

**MAGFIBRE**

# FIREBOARD EURO CLASS A1

Specifications

## BOARD WEIGHTS AND SIZES

| Thickness (mm) | Width (mm) | Length (mm) | Weight per Board (kg) | Surface (m2) |
|----------------|------------|-------------|-----------------------|--------------|
| 9              | 1200       | 2400        | 28.5                  | 2.88         |
|                |            | 2700        | 32                    | 3.24         |
|                |            | 3050        | 36.4                  | 3.66         |
|                |            | 2440        | 29.5                  | 2.98         |
| 12             | 1200       | 2400        | 38                    | 2.88         |
| 20             | 1200       | 2400        | 63                    | 2.88         |
| 6              | 1200       | 2400        | 19                    | 2.88         |
| 9              | 1220       | 2289        | 27.6                  | 2.79         |
|                |            | 2440        | 29.6                  | 2.98         |
|                |            | 2560        | 30.4                  | 3.12         |
|                |            | 3050        | 36.8                  | 3.72         |
| 15             | 1220       | 3000        | 60.4                  | 3.66         |
| 18             | 1220       | 2440        | 59                    | 2.98         |

## RACKING STRENGTH

| 9mm Boarded Panel                                              | Load per stud (kN) | Racking Load Fmax (kN) | Racking Stiffness (N/mm) | Racking Resistance Requirement in accordance with BS 5268-6.1 (kN/m) | Basic Test Racking Resistance of Board according to (kN/m) |
|----------------------------------------------------------------|--------------------|------------------------|--------------------------|----------------------------------------------------------------------|------------------------------------------------------------|
| Perimeter fixings at 150mm and mid panel stud fixings at 300mm | 0                  | 11.14                  | 2448                     | 1.68                                                                 | 2.5                                                        |
|                                                                | 5                  | 18.36                  | 2626                     | 1.68                                                                 | 2.36                                                       |
| Perimeter fixings at 50mm and mid panel stud fixings at 100mm  | 0                  | 25.84                  | 1461                     | 1.68                                                                 | 3.46                                                       |
|                                                                | 5                  | 37.85                  | 2628                     | 1.68                                                                 | 3.45                                                       |

## THERMAL INSULATION

|                                               |       |
|-----------------------------------------------|-------|
| Coefficient of thermal conductivity $\lambda$ | 0.19  |
| U-Value 9mm                                   | 21.30 |
| U-Value 12mm                                  | 15.90 |
| U-Value 20mm                                  | 9.52  |

## FIRE PERFORMANCE

|                                   |                                                        |
|-----------------------------------|--------------------------------------------------------|
| Euro class EN13501-1: 2007 +A1*   | Euro Class A1 Non-Combustible All Thicknesses          |
| BS EN 476 (Parts 6&7)*            | Class 0 All Thicknesses                                |
| BS EN ISO 1182 Reaction to Fire*  | Fire Test for Non-Combustibility of Building Products  |
| BS EN 1716 Reaction to Fire       | Determination of Heat Combustion for Building Products |
| BS EN 476 (Part 22 timber frame)* | See relevant Test Reports for systems and applications |

\* for fixing details, please refer to relevant certificates

## DIRECT AIRBORNE SOUND INSULATION

Tests have been done to determine the sound reduction index of PRS FireBoard in accordance with BS EN ISO 10140-2:2010.

The results below are expressed as a single-number rating  $R_w$  in accordance with EN ISO 717-1:2013.

Direct airborne sound insulation test results on 9 mm, 12 mm and 20 mm thick panels:

| Thickness (mm) | $R_w$ (C;Ctr) (dB) |
|----------------|--------------------|
| 9              | 28 (-1;-2)         |
| 12             | 29 (-2;-2)         |
| 20             | 31 (-2;-2)         |

## PHYSICAL & CHEMICAL PROPERTIES

|                      |                           |
|----------------------|---------------------------|
| Appearance           | Solid flat sheet board    |
| Odour                | Odourless                 |
| Change of State      | White                     |
| Vapour Resistance    | 0.31 MNs/g (EN ISO 12572) |
| Melting point        | 2400°C                    |
| Spontaneous ignition | N/A                       |
| Oxidising properties | N/A                       |
| Density              | 1100 g/m <sup>3</sup>     |
| Solubility           | Insoluble in Water        |
| Ignitability         | N/A                       |
| Explosion hazard     | N/A                       |
| Vapour pressure      | N/A                       |
| pH level             | 7.5                       |

## STABILITY AND REACTIVITY

|                                           |                                                                                   |
|-------------------------------------------|-----------------------------------------------------------------------------------|
| Special physical conditions to be avoided | None                                                                              |
| Incompatible Materials                    | Not Known                                                                         |
| Hazardous Decomposition                   | None                                                                              |
| Reaction to Frost                         | Freeze/thaw resistant                                                             |
| Reaction to Moisture                      | Breathable and water-resistant. Passage of moisture does not affect its structure |
| Reaction to Insects/Rodents               | Unattractive to insects and rodents                                               |

## AXIAL LOADING PULL THROUGH

EAD 030351-00-0402:2019 annex A2

| Test specimen                             | Axial load [N] |               |
|-------------------------------------------|----------------|---------------|
|                                           | 472 A (9 mm)   | 472 B (12 mm) |
| 1                                         | 859            | 1308          |
| 2                                         | 799            | 1347          |
| 3                                         | 852            | 1090          |
| 4                                         | 911            | 1056          |
| 5                                         | 885            | 1115          |
| 6                                         | 870            | 1025          |
| 7                                         | 842            | 1098          |
| 8                                         | 818            | 1143          |
| 9                                         | 864            | 1171          |
| 10                                        | 942            | 1279          |
| Mean value (m)                            | <b>864</b>     | <b>1163</b>   |
| Standard deviation s<br>( $\sigma$ (n-1)) | 42             | 111           |
| 5%-fractile ( $k_n = 1,92$ )              | 783            | 950           |
| Failure mode                              | pull through   | pull through  |

## SERVICE LIFE PREDICTION

The Service Life Prediction of an example timber frame structure built with the Product has been determined according to ISO 15686-1 and ISO 15686-2.

The result of the analysis is a **Service Life Prediction of 54 to 66 years**.

## CUTTING

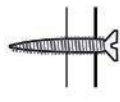
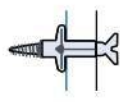
PRS FireBoard is easily cut to size using the score and snap method using a utility knife. Mark the area out with a pencil and straight edge ensuring the reinforcing mesh is cut through. PRS FireBoard can also be cut with a disc saw or hand saw; please see PRS FireBoard COSHH sheet for more details.

## ADHESIVES, SEALANTS AND FIXINGS

The maximum admissible loads on different hooks and fasteners are given in Table 1.

Maximum admissible loads (kN) on different hooks and fasteners\*

**Table-1** \*Maximum loads are subject to the quality of the fixing

| Board Thickness | Nailed picture hooks                                                              |                                                                                   |                                                                                   | 5mm diameter Continuous thread screw                                                | Toggle bolt                                                                         |
|-----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                 |  |  |  |  |  |
| 9mm             | 20kg                                                                              | 18kg                                                                              | 5kg                                                                               | 20kg                                                                                | 40kg                                                                                |
| 12mm            | 25kg                                                                              | 23kg                                                                              | 10kg                                                                              | 25kg                                                                                | 45kg                                                                                |

Different loads may be Fixed to PRS FireBoard using suitable fixings. Lightweight objects can be hung with good quality picture hooks fixed directly into the board.

Depending on the method of attachment, various vertical loads can be supported by PRS Fireboard. Shelving and hanging cupboards can be attached with suitable cavity fixings. The choice of fixing method will be governed by the weight and dimensions of the object.

Loads with a weight of less than 20kg per fixing point can easily be fixed to the wall with suitable screws, and 40kg using suitable toggle fixings, without the need for support noggins.

Any two points of attachment must have a minimum distance of 150mm, otherwise the weight of the load to be supported must be halved. Heavy loads such as sinks, sanitary units, radiators and heavy cabinets should be fixed to the sub straight of the wall or supporting noggins.

When fixing PRS Fireboard, screws should have a thread the whole length of the shank for maximum strength and resistance.

The length of fixings depends on national regulations and applications. As a guide, the fixing should be a minimum of 28mm plus the thickness of the board

For standard drywall applications, galvanised or phosphate coated screws or nails along with jointing and taping. For fire resistant applications an intumescent sealant must be used.

When plastering or finishing, PRS FireBoard is a high suction surface and any finish can be applied to either face of the board. Please refer to and follow the plaster manufacturer's application instructions for guidance to suit your site conditions and preparation requirements.

## TESTING LIBRARY

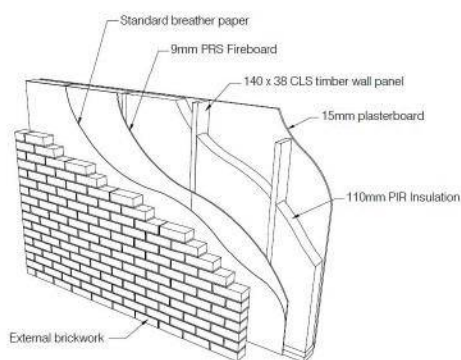
- EN 13501-1:2007+A1:2009
- ETAG 006, D2.1 AXIAL Loading
- BS EN 594-2011
- EAD 030351-00-0402:2019 Annex A2: Axial Loading
- EAD 19-21-0142-0303 annex B, Clause 3B Determination of Mechanical Strength
- EAD 19-21-0142-0303 annex B, clause B5 Mechanical Strength subject to positive load
- EN-ISO 178:2010 Three point bending
- EN-ISO 824:2013 Squareness
- EN ISO 12572:2016 Vapour permeability
- EN 1604:2013 Dimensional stability
- TR 001:2003 Soft body impact
- TR 001:2003 Hard body impact
- EN-ISO 12571 Moisture absorption, Hygrothermal performance and determination of Hygroscopic sorption properties
- BS EN ISO 1716:2010
- BS EN ISO 1182-2010
- BS 476: Part 22: 1987
- BS 476: Part 22: 1987 For Single or Double Skin Spandrel Panel
- BS 476: Part 22: 1987 For Partition Walls
- BS 476: Part 22: 1987 For Timber Frame Panel Walls
- EN ISO 1217 Bunch Nielsen Institute of Building Physics
- Directive 67/548/EEC and Regulation (EC) no 1272/2008 no dangerous substances
- ISO 15686-1 Buildings and Constructed assets - Service Life Planning - part 1: General principles and framework
- ISO 15686-2 Buildings and Constructed assets - Service Life Planning - Part 2 Service Life Prediction Procedures
- EN 335-1:2006 Resistance to Biological Agents.
- EN 335-1 Durability of Wood-Based products - Definition of use Classes - Part 1: General
- Report no. 5620-20 Investigation of Board "PRS FireBoard", Bunch Byggningsfysik Aps, 2018-10-29
- Kiwa BDA Calculation of expected Service Life (ESL) according to ISO 15686, 2020-03-23

## EXAMPLES OF TESTED APPLICATION

Figure 1 - External Wall Construction

Integrity

84 Minutes



Insulation

83 Minutes

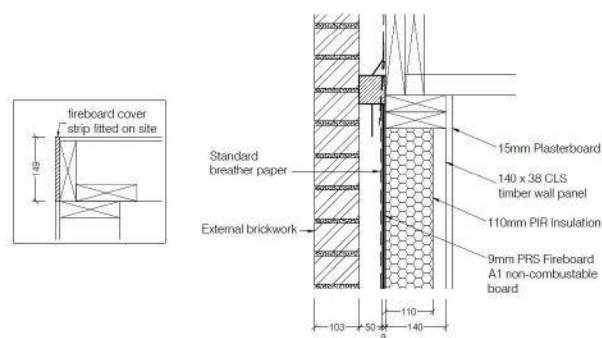
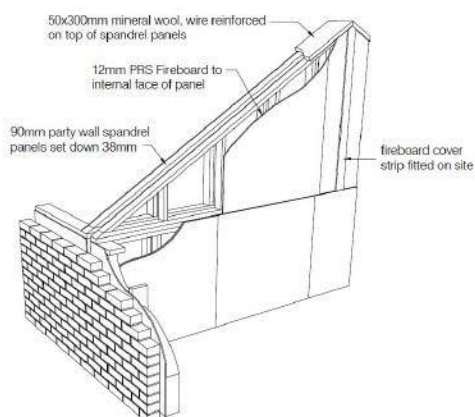


Figure 2 - Party Wall / Double Spandrel Detail

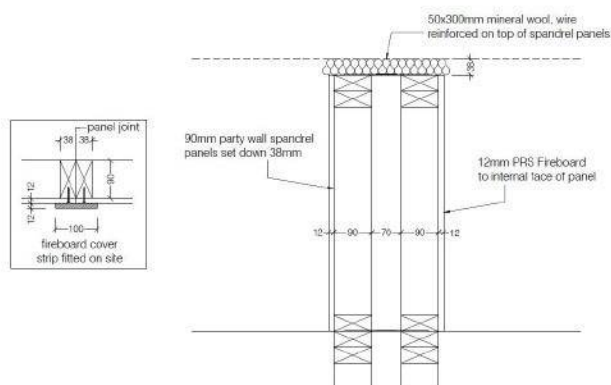
Integrity

60 Minutes



Insulation

60 Minutes

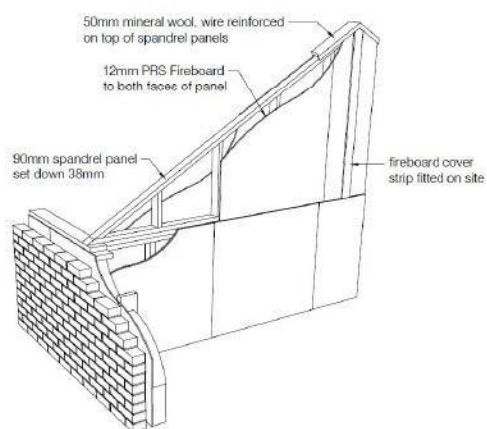


## EXAMPLES OF TESTED APPLICATION

Figure 3 - Party Wall Single Spandrel

Integrity

60 Minutes



Insulation

60 Minutes

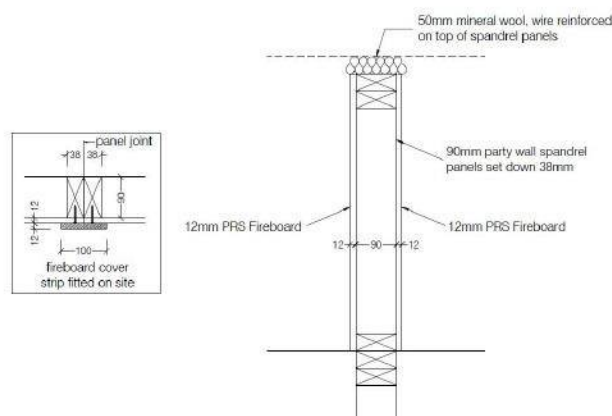
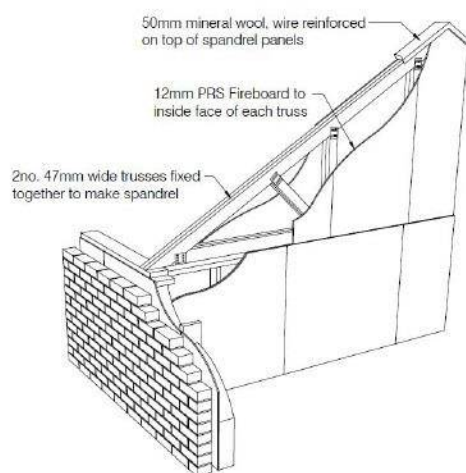


Figure 4 - Double 47mm Spandrel

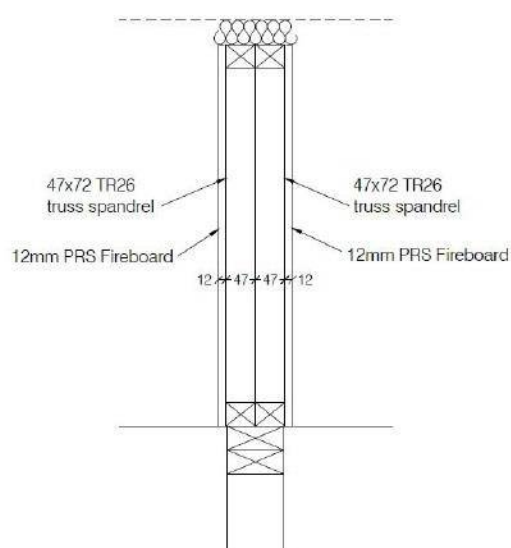
Integrity

60 Minutes



Insulation

60 Minutes



## EXAMPLES OF TESTED APPLICATION

Figure 5 - Timber Partition Wall Panel Construction

Integrity

30 Minutes

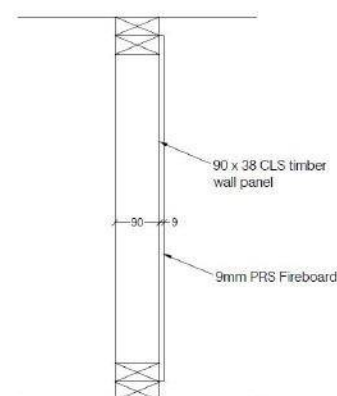
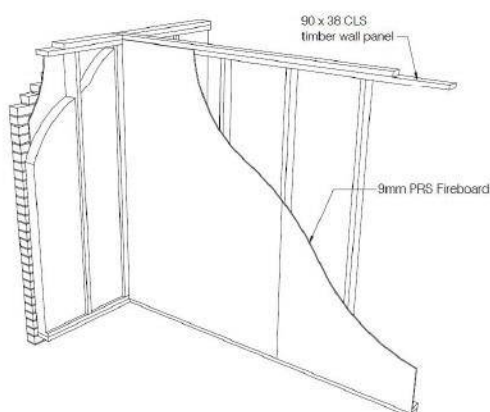
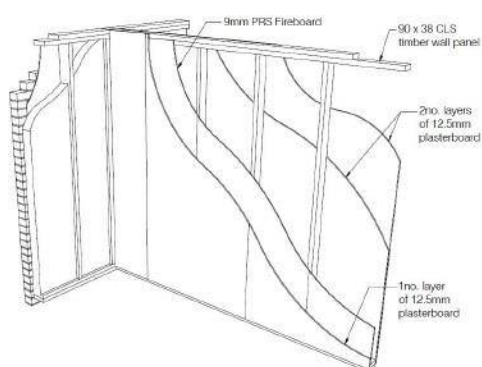


Figure 6 - Fire Protection During and After Construction

Integrity

30-116 Minutes



Insulation

30-115 Minutes

