

## CLASSIFICATION OF FIRE RESISTANCE PERFORMANCE IN ACCORDANCE WITH BS EN 13501-2:2016

Sponsor: **British Gypsum**  
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Product name: 5 M HIGH SHAFTWALL SYSTEM  
INCORPORATING A 60 MM GYPFRAME  
METAL STUD FRAMEWORK CLAD WITH A  
TRIPLE LAYER OF 15 MM GLASROC F  
FIRECASE 15MM ON THE CORRIDOR SIDE  
AND A SINGLE LAYER OF 20 MM GLASROC  
F FIRECASE 20MM ON THE SHAFT SIDE  
WITH 25 MM ISOVER APR INSULATION IN  
THE CAVITY AND INCORPORATING A  
15 MM DEFLECTION HEAD - EXPOSED TO  
THE FIRE FROM THE SHAFT SIDE

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# The Building Test Centre

## Fire Acoustics Structures

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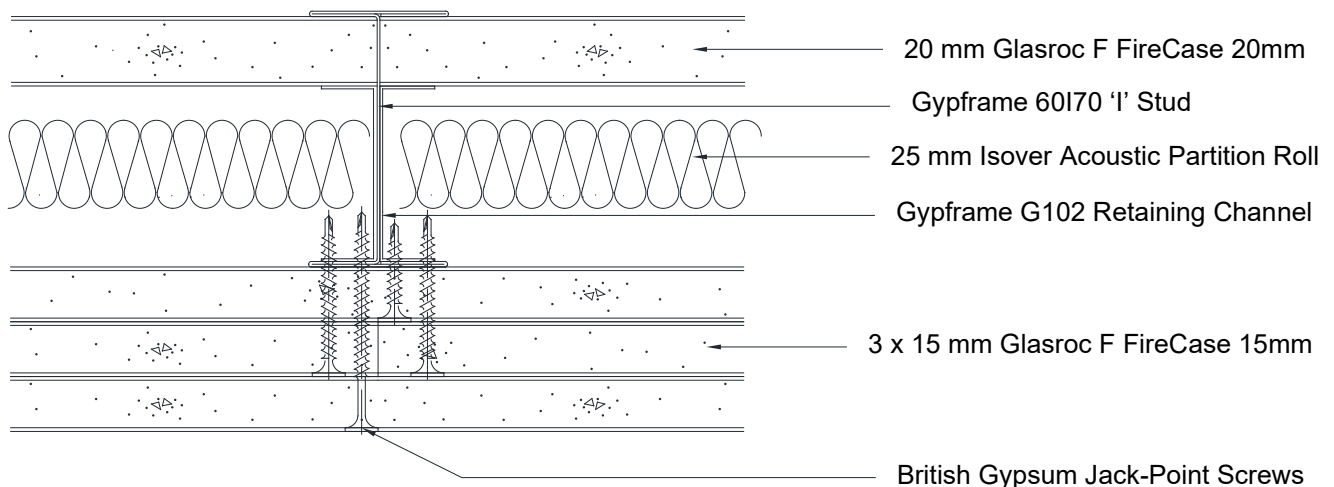
## 1. Introduction

This classification report defines the classification assigned to element 5 m high shaftwall system incorporating a 60 mm Gypframe metal stud framework clad with a triple layer of 15 mm Glasroc F FireCase 15mm on the corridor side and a single layer of 20 mm Glasroc F FireCase 20mm on the shaft side with 25 mm Isover APR insulation in the cavity and incorporating a 15 mm deflection head - exposed to the fire from the shaft side, in accordance with the procedures given in BS EN 13501-2:2016.

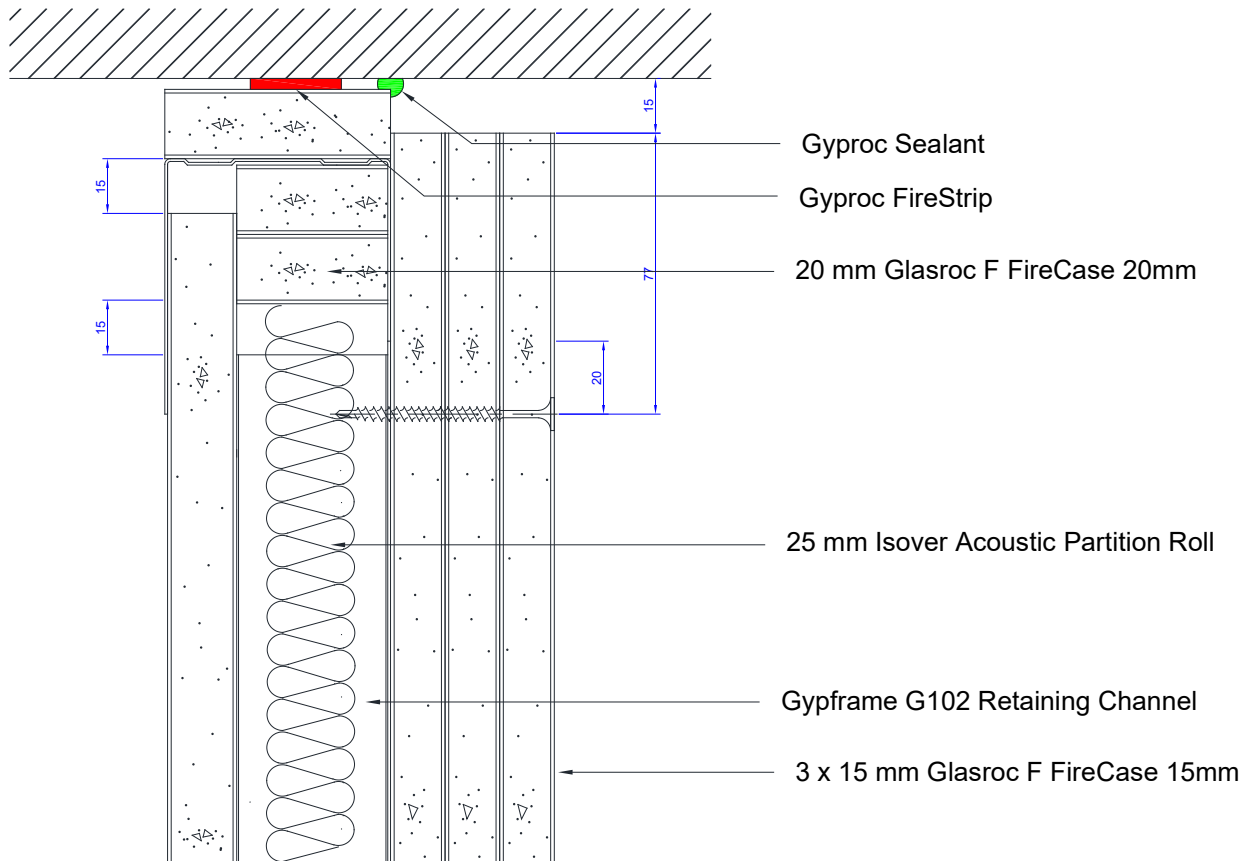
## 2. Details of Classified Product

### 2.1 Product Description

The element, 5 m high shaftwall system incorporating a 60 mm Gypframe metal stud framework clad with a triple layer of 15 mm Glasroc F FireCase 15mm on the corridor side and a single layer of 20 mm Glasroc F FireCase 20mm on the shaft side with 25 mm Isover APR insulation in the cavity and incorporating a 15 mm deflection head - exposed to the fire from the shaft side, fully described below, is provided in support of the classification, listed in Clause 3.1.



**Figure 1.** Horizontal cross section – 5 m high shaftwall system incorporating a 60 mm Gypframe metal stud framework clad with a triple layer of 15 mm Glasroc F FireCase 15mm on the corridor side and a single layer of 20 mm Glasroc F FireCase 20mm on the shaft side with 25 mm Isover APR insulation in the cavity and incorporating a 15 mm deflection head - exposed to the fire from the shaft side.



**Figure 2.** Vertical cross section – 5 m high shaftwall system incorporating a 60 mm Gypframe metal stud framework clad with a triple layer of 15 mm Glasroc F FireCase 15mm on the corridor side and a single layer of 20 mm Glasroc F FireCase 20mm on the shaft side with 25 mm Isover APR insulation in the cavity and incorporating a 15 mm deflection head - exposed to the fire from the shaft side.

### Construction Details

The specimen was constructed in a refractory concrete lined steel restraint test frame with an opening of 5000 mm (high) x 3000 mm (wide).

Gypframe 62DC60 Deep Flange Floor and Ceiling Channel was fixed to the base of the test aperture at 600 mm centres using 60 mm fire resistant fixings.

A continuous strip of Gyproc FireStrip was placed along the centreline of a two 1500 mm long x 62 mm wide strips of 20 mm Glasroc F FireCase 20mm butt-joined together. The 20 mm Glasroc F FireCase 20mm was located on the upper web side of a Gypframe 62JC70 'J' Channel and attached to the head of the frame at 300 mm centres using 100 mm fire resistant fixings.

The channel was orientated such that the longer flange was positioned on the exposed face side of the specimen. A bead of Gyproc Sealant was applied on the corridor side of the specimen between the head of the test frame and the 20 mm Glasroc F FireCase 20mm dropped soffit.

Gypframe 60SC55 Starter Channels were butt-joined in order to leave a 15 mm gap between the top of the starter channel and the head channel. The starter channels were positioned between the head and base channels at the left-hand side of the aperture as viewed from the unexposed face and fixed at 600 mm centres using 60 mm fire resistant fixings.

Gypframe 60I70 'I' studs were shortened in order to leave a 15 mm gap between the top of the stud and the head channel and were positioned between the head and base channels at 600 mm centres.

Gypframe 60I70 'I' Studs were extended by trimming the 'I' stud flanges leaving a 200 mm web extension which was then overlapped with an adjoining 'I' stud and fixed through the stud webs with four 13 mm British Gypsum Wafer Head Screws 13mm. The join was positioned 3600 mm from the base of the studs.

The right-hand stud viewed from the unexposed face was not fixed to the perimeter of the test frame, and the gap between the stud and framing lining was filled with a 25 mm thick rock mineral fibre gasket.

One layer of 20 mm Glasroc F FireCase 20mm, reduced in length to leave a 15 mm gap at the head of the aperture, was inserted between the studs with a horizontal joint at 1000 mm and 3000 mm height.

Two 40 mm wide x 20 mm Glasroc F FireCase 20mm fire stops were positioned horizontally into the web of the head channel between the shaft-side layer of 20 mm Glasroc F FireCase 20mm and a 60I70 'I' Stud. The fire stops were fixed in position using two 50 mm British Gypsum Drywall Screws 50mm.

Gypframe GA3 Steel Angle was placed in the horizontal board joints. Two beads of Gyproc Sealant (one on top and one bottom) were applied to the back of 122 mm wide x 20 mm Glasroc F

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FireCase 20mm fire stops and were fixed to the Gypframe GA3 Steel Angle using 3 x 35 mm British Gypsum Jack-Point Screws 35mm.

Gypframe G102 Retaining Channels (cut to accommodate the fire stops) were positioned between the 20 mm Gyproc F FireCase 20mm and the Gypframe 60I70 'I' Studs / Gypframe 60SC55 Starter Channels.

Thermocouples were added to the studs at mid height on the web and cold flanges of the central two studs on framework.

25 mm Isover Acoustic Partition Roll 1200 insulation was placed within the stud cavity.

The unexposed face (corridor-side) framework was clad with a triple layer of 15 mm Glasroc F FireCase 15mm. All the boards were reduced to leave a 15 mm gap at the head of the specimen and the uppermost fixing was 77 mm below the top edge of the unexposed face board.

The inner layer of boards was screw fixed at 300 mm centres to all framing members, except the head channel, using 35 mm British Gypsum Jack-Point Screws 35mm. A horizontal joint was positioned at 2400 mm and 4800 mm from the base of the specimen.

The middle layer of boards was screw fixed at 300 mm centres to all framing members, except the head channel, using 41 mm British Gypsum Jack-Point Screws 41mm. A horizontal joint was positioned at 600 mm and 3000 mm from the base of the specimen.

The outer layer of boards was screw fixed at 300 mm centres to all framing members, except the head channel, using 60 mm British Gypsum Jack-Point Screws 60mm. A horizontal joint was positioned at 2400 mm and 4800 mm from the base of the specimen.

All vertical joints were staggered between layers.

A Gypframe GFS1 Fixing Strap was used to back the horizontal outer layer board joints on the unexposed face.

All external board joints were taped and filled using Gyproc Paper Joint Tape and Gyproc Joint Filler as appropriate. All screw heads were spotted using Gyproc Joint Filler.

### 3. Test Reports / Extended Application Reports and Test Results in Support of Classification

#### 3.1 Test Reports / Extended Application Reports

Name of Laboratory	Name of Sponsor	Test Reports / Extended Application Report Nos.	Test Method / Extended Application Rules & Date
The Building Test Centre	British Gypsum	BTC 21933F	BS EN 1364-1:2015

#### 3.2 Test Results

Test Method & Test Number	Parameter		Results
BS EN 1364-1:2015 BTC 21933F	Integrity	Sustained Flaming	126 minutes, no failure
		6 mm Gap Gauge	126 minutes, no failure
		25 mm Gap Gauge	126 minutes, no failure
		Cotton Pad	125 minutes
	Insulation (by virtue of integrity)		125 minutes

All data can be found in the relevant test report.

#### 4. Classification and Field of Application

##### 4.1 Reference of Classification

This classification has been carried out in accordance with clause 7.5.2 of BS EN 13501-2:2016.

##### 4.2 Classification

The element, 5 m high shaftwall system incorporating a 60 mm Gypframe metal stud framework clad with a triple layer of 15 mm Glasroc F FireCase 15mm on the corridor side and a single layer of 20 mm Glasroc F FireCase 20mm on the shaft side with 25 mm Isover APR insulation in the cavity and incorporating a 15 mm deflection head - exposed to the fire from the shaft side, is classified according to the following combinations of performance parameters and classes as appropriate.

R	E	I	W		t	t	-	M	S	C	IncSlow	sn	ef	r	G	K
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**Fire resistance classification: EI 120**

##### 4.3 Field of Application

This classification is valid for any of the following end use applications, as specified in BS EN 1364-1:2015:

- i) Decrease in height.
- ii) Increase in the thickness of the wall.
- iii) Increase thickness of component materials.
- iv) Decrease in the linear dimensions of the boards but not thickness.
- v) Decrease stud spacing.
- vi) Decrease in fixing centres.
- vii) Increase in the number of horizontal joints, of the type tested, when tested with one joint not more than (500±150) mm from the top edge.



### Extension of Width

For test specimens tested without a supporting construction, the width of an identical construction may be increased as the specimen was tested at nominally 3000 mm wide with one vertical edge without restraint.

### Extension of Height

The height of the construction may be increased by 1000 mm under the following conditions:

$$\frac{30 \text{ minutes}}{\leq 100 \text{ mm}}$$

## 5. Limitations

This classification document does not represent type approval or certification of the product.

## 6. Authorisation

SIGNED



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