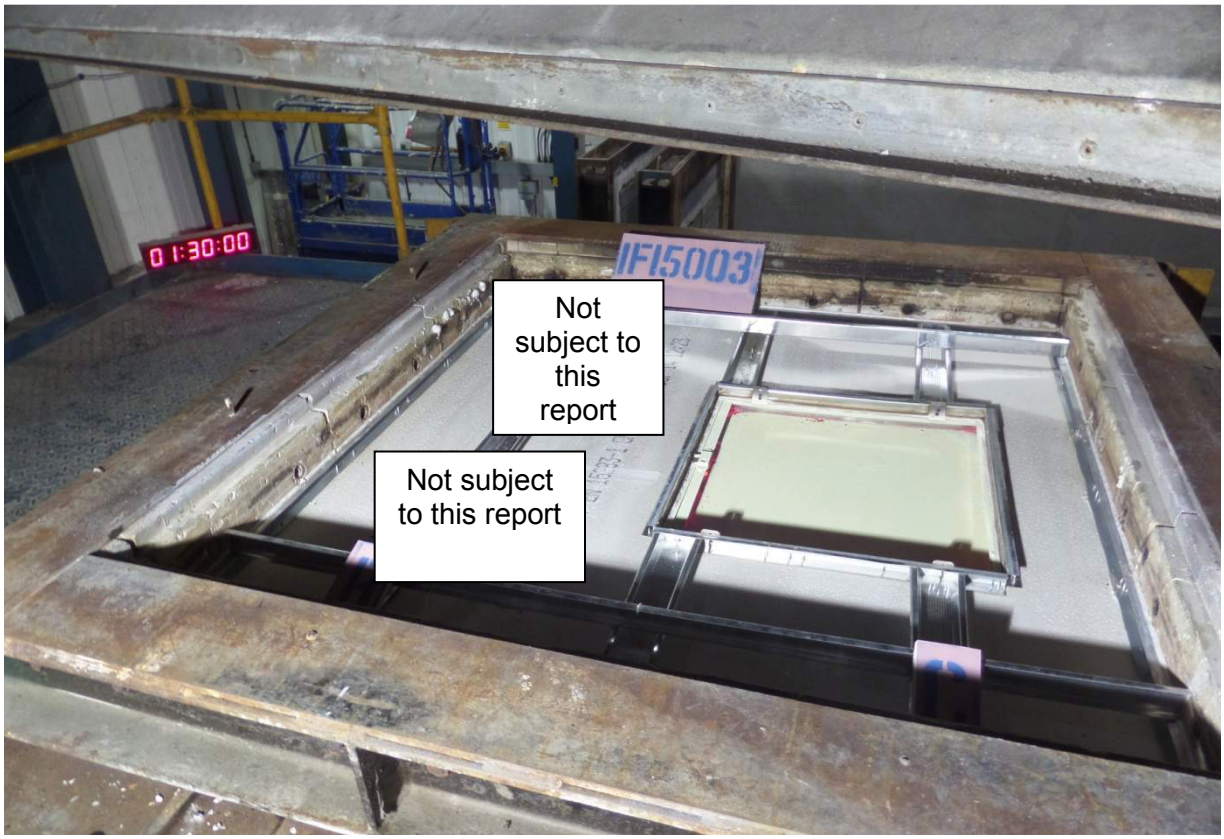
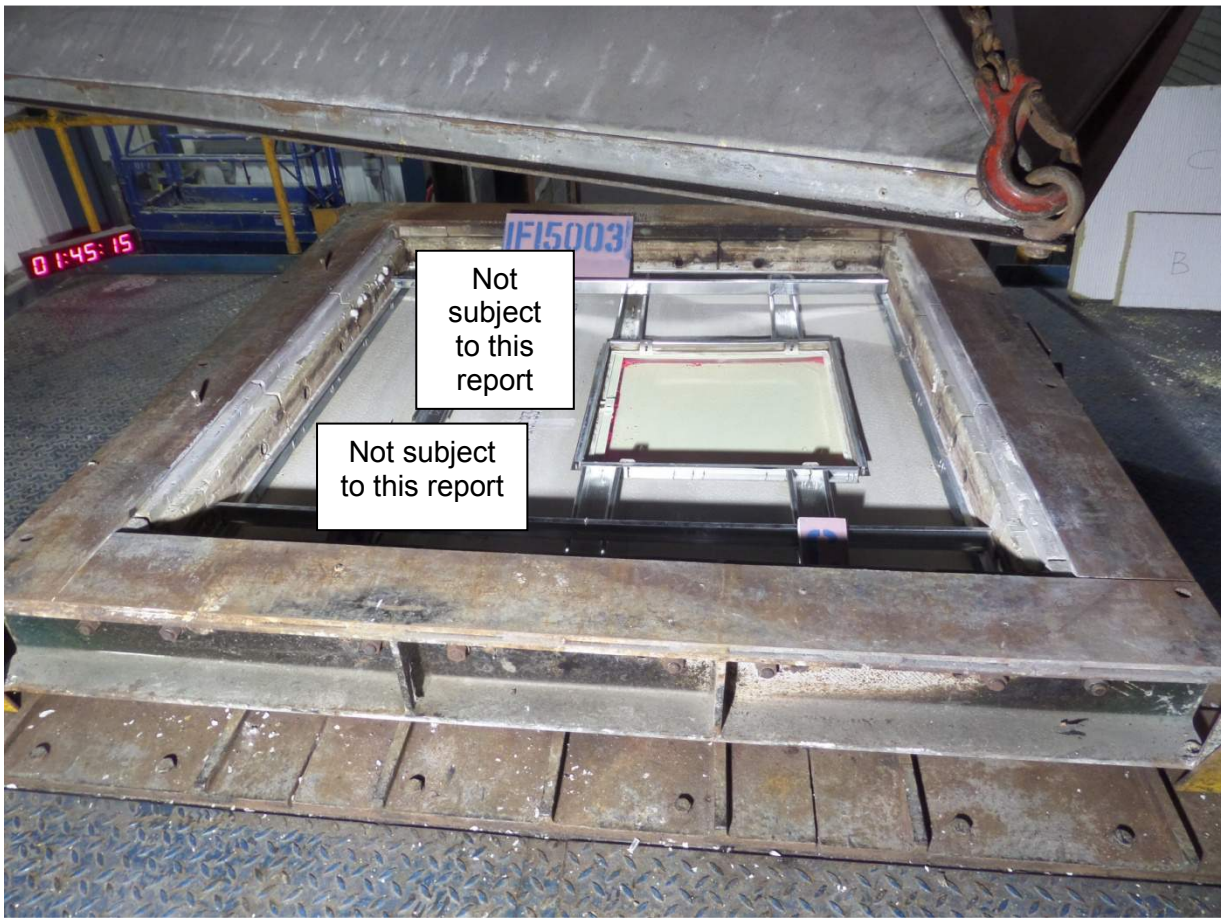
At 90 minutes

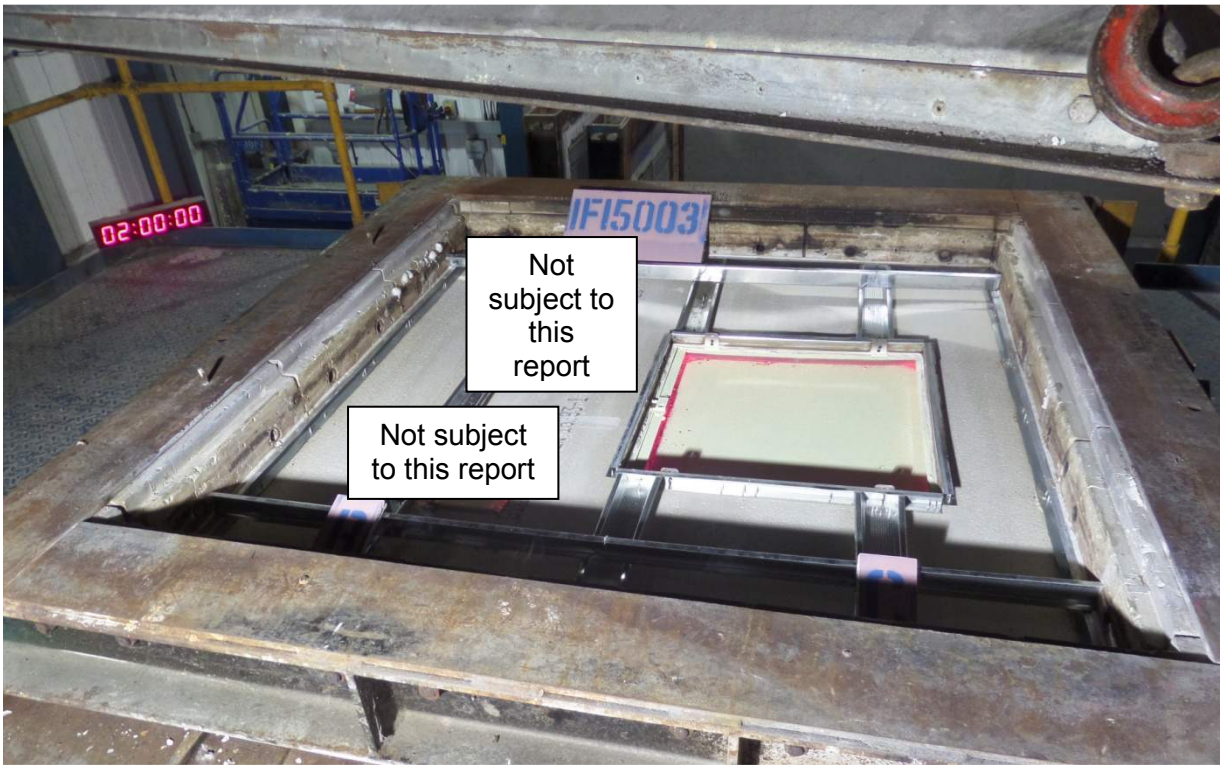


After 105 minutes

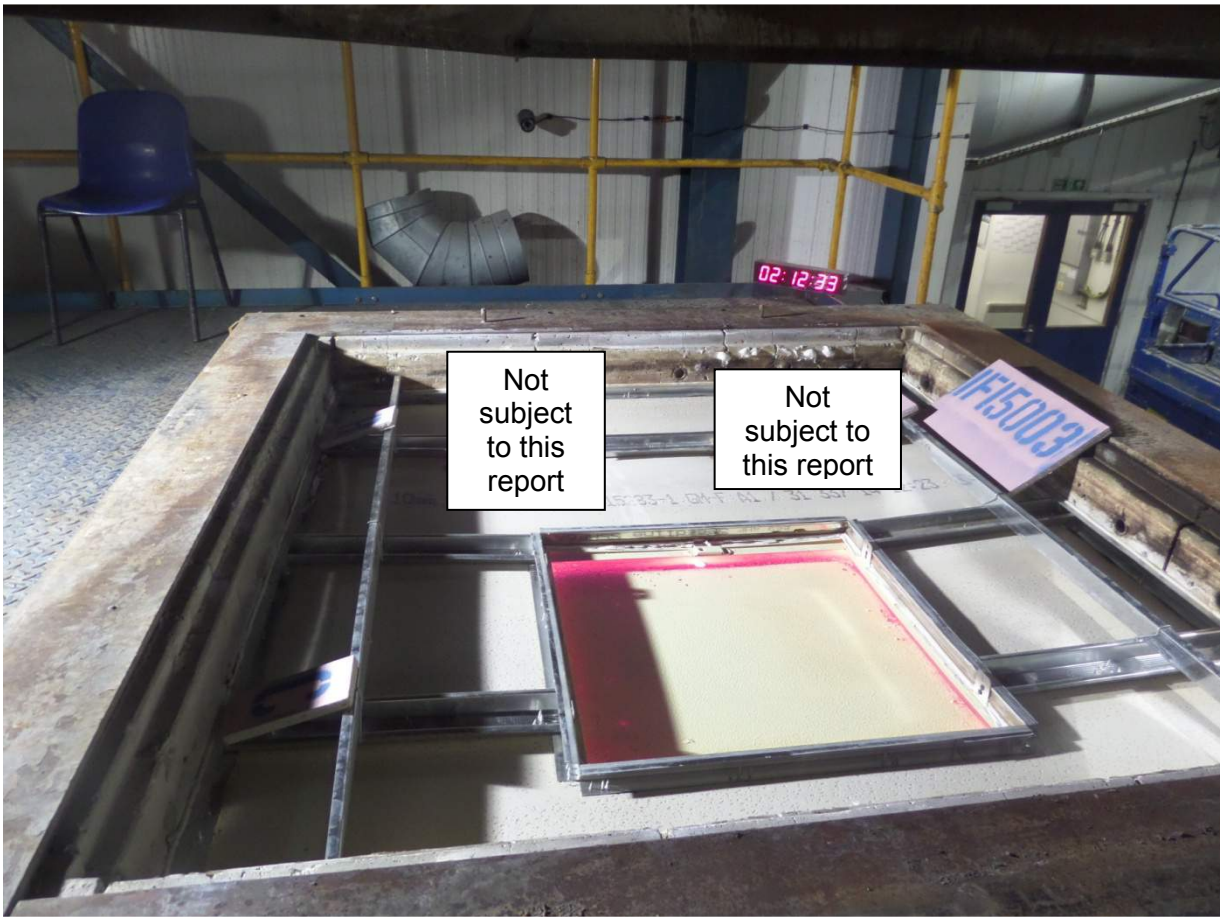


The legal validity of this report can only be claimed on presentation of the complete report.

At 120 minutes



After 132 minutes



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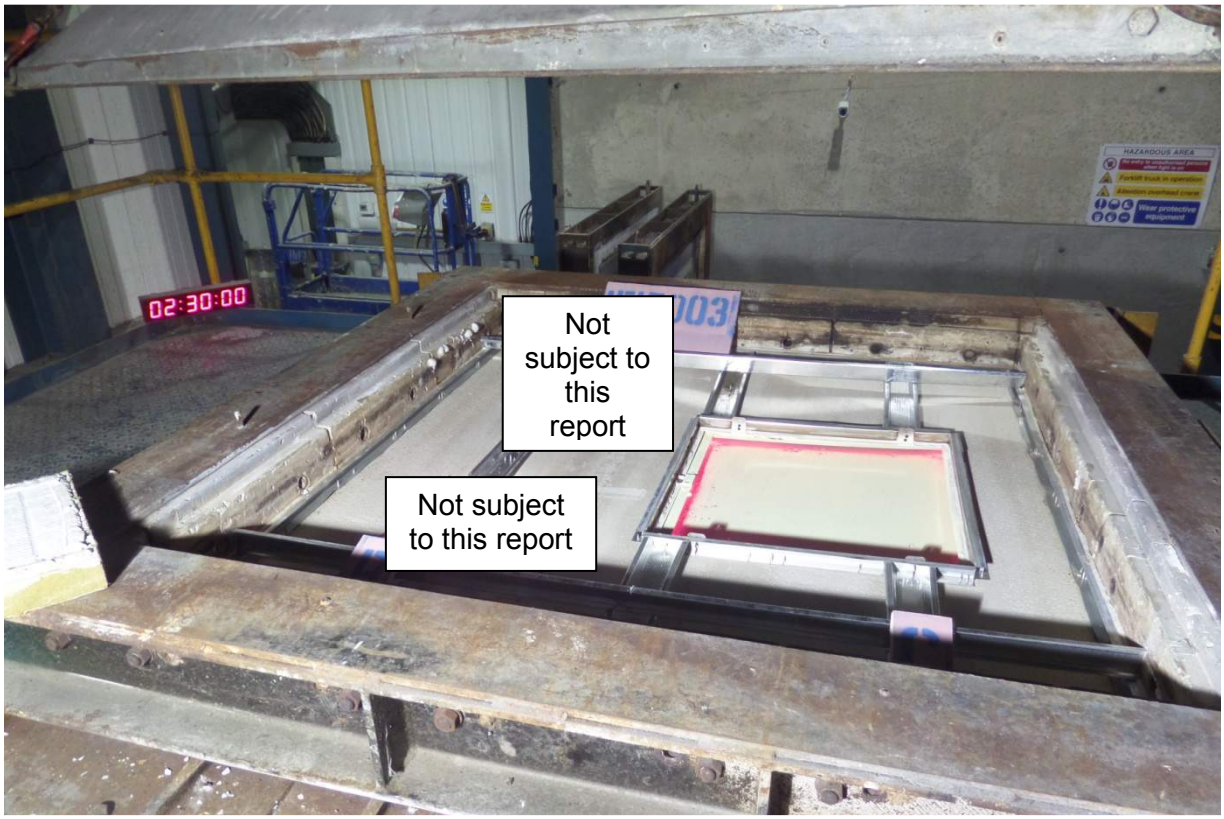
At 150 minutes

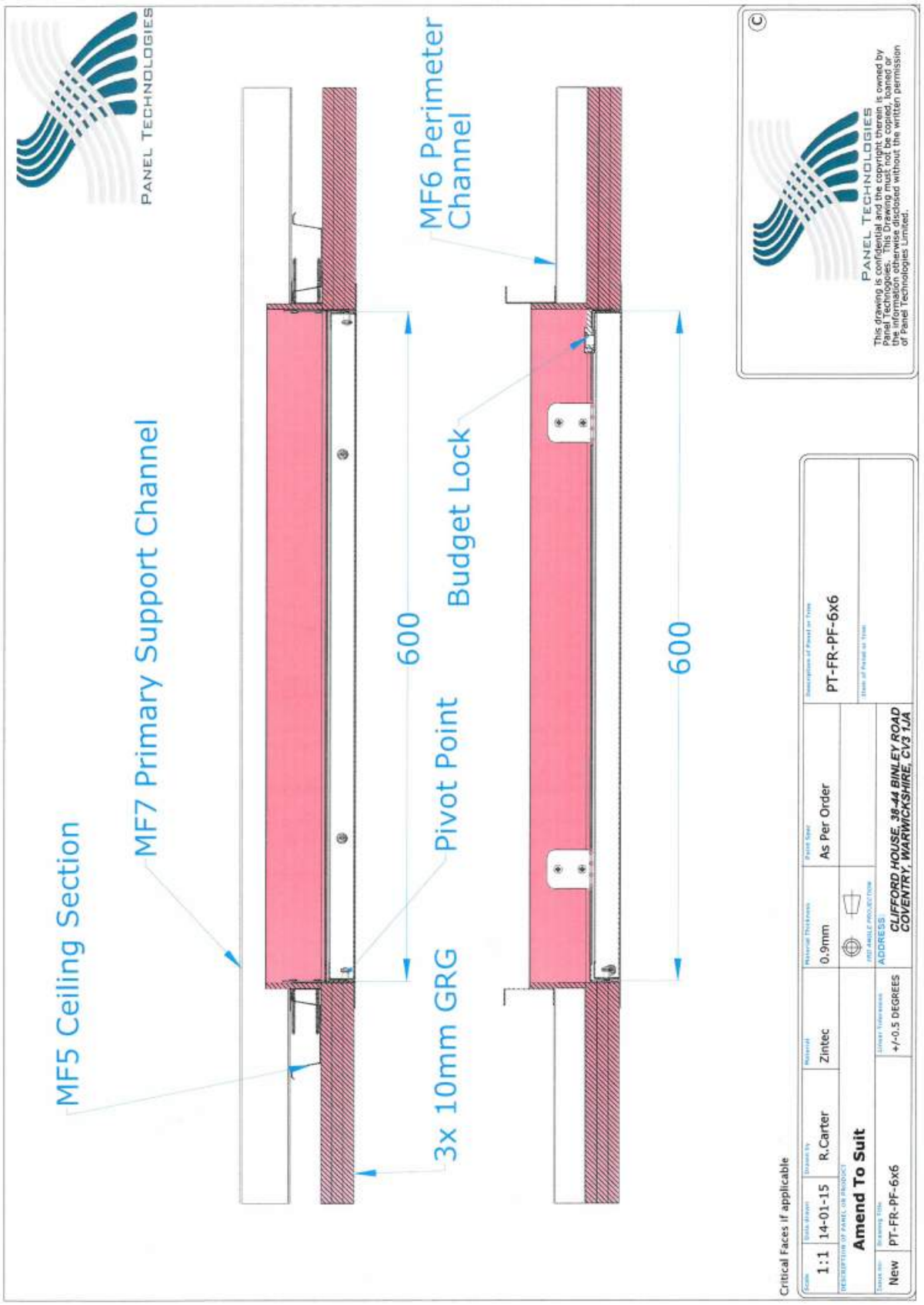


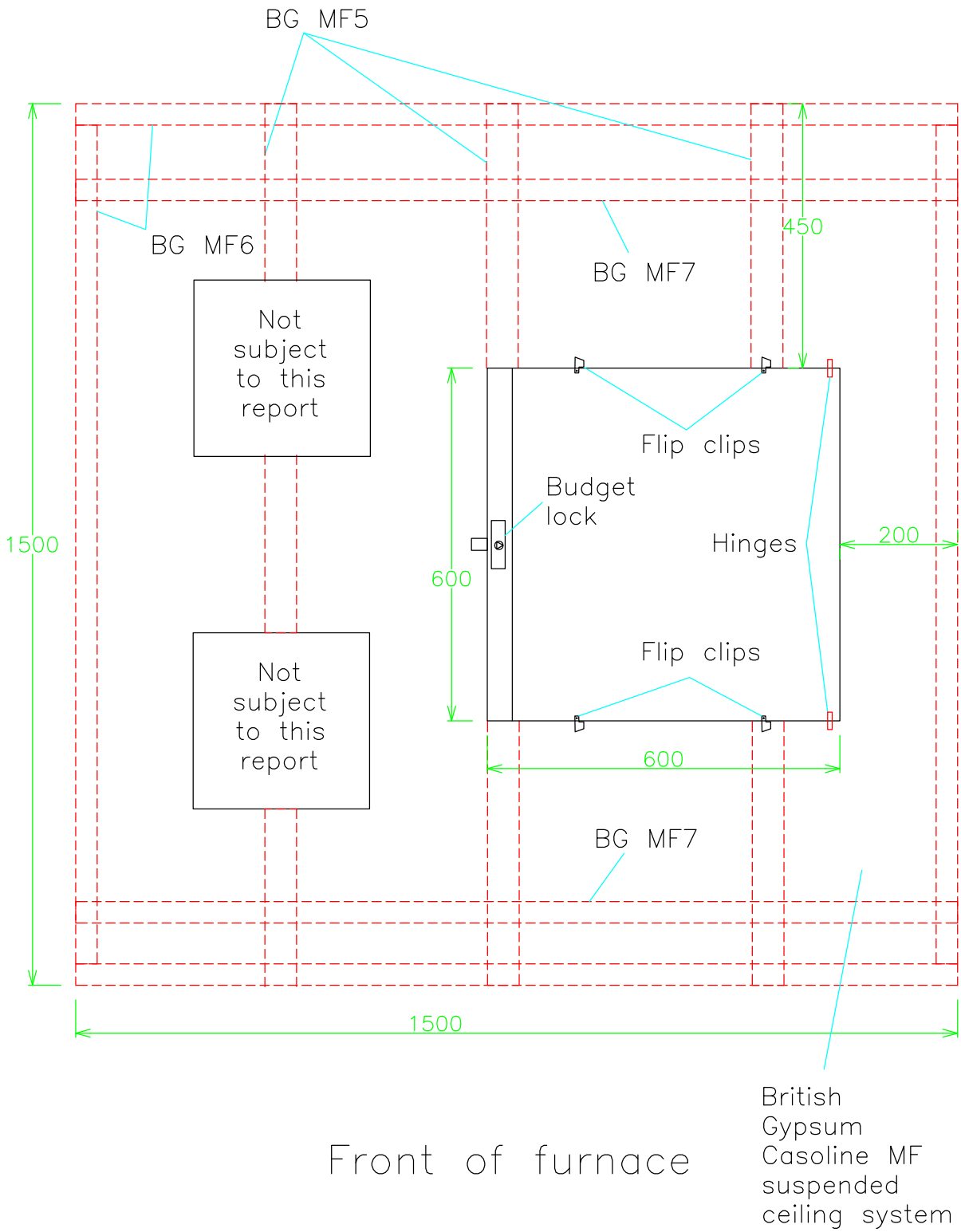
After 180 minutes

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

Appendix – client drawing and figure 1

Access hatch





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Title: Unexposed face plan view and hardware positions (All dimensions in mm)		
Date Drawn: 02/02/15	Drawn By: ARD	Scale: NTS
Project No.: BMT/FEI/F15003C		Appendix

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