



## **Laboratory for Fire Safety**

*Classification of fire resistance in accordance with EN 13501-2:2016 of a wooden floor construction made of timber I-joists, chipboard flooring and gypsum plasterboard ceiling*

*Classification report*

## Laboratory for Fire Safety

*Classification of fire resistance in accordance with EN 13501-2:2016 of a wooden floor construction made of timber I-joists, chipboard flooring and gypsum plasterboard ceiling*

Sponsor	Staircraft Group LTD Unit 3 Three Spires Industrial Estate Ibstock Road Longford, Coventry CV6 6JR
Prepared by	Peutz bv Lindenlaan 41, NL-6584 AC Molenhoek Postbus 66, NL-6585 ZH Mook The Netherlands
Notified body	NB 2264
Product name	Wooden floor construction
Report number	YA 1923-1E-RA-001
Date of issue	18 October 2018
Reference	JZ/TBr//YA 1923-1E-RA-001
Representative	ir. J. Zwart
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This classification report, containing 7 pages and an Appendix containing 2 page, can only be used and reproduced as an entity.

## 1 Introduction

This classification report defines the fire resistance classification assigned to a wooden floor construction made of I-joists with chipboard flooring and gypsum plasterboard ceiling. The system was tested in the Peutz Laboratory for Fire Safety in Mook using the standard heating curve and in accordance with the procedures given in EN 13501-2:2016.



For performing the testing and classification, the Laboratory for Fire Safety is recognized by the "Stichting Raad voor Accreditatie" (RvA).

The RvA is member of the EA MLA (**EA MLA: European Accreditation Organisation MultiLateral Agreement**: <http://www.european-accreditation.org>).

*EA: "Certificates and reports issued by bodies accredited by MLA and MRA members are considered to have the same degree of credibility, and are accepted in MLA and MRA countries."*

## 2 Details of the classified system

### 2.1 General

The element, a wooden floor construction, is defined as a loadbearing floor with fire separating function according to EN 13501-2:2016, paragraph 7.3.3. The floor has been classified for the fire applied from below only.

### 2.2 Product description

The element, a wooden floor construction made of I-joists with chipboard flooring and gypsum plasterboard ceiling, is fully described in the test report listed in table 3.1.

The element consists of a floor spanning 4050 mm between supporting walls, made of I-joists in combination with board material for the flooring and the ceiling. The I-joists are 220 mm high, made of two rectangular timber flanges of 45 mm x 45 mm connected to each other with 11 mm thick OSB. The I-joists were spaced 600 mm apart.

On the top of the I-joists a flooring of chipboard 22 mm, full boards (2400 mm x 600 mm) has been applied.

Under the I-joists a ceiling of gypsum 12,5 mm plasterboard has been mounted (full boards 2400 mm x 1200 mm). The I-joists between the boards are covered with fibre tape and joint filler. The perimeter joints between the floor construction and the supporting construction were filled with intumescent sealant. No intermediate or perimeter noggings were used to support the plasterboard or edges, and no insulation was installed in the floor cavity.

For more details of the layout of the construction please refer to the drawing in Appendix 1.

## 3 Report and test results in support of the classification

### 3.1 Used report

An overview of the reports used is given in Table 3.1. The client has stated that the stated report provided may be used for this classification report.

#### t3.1 Used reports

Name of laboratory	Name of sponsor	Reports reference number and date	Used methods
Peutz bv	Staircraft Group LTD	Test report Y 1923-1E-RA-001 dated August 13, 2018	EN 1365-2:2014 EN 1363-1:2012

### 3.2 Test results

The construction has been tested using the standard heating curve as defined in EN 1363-1:2012 with heating from below. At the request of the sponsor an extra load of 102 kg/m<sup>2</sup> has been applied during the test. For the purpose of the supporting construction a frame work made of aerated concrete (class G4/600), respectively 250 mm thick at the bearing sides and 150 mm thick at the free edges (longitudinal direction), has been used.

The summary of the test results achieved is shown in Table 3.2. The test was finished after 42 minutes, all criteria have been attained.

#### t3.2 Test results

Test standard	Parameter	Result
EN 1363-1:2012	Loadbearing capacity (R)	41 min
EN 1365-2:2014	Integrity (E)	41 min (due to reaching R)
	Thermal insulation (I)	41 min (due to reaching R)

## 4 Classification and field of application

### 4.1 Reference of classification

This classification has been carried out in accordance with Clause 7.3.3 of EN 13501-2:2016.

### 4.2 Classification

The element, a wooden floor construction, is classified according to the following combinations of performance parameters and classes as appropriate.

#### Fire resistance classification

**REI 30**  
**RE 30**

### 4.3 Field of application

This classification is valid for the end use applications as described below. The field of application is based on the direct field of application in accordance with the test standard EN 1365-2:2014. The test results are directly applicable to a similar untested floor or roof construction with the following end use applications.

#### 4.3.1 Construction element

The span of the construction may be increased or decreased, the spacing of the I-joists may be decreased, or the depth and flange size of the I-joists increased, provided that the maximum moments and shear forces on the I-joists, considering the load applied in practise, are not greater than those tested, when calculated on the same basis in the fire condition.

#### 4.3.2 The dimension crosswise to the span direction

The dimension perpendicular to the span direction may be increased or decreased provided that the spacing of the I-joists is not greater than that tested.

#### 4.3.3 Boards of the ceiling

The maximum size of boards of the ceiling may be increased up to 2450 x 1250 mm, provided that the number of fixings per square meter remains at least the same as tested.

#### 4.3.4 Cavity

The height of the cavity between the ceiling and the flooring may be increased but with a minimum I-joist height of 220 mm. No extra material may be added to that cavity.

## 5 Limitations

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

MSc. J.J. Mertens



Head of Laboratory for Fire Safety

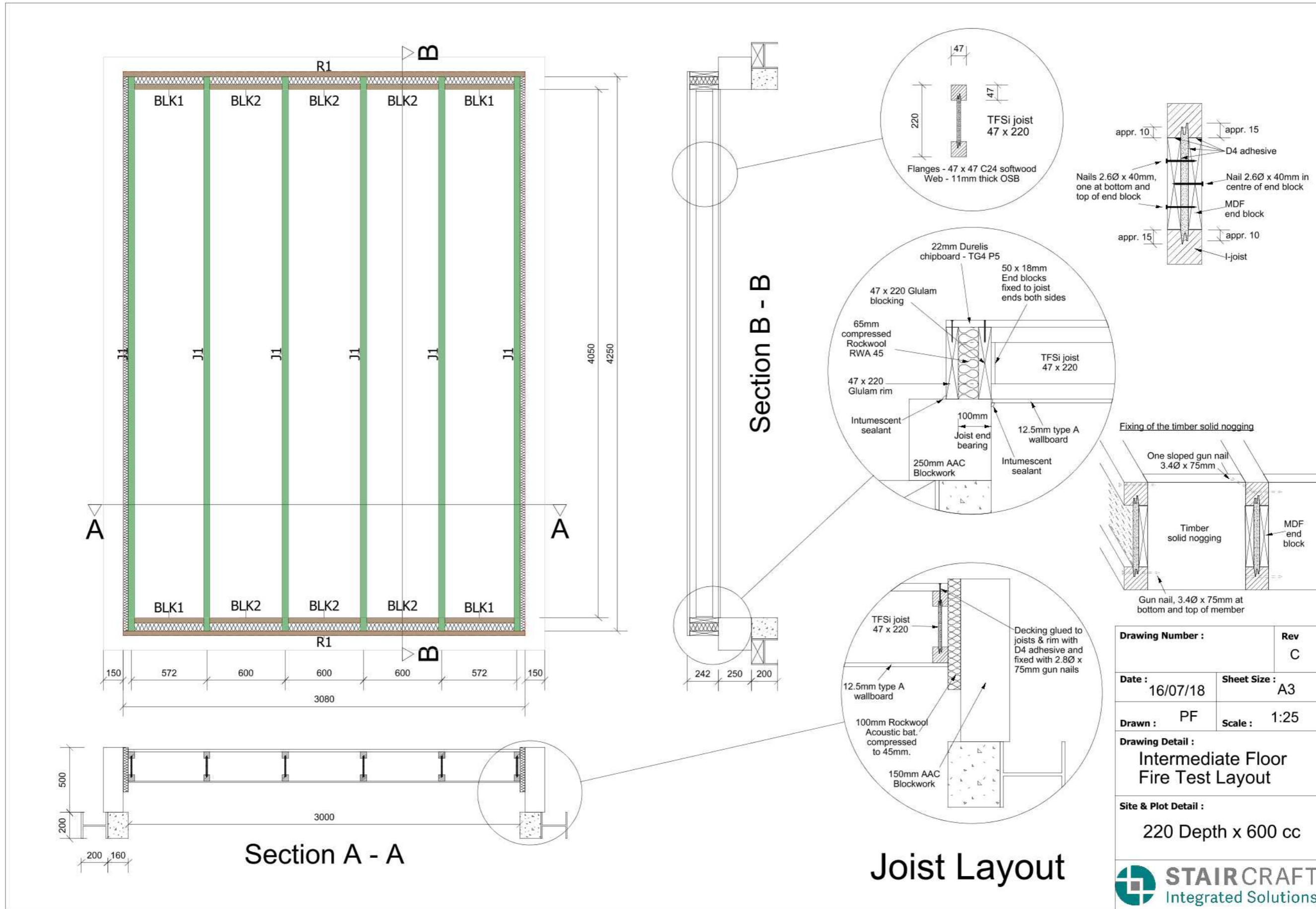
Mook,

BSc. D.J. den Boer

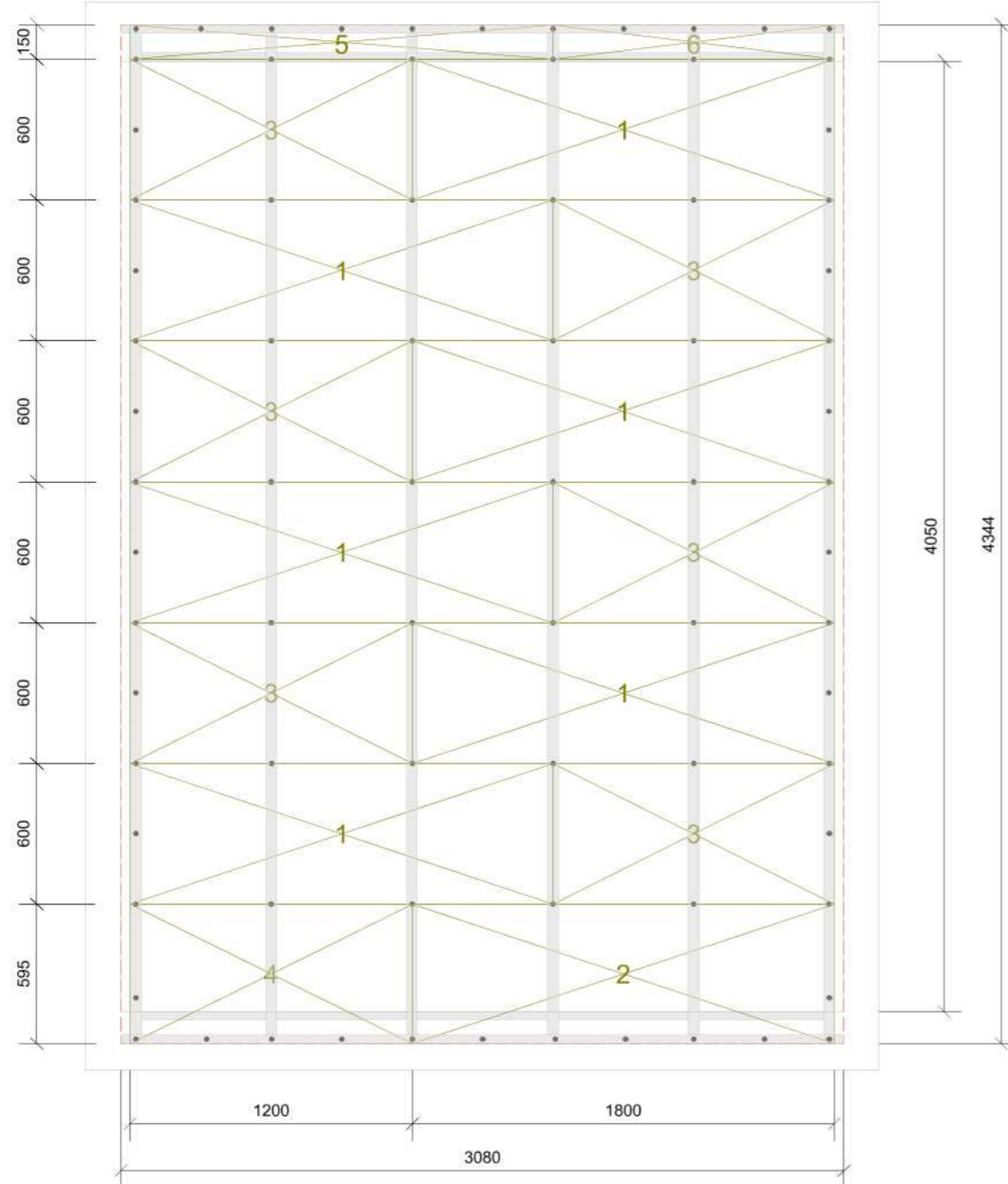


Management

This report contains 7 pages and 1 appendix:  
Appendix 1 Drawings of the classified system.

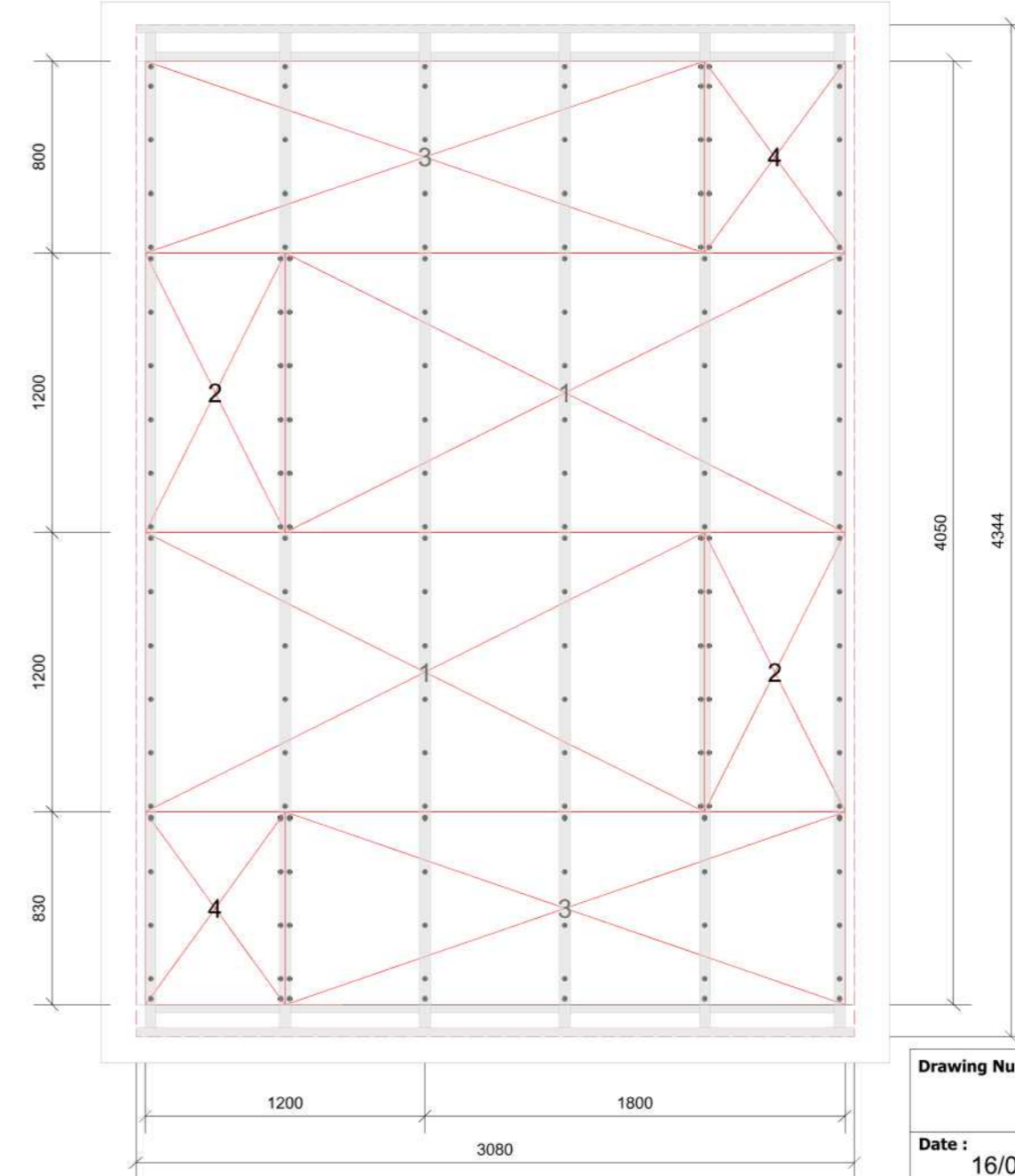






Decking glued between tongue and groove, and to joists with D4 adhesive and fixed with 2.8Ø x 75mm nails through tongues at max 600mm c/c generally, and at max. 300mm at perimeter.

Decking Layout



Plasterboard fixed to joists with 3.5Ø x 38mm Drywall screws at max. 230mm c/c. All joints taped and filled using Gyproc joint filler and screw heads covered with filler.

Plasterboard Layout

Drawing Number :		Rev
		D
Date :	16/07/18	Sheet Size : A3
Drawn :	PF	Scale : 1:25
Drawing Detail :		
Intermediate Floor Fire Test Layout		
Site & Plot Detail :		
220 depth x 600 cc		

