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Our Ref: Chilt/IF12076

7th January 2013

Mr Ross Stokes
Fire Proofing Services Ltd
Evolution House
Aston Road
Nuneaton
Warwickshire CV11 5EL

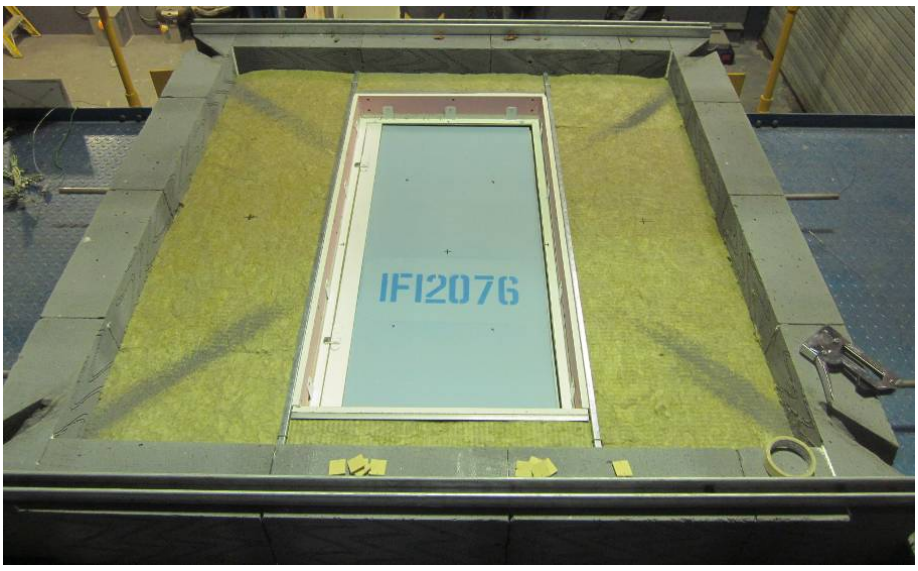
Re: Indicative Fire Resistance Test to the temperature and pressure conditions of BS 476: Part 20: 1987 (and current FTSG Resolutions where applicable) (Chilt/IF12076)

This letter is to confirm the results of an indicative fire resistance test undertaken on 5th November 2012.

The specimen comprised a single acting steel leaf access hatch within a 120 minute specification ceiling membrane.

Introduction

The steel access panel was manufactured and supplied for test by the client and delivered during November 2012. Chiltern International Fire Limited (CIFL) constructed a section of Knauf MF suspended ceiling, including a 605mm x 1205mm aperture, into a 150mm thick lightweight aerated autoclaved concrete blockwork ring beam and installed the access panel into the suspended ceiling aperture above a 1.5m x 1.5m furnace.



Specification

Details of the specimen are shown in the photographs section and Appendix 1 of this report.

Suspended Ceiling Reference Knauf MF7/08

The suspended ceiling comprised Knauf MF Primary Support Channel around the ring beam and hatch aperture, and Knauf MF Ceiling Channel section fitted within the MF Primary Support Channel profile at 450mm centres. A second section of MF Primary Support Channel was fitted around the hatch aperture, extending to the Support channel around the ceiling section. The ceiling system was clad with 3No. layers of 15mm thick Knauf Fireshield board, the first layer fixed with 32mm long Drywall screws, the second layer with 43mm long Drywall screws and the third layer with 60mm long Drywall screws, all fitted at 230mm centres.

The unexposed face of the ceiling was insulated with 40mm thick Knauf Rocksilk RS45 insulation.

The access hatch aperture was lined with 1No. layer of 15mm thick Fireshield board, and the access panel frame was sealed to the aperture lining and fireside of the ceiling with Sealcrete 4hour fire rated mastic sealant.

Access panel

The panel measured 1200mm long x 600mm wide x 21mm thick, with a layer of 12.5mm thick British Gypsum Soundbloc plasterboard on the unexposed face. The leaf and frame comprised 0.9mm thick profiled Zintec steel. The frame measured 25mm high x 25mm wide including a 20mm wide stop, and 25mm wide architrave. The frame was fixed into the aperture with 3No fixing tabs to each short edge and 4No. fixing tabs to each long edge, each measuring 35mm wide x 75mm high, screw fixed through the plasterboard to the Knauf MF Ceiling Channel around the aperture, with 50mm long self tapping screws. The access panel leaf was hung to open in towards the furnace.
The leaf profile included a box section channel along the closing edge, onto which 2No. Budget locks were mounted on the unexposed face, with a plastic bung fitted in the lock aperture access hole on the exposed face. The results of this test were obtained with the access panel leaf closed and the budget locks engaged.
An SPF intumescent seal, 10mm wide x 2mm thick, was fitted to the unexposed face of the panel leaf, butting up to a neoprene closed cell seal.

Door perimeter gaps

Due to the nature of construction, no measurements could be taken.

Test conditions

Where areas of the test specification are ambiguous or open to interpretation the Fire Test Study Group Resolutions No's 70, 71, 72 and 77 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.

The ambient temperature of the test area at commencement of the test was 12°C.

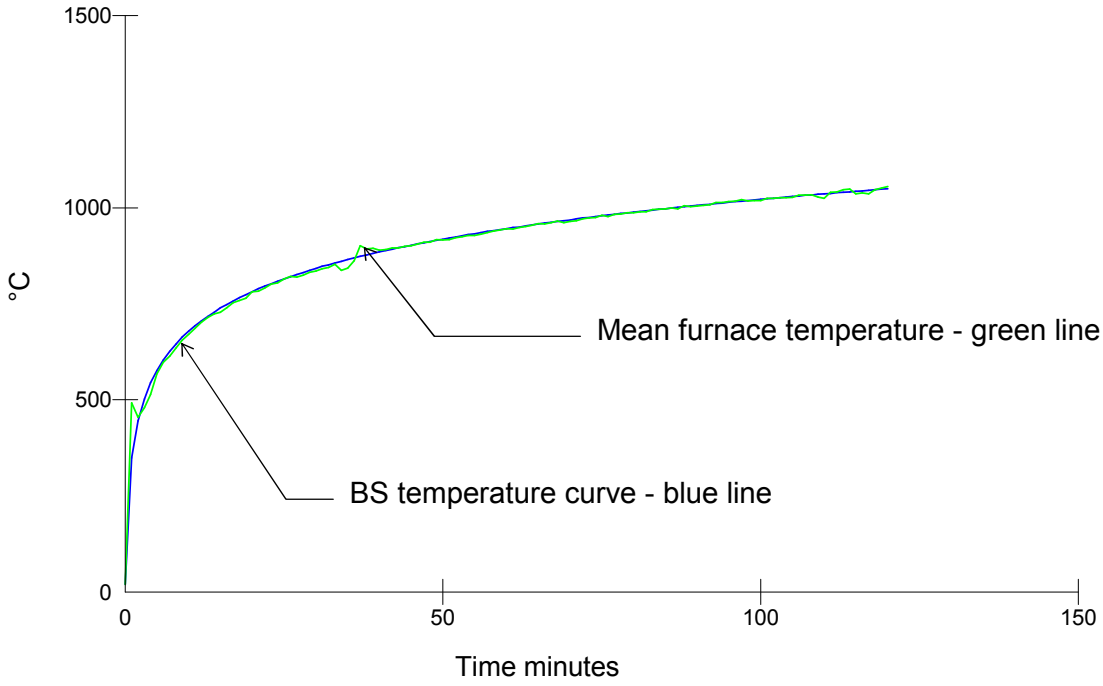
After the first 5 minutes of the test, the furnace pressure was maintained at 20 ± 3 Pa with respect to atmosphere, at the underside of the specimen.

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 four thermocouples suitably distributed within the furnace. The temperatures recorded are shown graphically on page 4.

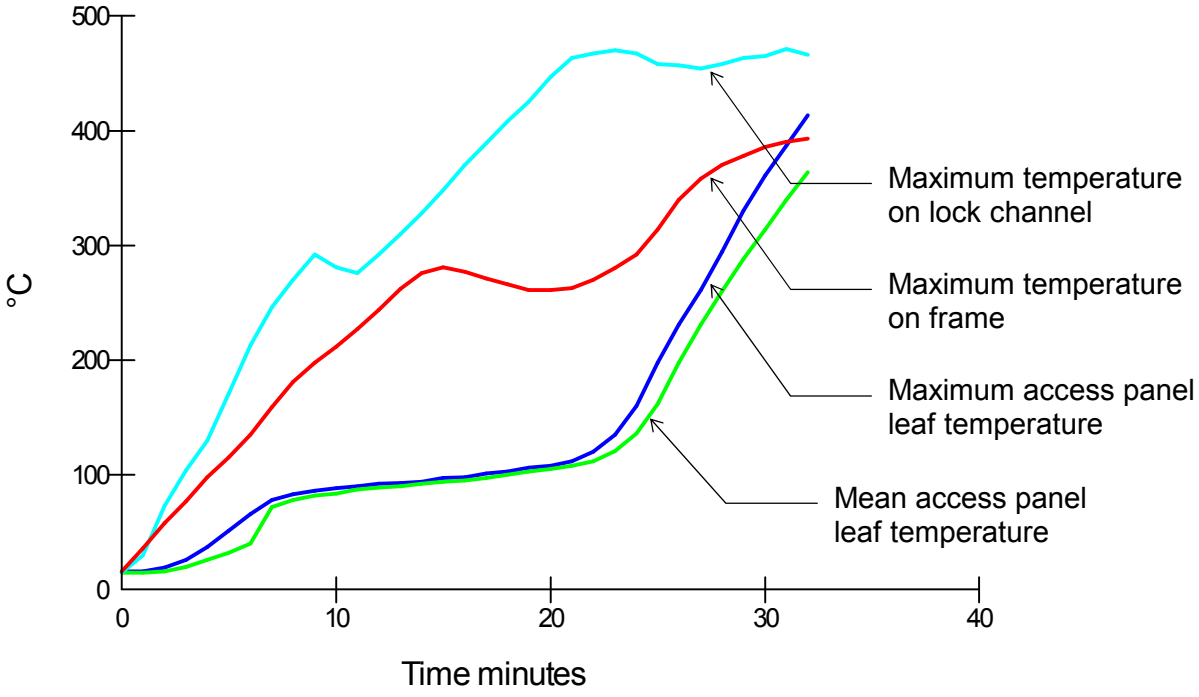
The temperature of the unexposed face was monitored by means of five thermocouples fixed to the plasterboard surface of the leaf and two thermocouples fixed to the closing lock channel. The frame was monitored by means of four thermocouples, one per edge, and two thermocouples were fixed to the insulation around the access panel.

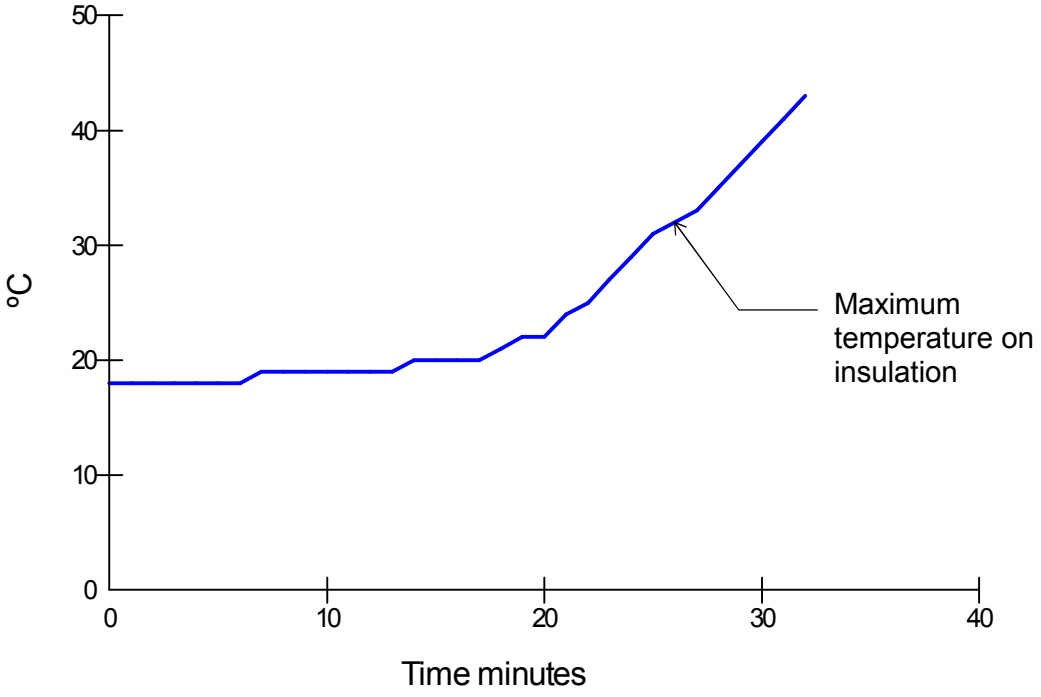
The thermocouple positions are shown in Figure 4 of the appendix. The average temperature of the panel leaf and maximum temperature of the panel leaf are shown graphically on page 5.

Furnace temperature curve



Unexposed face temperature curves





Observations

All comments relate to the unexposed face unless otherwise specified.

Time (minutes)	Comments
00.00	Test started.
02.00	There is smoke issuing from the perimeter of the leaf.
04.00	There is distortion at the middle of the leaf.
10.00	There is an increase in the level of smoke issuing from the perimeter of the leaf and discolouration of the plasterboard.
11.00	The intumescent around the leaf perimeter is starting to react.
12.00	There is discolouration of the closing edge box section at both lock positions.
14.30	There is discolouration of the entire closing edge box section.
16.30	There is discolouration of the perimeter of the plasterboard.
18.00	There is discolouration of the frame.
21.30	Exposed face, the tape and filler on the plasterboard joints has fallen away.
25.30	There is a glow visible at the centre of the hanging edge of the leaf.
27.30	There is discolouration of the face of the plasterboard.
28.00	The paper facing of plasterboard is starting to flake at the perimeter.
31.30	The entire hanging edge is glowing behind the plasterboard insert.
32.00	All unexposed face thermocouples are removed.
35.00	There is a glow visible behind the plasterboard insert at the short edges.
50.00	The paper facing of plasterboard is starting to glow.
58.00	The paper facing of the plasterboard has completely burnt away on one half of the leaf.
66.30	There is a glow visible between the plasterboard insert and the box section across the closing edge.
70.00	All the paper facing of plasterboard insert has now burnt away.

74.00	There is discolouration of the plasterboard aperture lining around all fixings points.
81.00	The intumescent at the middle of the hanging edge is starting to fall away.
82.00	There is a glow visible at the middle of the closing edge between the box section and frame where the box section is deflecting down.
85.00	There is a glow visible at the box section around both latch positions.
87.00	There is a glow visible behind the frame at the hanging edge.
91.00	The box section has deflected further resulting in a glow visible.
99.00	There is still a glow visible behind the hanging edge of the frame which is now the entire length of the aperture.
106.00	There is a glow visible behind the frame at the closing edge of the leaf.
118.00	Exposed face, the three layers of plasterboard alongside the closing edge have fallen away.
118.25	There is flaming for in excess of 10 seconds on the right (closing edge) side of the ceiling around the edge of the mineral wool insulation where the plasterboard has fallen away.
120.00	Test terminated.

Primary observations

118.00 Exposed face, the three layers of plasterboard alongside the closing edge have fallen away.

118.25 There is flaming for in excess of 10 seconds on the right (closing edge) side of the ceiling around the edge of the mineral wool insulation where the plasterboard has fallen away.

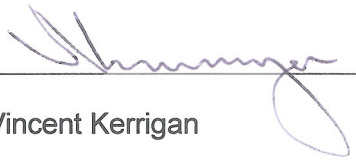
120.00 Test terminated.

Limitations

These test results relate to an investigation which utilised the test methodology given in BS 476: Part 22: 1987, the full requirements of the Standard were not, however, complied with. The information is 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.

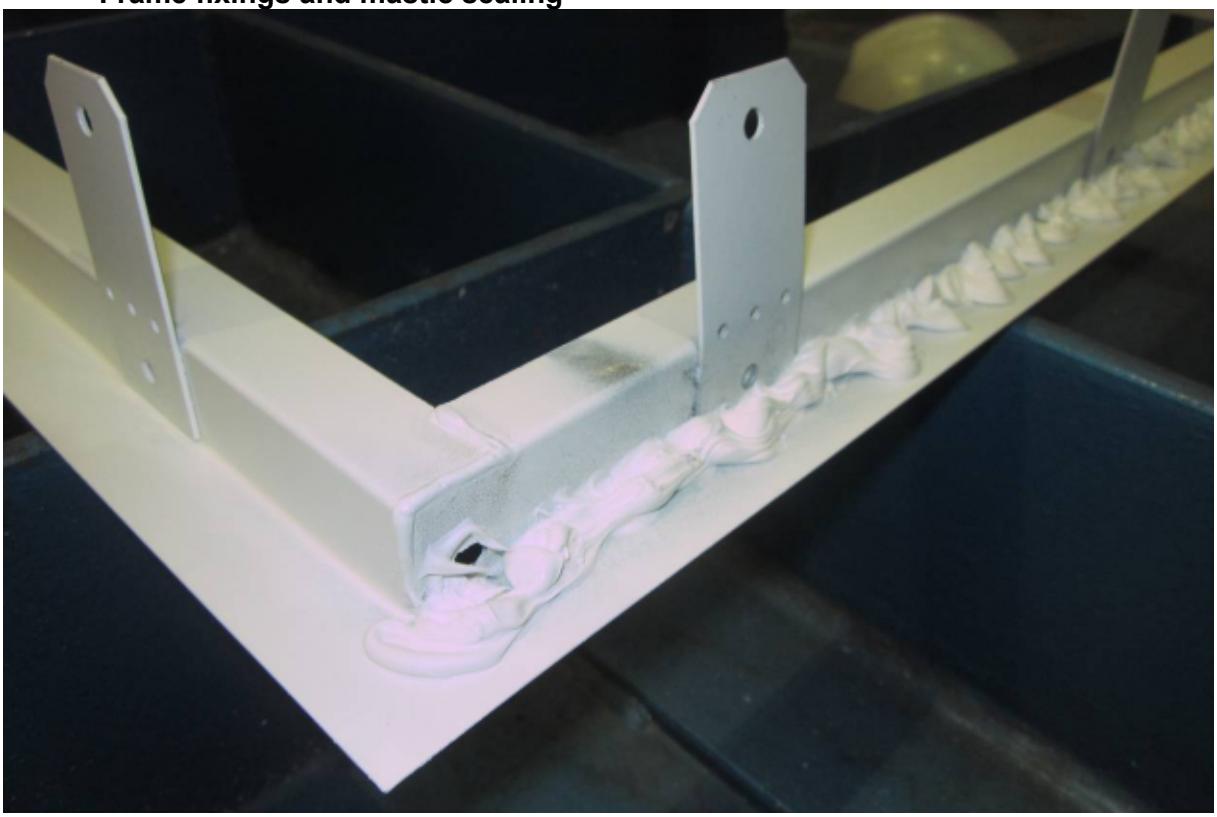
The results only relate to the behaviour of the element of construction under the particular conditions of test; they are not intended to be the sole criteria for assessing the potential fire performance of the element in use nor do they reflect the actual behaviour in fires.

The 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 5 years old should be considered by the user. CIFL 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.

Signature:		
Name:	Robert Axe	Vincent Kerrigan
Title:	Deputy Head of Section – Fire Resistance	Technical Manager
Date of issue:	26/4/13.	26-04-2013

Photographs

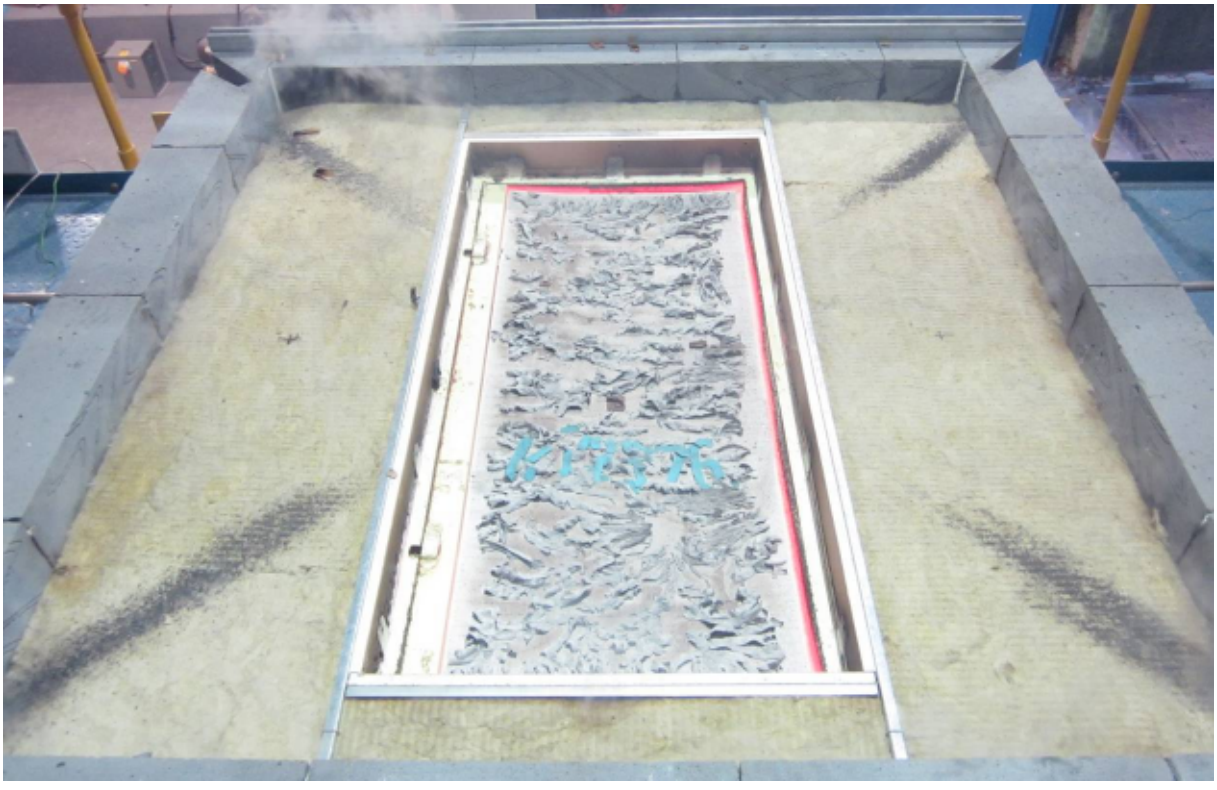
Frame fixings and mastic sealing



Exposed face prior to testing

Unexposed face at start of test

After 105 minutes



Post test - exposed face

Description of construction - (refer to the appendix)

Access panel leaf

	Material	Dimensions (mm)	Density (kg/m³)	Moisture (% w/w)
Leaf face – exposed	Profiled Zintec steel	0.9 thick	-	-
Leaf face – unexposed	British Gypsum Soundbloc plasterboard	12.5 thick	-	-
Budget lock box section	Profiled Zintec steel	0.9 thick	-	-

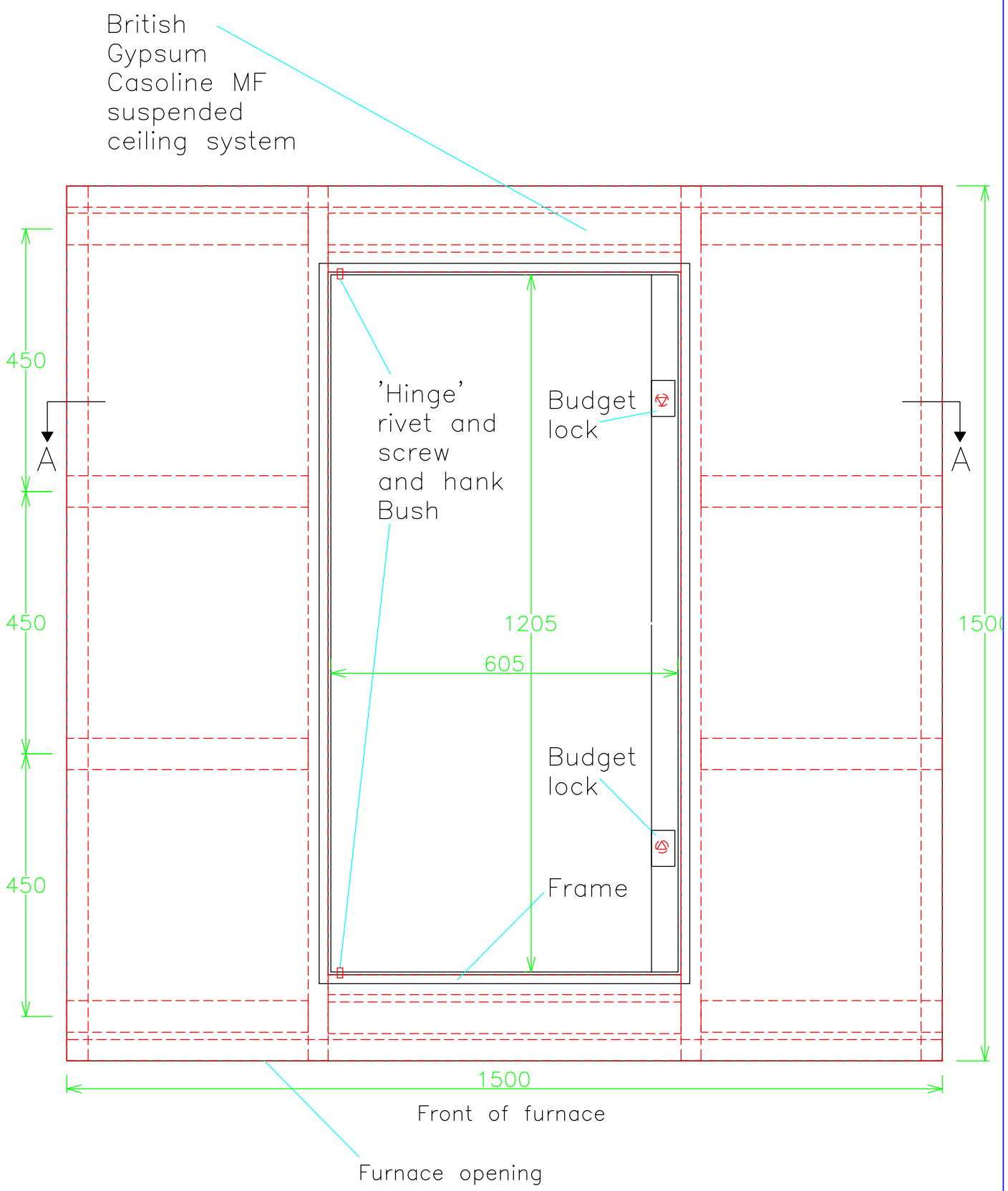
Access panel frame

	Material	Dimensions (mm)	Density (kg/m³)	Moisture (% w/w)
Frame	Profiled Zintec steel	0.9 thick	-	-
Frame jointing detail	Butted – welded	-	-	-
Stops	Integral to frame profile	-	-	-
Frame to supporting construction fixing detail	3No. Zintec steel fixing tabs per frame jamb, 2No. on the short edges, each fixed with 1No. 32mm long Drywall screw	0.9 thick	-	-

Hardware

	Make/type	Location
Hinge	Steel pivot pin	See figures 1 and 2
Closer	None fitted	-
Lock	2No. Budget locks	Fitted on the unexposed face of the lock box section
Furniture	2No. removable grommets	Fitted on the exposed face appropriate to the Budget locks

Appendix - figures 1 - 3



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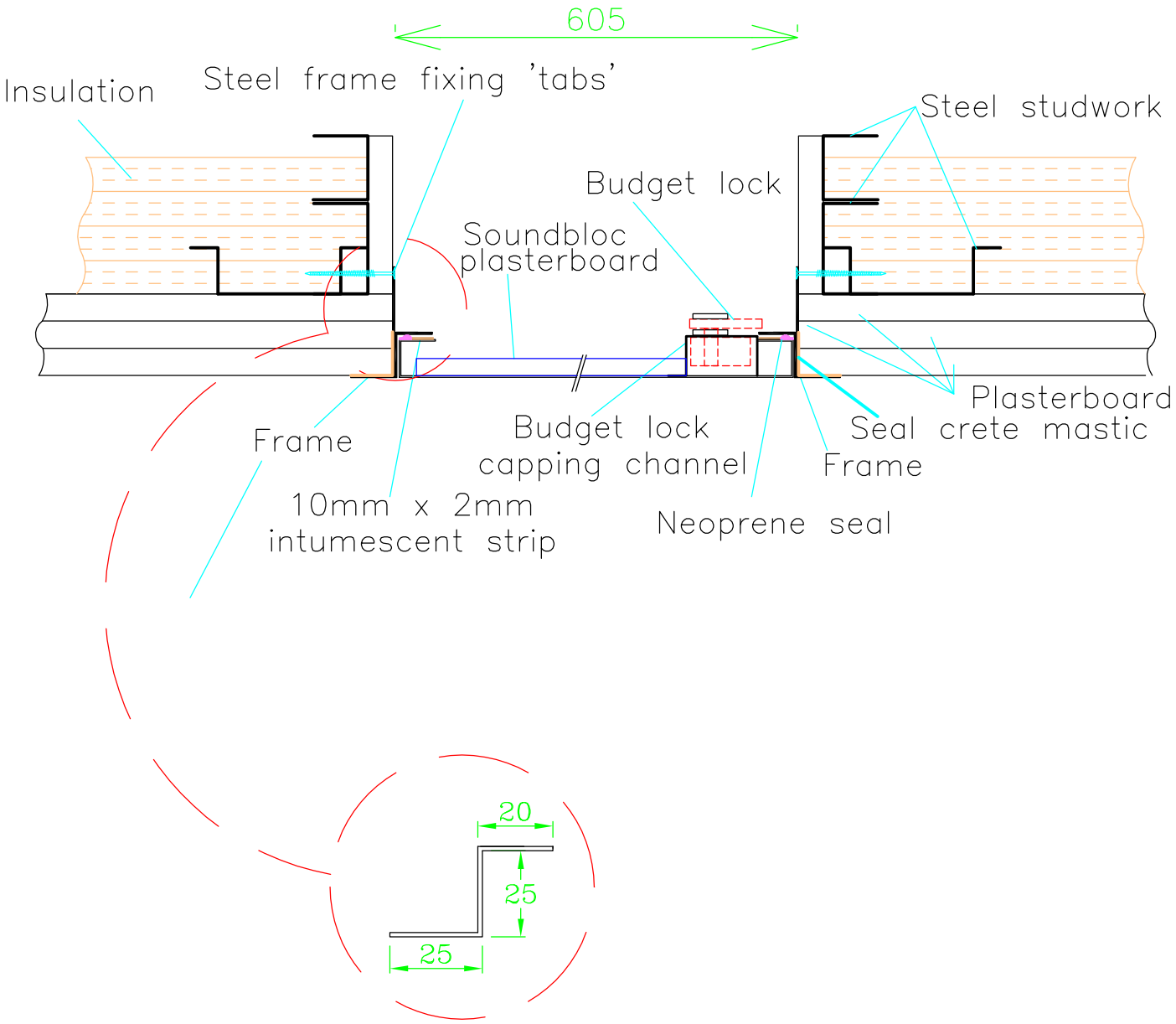
Title: Unexposed face front elevation and plan view
(All dimensions in mm)

Date Drawn	Drawn By	Scale
07/01/13	ARD	NTS

Project No.	
Chilt/IF12076	Appendix 1

Section A – A



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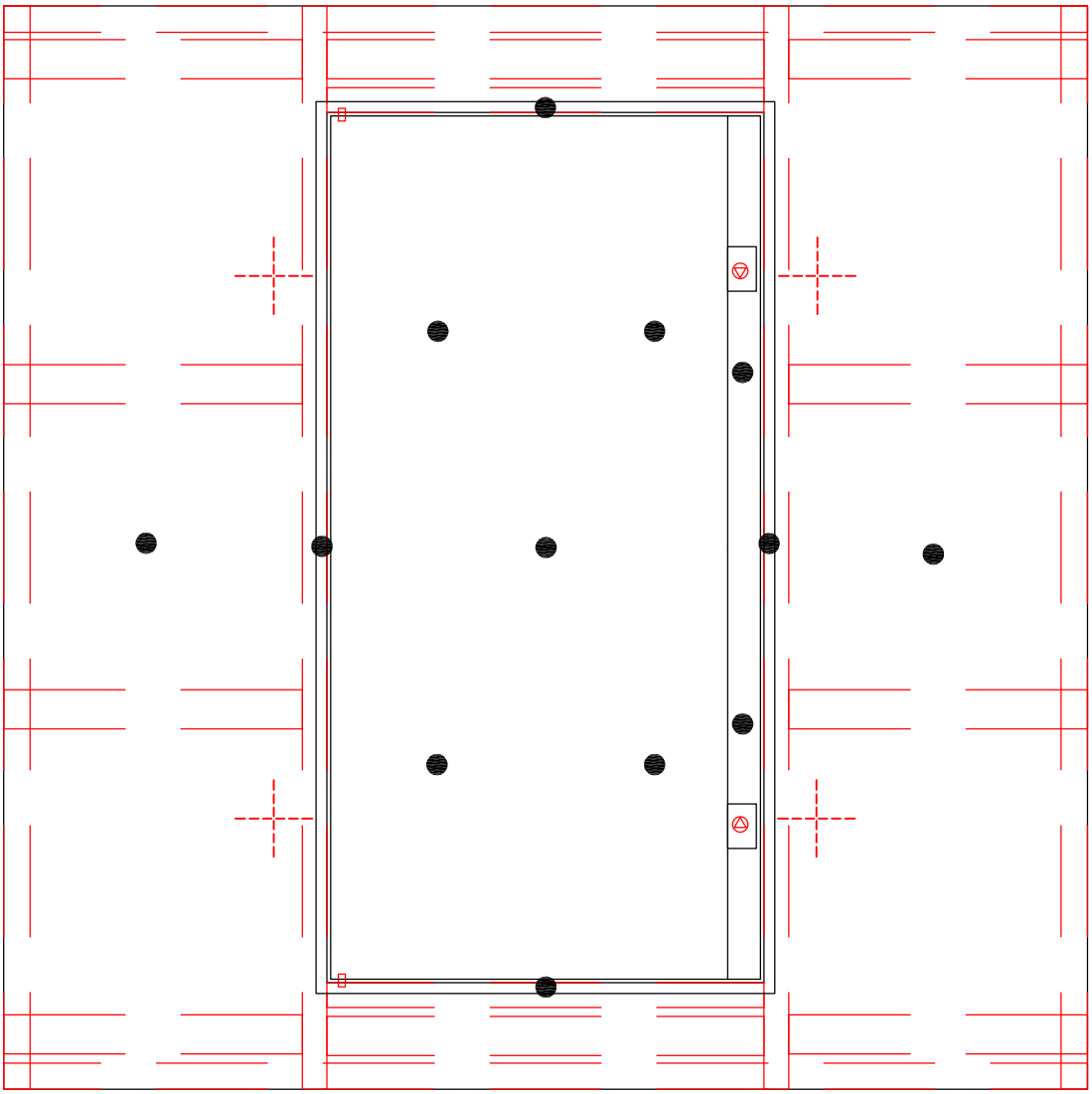
Title: Cross sections of access panels (All measurements in mm)		
Date Drawn: 07/01/13	Drawn By: ARD	Scale: NTS
Project No.: Chilt/IF12076		Appendix 1



: Furnace Thermocouples

: Unexposed Face Thermocouples

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Title: Thermocouple positions

Date Drawn	Drawn By	Scale
07/01/13	ARD	NTS

Project No.	
Chilt/IF12076	Appendix 1