RESISTANCE TO FIRE
CLASSIFICATION REPORT No EUI-24-000738

RESISTANCE TO FIRE CLASSIFICATION IN ACCORDANCE WITH BS EN 13501-2:2023

Sponsor:	Etex Building Performance Ltd. PO Box 8136 Burton-On-Trent DE14 9JX UNITED KINGDOM
Product name:	A Loadbearing Timber Floor Construction Protected By A Plasterboard Ceiling
Classification report No.:	EUI-24-000738
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1. DOCUMENT TRACKING

Revision Index.	*Modification*
0	Original document

2. INTRODUCTION

This classification report defines the resistance to fire classification assigned to A Loadbearing Timber Floor Construction Protected By A Plasterboard Ceiling, when exposed to a specific side (as detailed in sections 3 and 4) in accordance with the procedure given in BS EN 13501-2:2023.

3. DETAILED OF CLASSIFIED PRODUCT

3.1. GENERAL

The product, A Loadbearing Timber Floor Construction Protected by A Plasterboard Ceiling, is defined as a loadbearing floors and roofs with fire separation function in accordance with BS EN 13501-2:2023. Its function is to be fire-resistant and regards fire resistance performance characteristics given in section 7.3.3 of the standard BS EN 13501-2: 2023.

The product is described in the test report mentioned in section 4 of this report and is described below.

3.2. DESCRIPTION

The floor assembly had overall nominal dimensions of 4300 mm long by 2980 mm wide. The floor consisted of C16 timber joists with a nominal section size of 221 mm by 44 mm installed at 600 mm centres. The same timber was used for central noggings in the timber framework. C16 timber with a nominal section size of 38 mm by 38 mm was fitted within the joists at 1200 mm centres to pick up the plasterboard edges.

The unexposed face of the floor comprised a layer of 18 mm thick OSB board.

A single layer of 12.5 mm thick Siniat ‘GTEC dB’ plasterboard was through fixed to the soffit of the timber framework. 100 mm (uncompressed) thick glass mineral wool insulation with a measured density of 7.8 kg/m3 was cut to size and laid over the upper face of the ceiling boards.

The floor supported a uniformly distributed load of 1.2 kN/m2. This load was provided by the test sponsor as to represent the expected working load for the floor construction in practice.

3.3. SCHEDULE OF COMPONENTS

(Refer to Figures 1 to 6)
(All values are nominal unless stated otherwise)
(All other details are as stated by the sponsor)

Item **Description**

1. Timber Framework
Comprising, Joists, Rim Joists & Central Noggings
Material : C16 grade general commercial softwood
Overall sizes
i.framework : 4300 mm long x 2980 mm wide
ii. joist section : 221 mm deep x 44 mm wide
Density : 394.4 Kg/m3
Fixing method : The sections were through screwed to one and other

Fixings
i.supplier : General commercial hardware outlet
ii. reference : Gold Screw
iii. type : Single thread countersunk head wood screw
iv. size : 150 mm long x M6 (5.8 mm measured)
v. quantity : 3 no. per joint

2. Board End Noggings
Material : C16 grade general commercial softwood
Overall sizes : 38 mm x 38 mm
Density : 468.1 Kg/m3
Fixing method : Fitted between the joists and through screwed
Fixings
i.supplier : General commercial hardware outlet
ii. reference : Gold Screw
iii. type : Single thread countersunk head wood screw
iv. size : 150 mm long x M6 (5.8 mm measured)
v. quantity : 1 off per joint

3. Ceiling Boards
Manufacturer : Siniat
Reference : GTEC dB Board
Material : Aerated calcium sulphate di-hydrate dense plasterboard with fillers and fibres
Thickness : 12.5 mm
Density : 875 kg/m³ (stated) (measured)
Fixing method : Through fixed in a single layer to the soffits of timber frame work, with drywall screws. Board joints were taped and filled. The boards were sealed to the restraint frame with a bead of sealant

Fixings
i.manufacturer : Siniat
ii. reference : GTEC High-Thread Drywall Screws
iii. type : Zinc coated steel screws
iv. size : 42 mm long x 3.5 mm diameter
v. centres : 150 mm (edge), 230 mm (field)

3. Ceiling Boards (Continued)

Tape
i.manufacturer : Siniat
ii. reference : GTEC Joint Tape
Filler
i.manufacturer : Siniat
ii. reference : Siniat Joint Filler
Sealant
i.manufacturer : Siniat
ii. reference : GTEC Intumescent Acoustic Sealant

4. Insulation
Manufacturer : Knauf
Reference : Acoustic Roll
Material : Glass mineral wool
Thickness : 100 mm (uncompressed)
Density : 7.8 kg/m³ (measured)
Fixing method : Cut to size and laid over the upper face of the ceiling boards

5. OSB

Material	:	Flooring grade Oriented Strand Board, OSB
Density	:	566.1 kg/m3
Thickness	:	18 mm
Size	:	1200 mm wide
Fixing	:	Fitted in a single layer to the top chords of each joist and the soffit of the end joists as well as in the tongue and groove of adjoining boards. Also, fixed with 49.8 mm long x 5.1 mm diameter countersunk steel screws to floor joists at 300 mm centres Fitted in a single layer and bonded to the tops of timber framework, item 1. And fixed with 49.8 mm long x 5.1 mm diameter countersunk steel screws at 400 mm centres around the perimeter and 600 mm centres in the field of each board

3.4. LOADBEARING CAPACITY

The reference test was conducted with an applied load of 1.2 kN/m^2

3.5. DRAWINGS AS SUPPLIED BY THE SPONSOR

(See page 6-10)

4. REPORTS AND RESULTS IN SUPPORT OF THIS CLASSIFICATION

4.1. REPORTS

Name of Laboratory	Name of sponsor	Report ref. no	Test method and date field of application rules
WARRINGTONFIRE	ETEX BUILDING PERFORMANCE LTD.	FIRE TEST REPORT 436279/R	BS EN 1363-1:2020 BS EN 1365-2:2014

4.2. RESULT

Test method and test number	Parameter(s)	No. Tests	Results
FIRE TEST REPORT 436279/R BS EN 1363-1:2020 BS EN 1365-2:2014	**Composition**	1	The floor assembly had overall nominal dimensions of 4300 mm long by 2980 mm wide. The floor consisted of C16 timber joists with a nominal section size of 221 mm by 44 mm installed at 600 mm centres. The same timber was used for central noggings in the timber framework. C16 timber with a nominal section size of 38 mm by 38 mm was fitted within the joists at 1200 mm centres to pick up the plasterboard edges. The unexposed face of the floor comprised a layer of 18 mm thick OSB board. A single layer of 12.5 mm thick Siniat 'GTEC dB' plasterboard was through fixed to the soffit of the timber framework. 100 mm (uncompressed) thick glass mineral wool insulation with a measured density of 7.8 kg/m3 was cut to size and laid over the upper face of the ceiling boards.
	Applied Load		1.2 kN/m^2
	Fire Side		Bottom of the floor - A single layer of 12.5 mm thick Siniat 'GTEC dB' plasterboard
	Loadbearing capacity **Integrity** **Insulation**		38 minutes 38 minutes 38 minutes

5. DRAWINGS

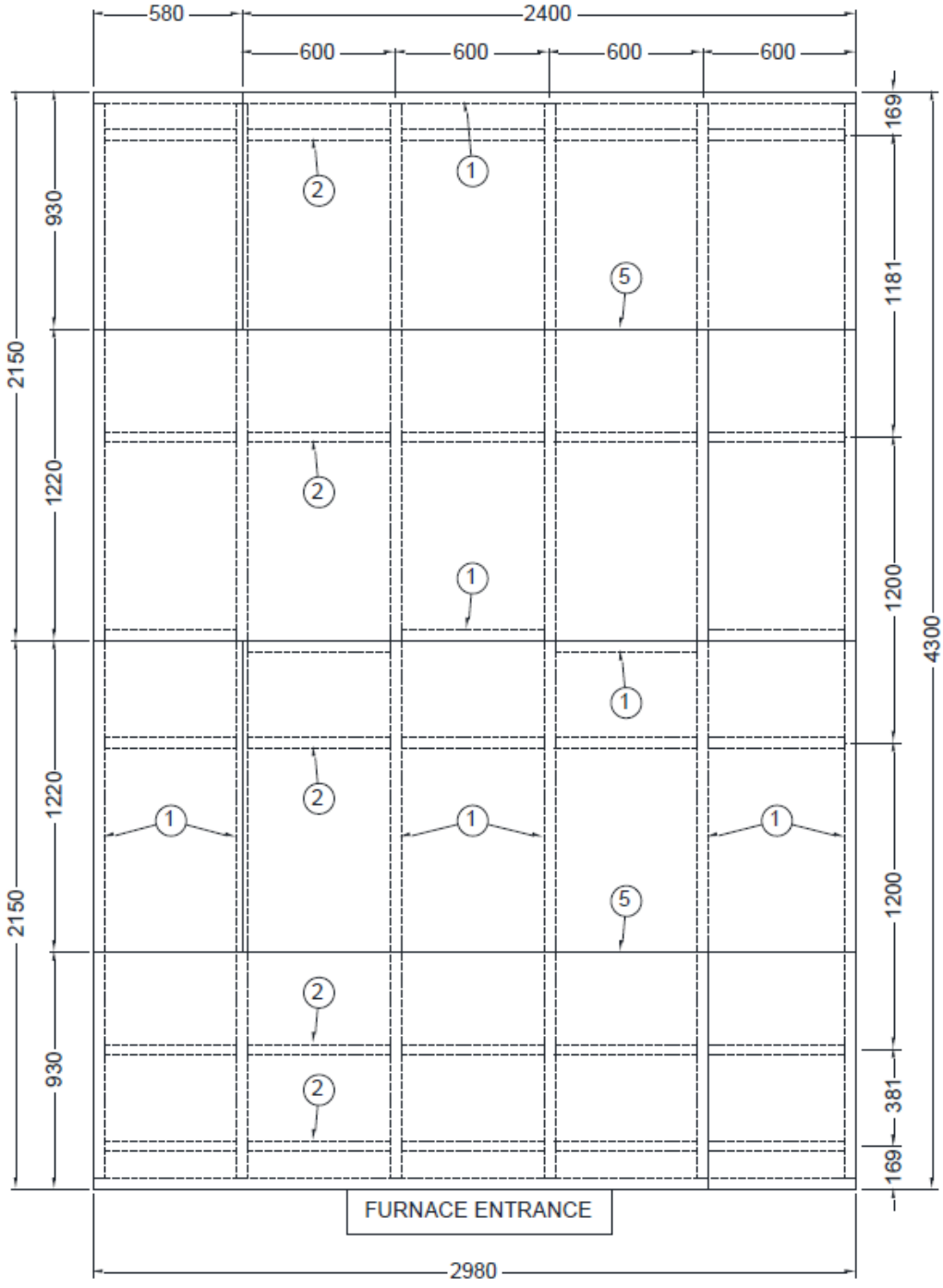


Figure 1 - General Plan View of the Unexposed Face Showing Timber Framework

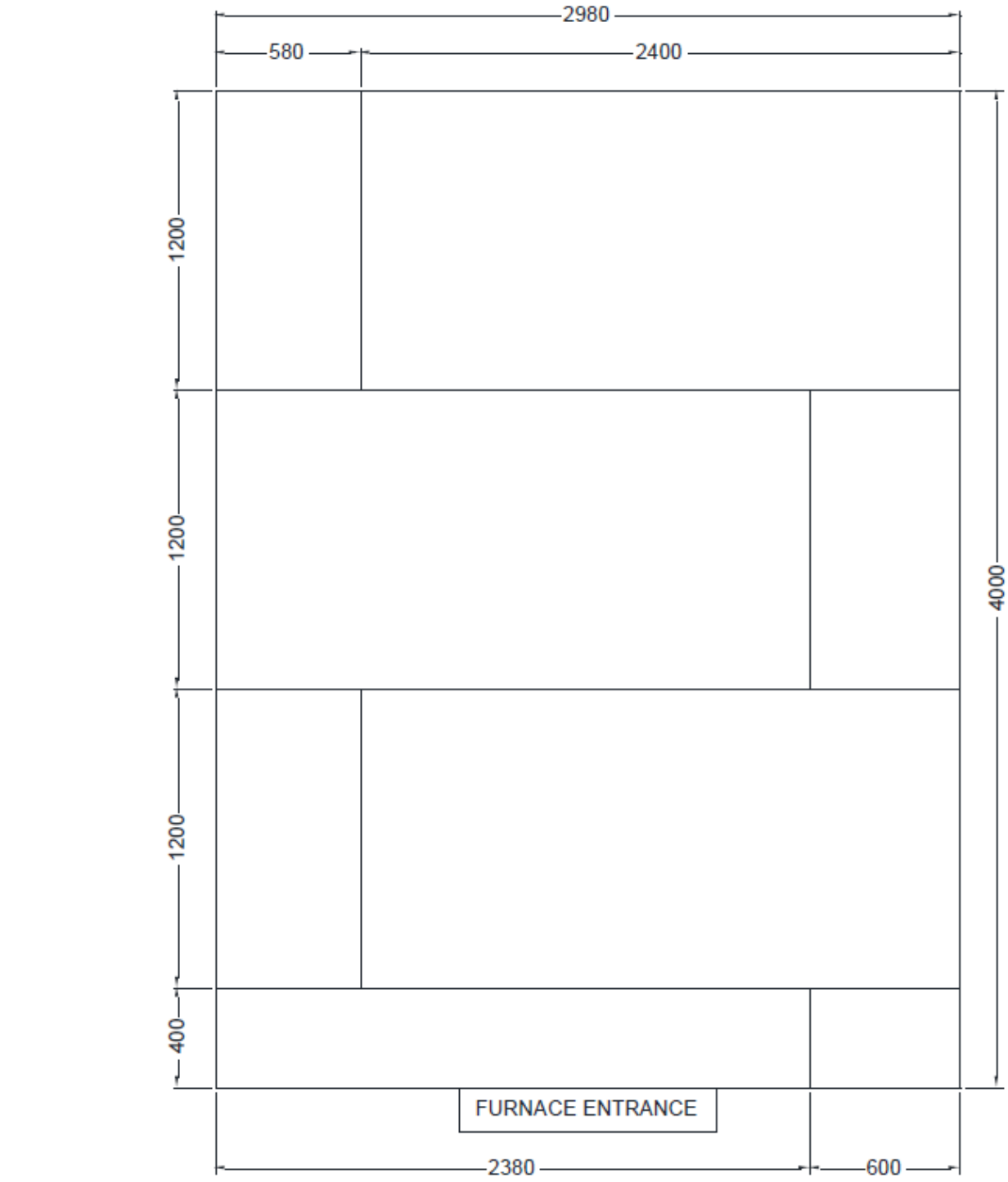


Figure 2 – Details of ceiling boards

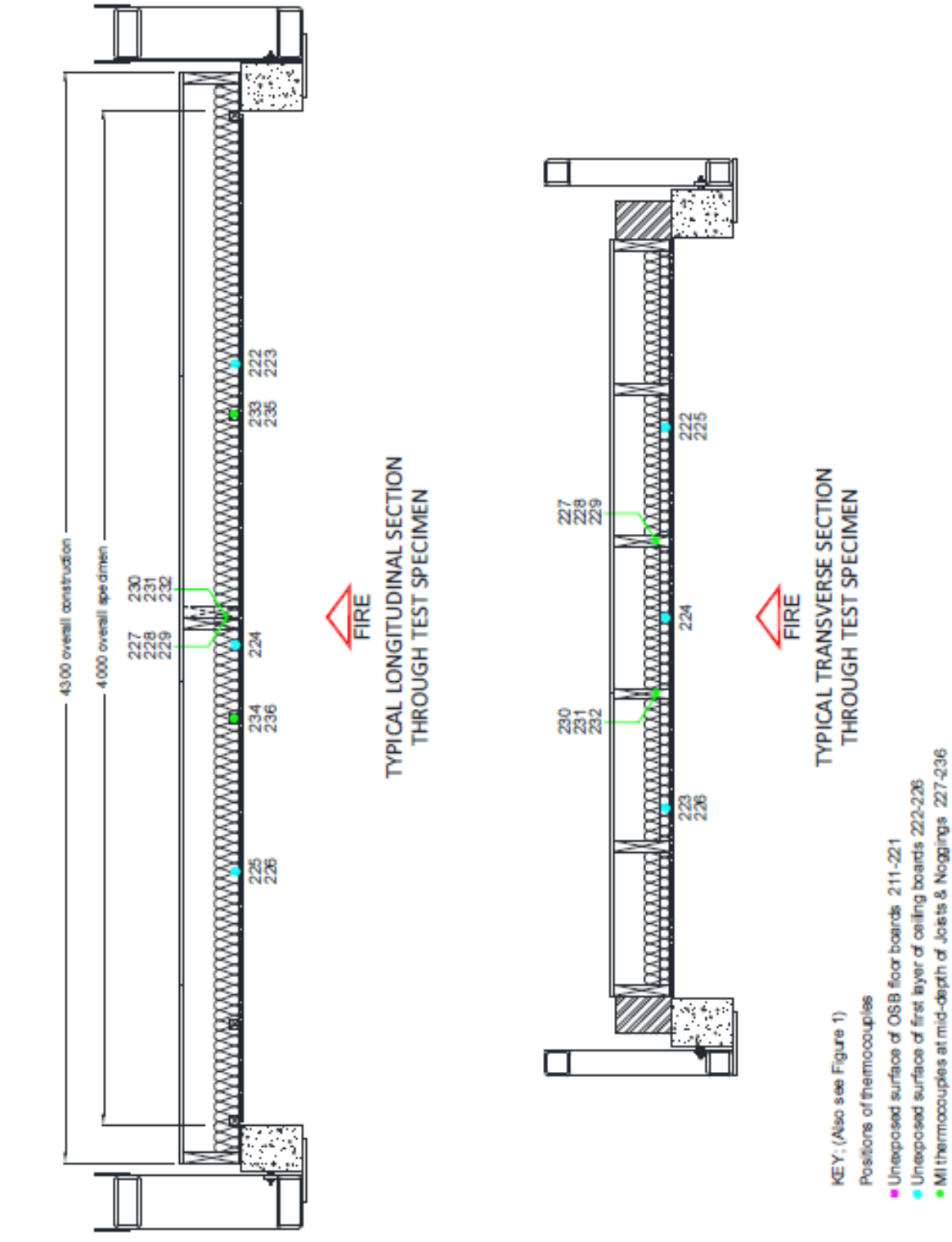


Figure 3 – Typical sections through ceiling construction

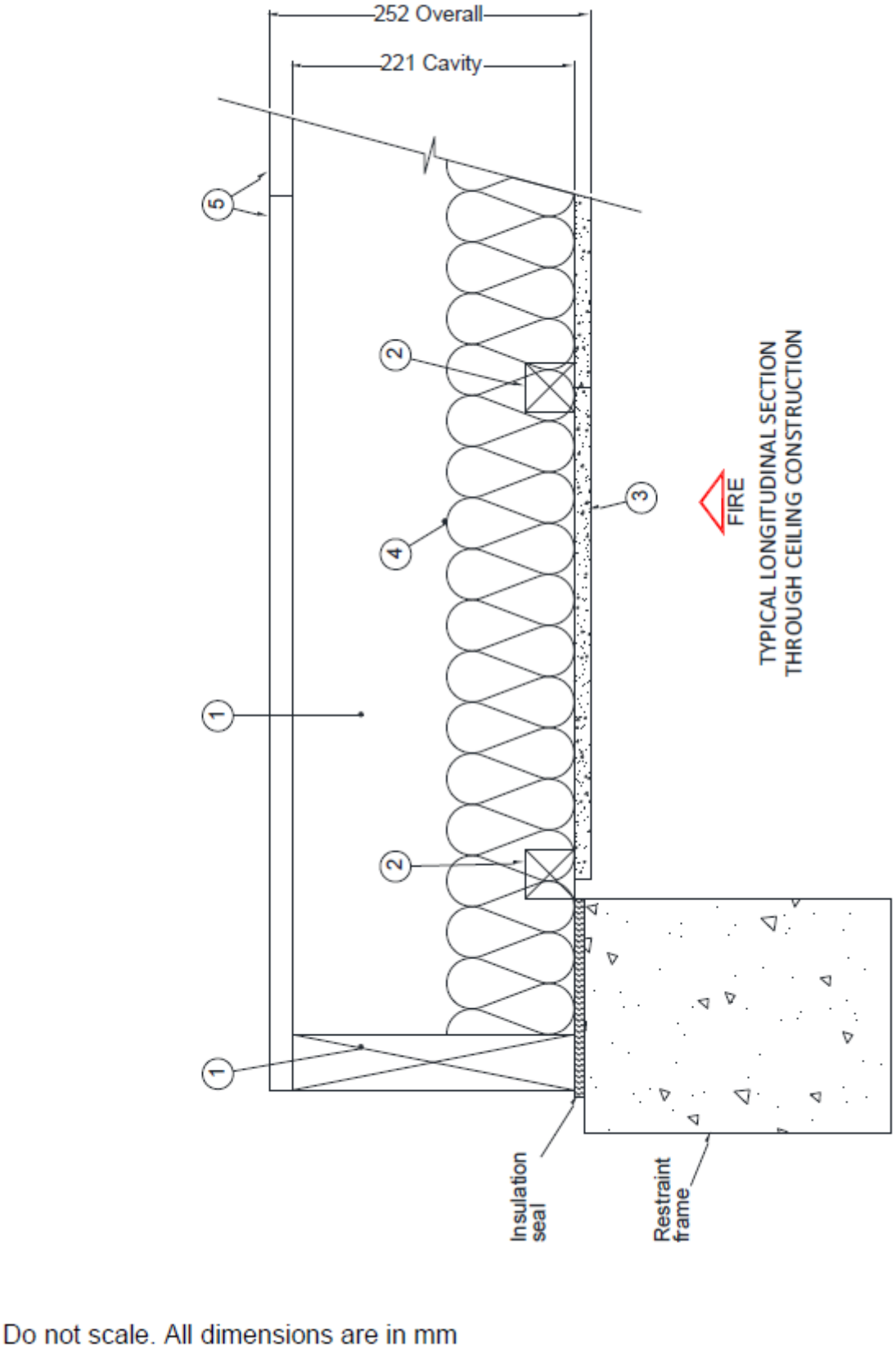
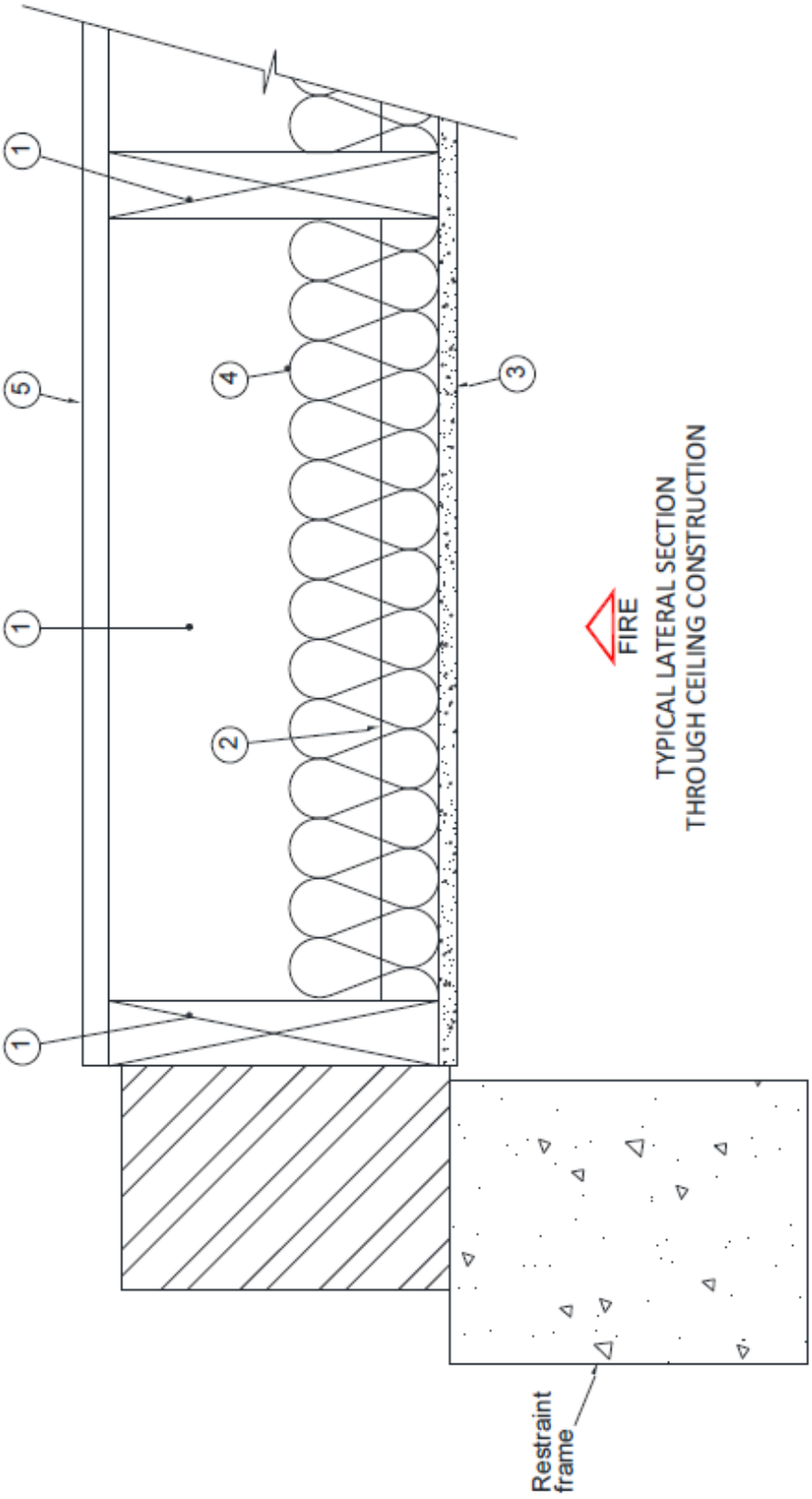
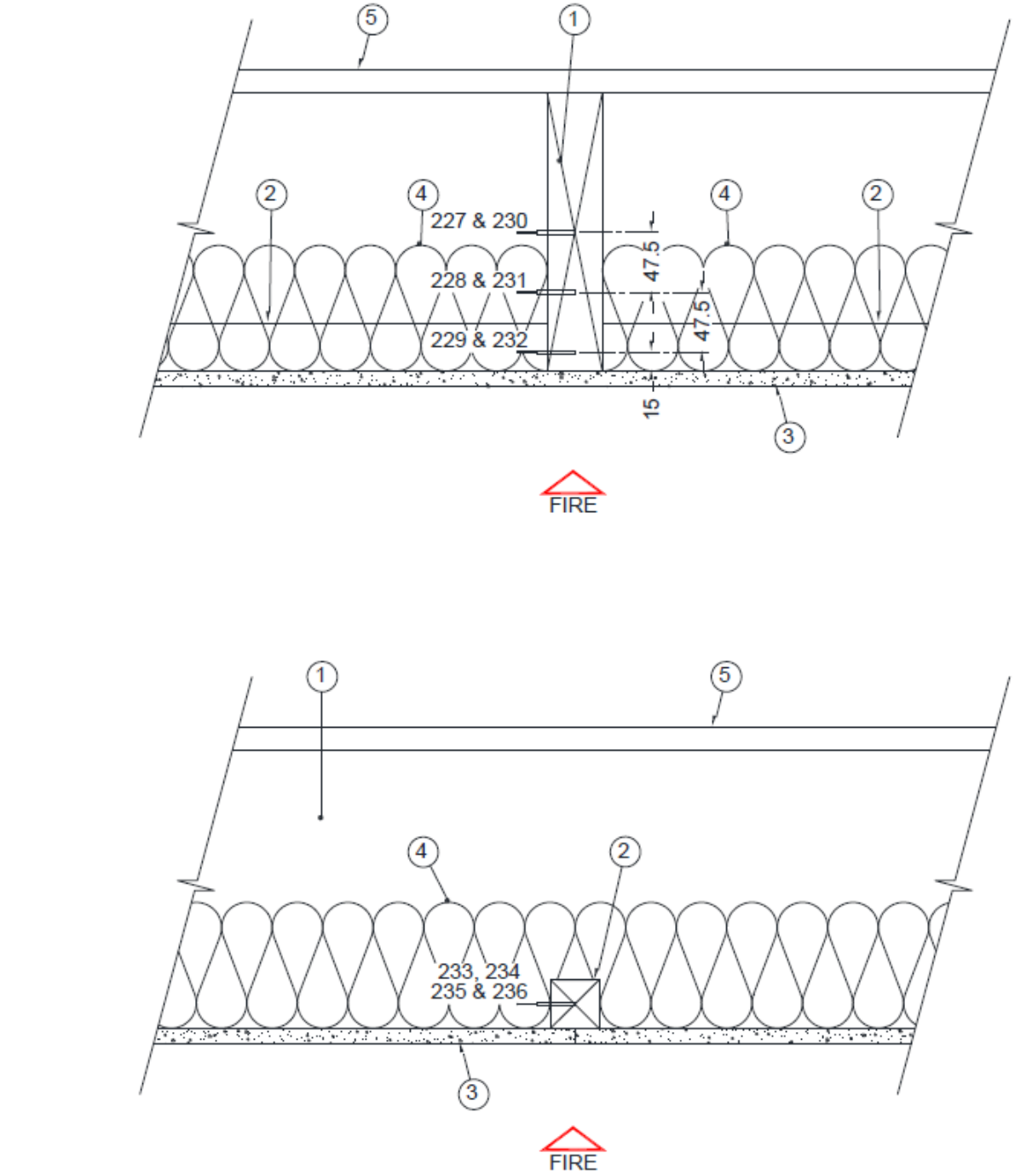


Figure 4 – Typical longitudinal section through ceiling construction



Do not scale. All dimensions are in mm

Figure 5 – Typical lateral section through ceiling construction



Do not scale. All dimensions are in mm

Figure 6 – Details of framework nogging thermocouples.

6. CLASSIFICATION AND FIELD OF APPLICATION

6.1. REFERENCE OF CLASSIFICATION

This classification has been carried out in accordance with clause 7 of BS EN 13501-2:2023.

6.2. CLASSIFICATION

The element A Loadbearing Timber Floor Construction Protected by A Plasterboard Ceiling, is classified according to the following combination of performance parameters and classes as appropriate:

R	E	I	W		*t*	*t*	-	M	S	-	C	IncSlow	sn	ef	r
R	**E**	**I**			**30**										

FIRE RESISTANCE CLASSIFICATION	**REI30**

6.3. FIELD OF APPLICATION

According to the standard BS EN 13501-2:2023, the classification is valid for the following end use applications:

Fire side: as tested – Bottom of the floor - A single layer of 12.5 mm thick Siniat 'GTEC dB' plasterboard.

NOTE: The present classification report is not valid for the opposite side of the floor.

6.3.1. Field of direct application of the test results

The direct application field of the test results is limited to the determination of the permissible modifications of the test specimen following a successful fire resistance test. These modifications may be automatically introduced without the sponsor having to apply for any additional assessment, calculation or agreement.

The results are directly applicable to a similar untested floor construction provided the following is true:

a) With respect to the structural building member:

The maximum moments and shear forces, which when calculated on the same basis as the test load, shall not be greater than those tested.

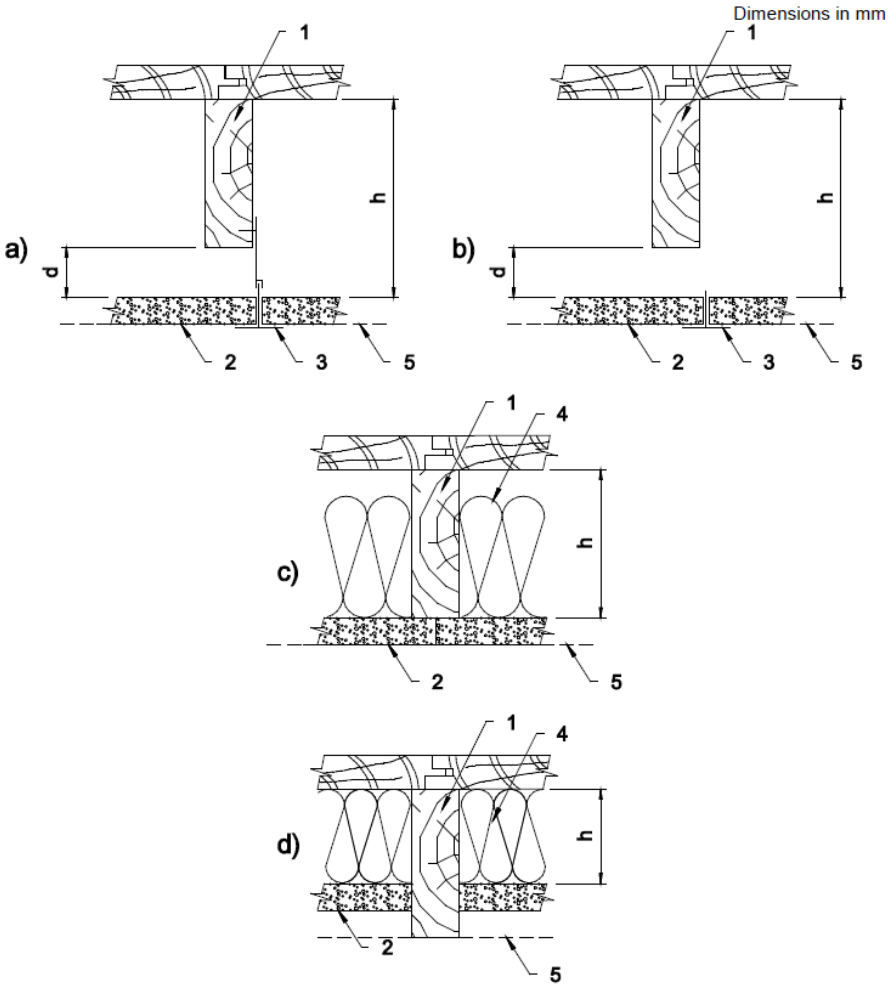
b) With respect to the ceiling system:

The size of panels of the ceiling lining may be increased by a maximum of 5 % but limited to a maximum of 50 mm. The length of the grid members can be increased accordingly.

The total area occupied by fixtures and fittings relative to the area of the ceiling lining is not increased and the maximum tested opening in the lining is not exceeded.

c) With respect to the cavity:

The height of the cavity 'h' and the minimum distance 'd' between the ceiling and the structural members (see Figure below) are equal to or greater than those tested.



Key

a)	suspended ceiling
b)	self-supported ceiling
c) and d)	direct fixed ceiling with insulation in cavity
1	supporting construction (joist)
2	ceiling lining
3	supporting frame
4	insulation
5	pressure reference line
d	distance between ceiling and structural members
h	height of cavity

7. LIMITATIONS

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

SIGNED **APPROVED**

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