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Agrément Certificate  
**90/2439**  
Product Sheet 1

## FERMACELL

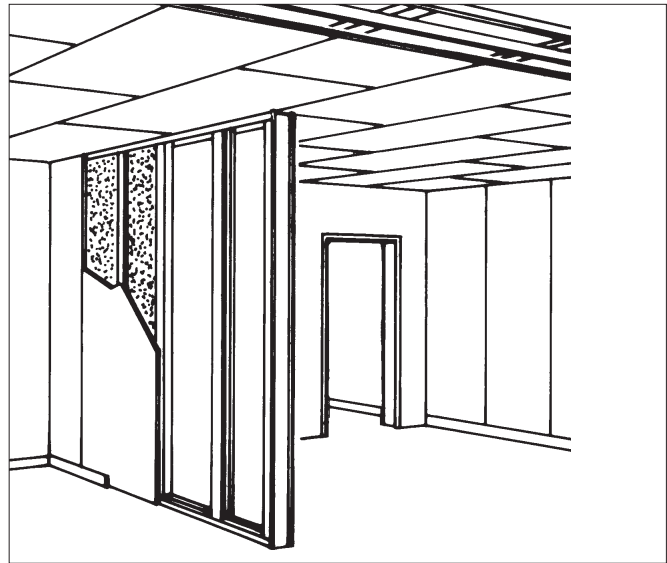
### FERMACELL GYPSUM-FIBREBOARD

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Fermacell Gypsum-Fibreboard, for use as sheathing on external walls and as a general purpose lining board on internal and external walls and ceilings.

(1) Hereinafter referred to as 'Certificate'.

#### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



#### KEY FACTORS ASSESSED

**Structural performance** — the product will contribute to the racking resistance of timber frame walls, when used as a sheathing board (see section 6).

**Performance in relation to fire** — the product satisfies the Class 0 ('low risk') surface requirements for external and internal linings (see section 7).

**Acoustic performance** — the product can be used to improve sound insulation of new and existing walls and ceilings, (see section 8).

**Hygrothermal performance** — for calculation purposes, the product vapour resistivity may be taken as  $130 \text{ MN}\cdot\text{sg}^{-1}\cdot\text{m}^{-1}$  (see section 9).

**Infestation and fungal growth** — the use of the product does not promote infestation and successfully resists attack by timber destroying fungi (see section 10).

**Durability** — the product should have a life equal to the building in which it is installed (see section 17).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

A handwritten signature in black ink that reads 'B Chamberlain'.

Brian Chamberlain  
Head of Approvals — Engineering

A handwritten signature in black ink that reads 'Claire'.

Claire Curtis-Thomas  
Chief Executive

Date of Second issue: 20 January 2015

Originally certificated on 28 October 1985

Certificate amended on 31 May 2016 to reflect product's use as sheathing and to update address.

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://www.bbacerts.co.uk)

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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# Regulations

In the opinion of the BBA, Fermacell Gypsum-Fibreboard, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



## The Building Regulations 2010 (England and Wales) (as amended)

<b>Requirement:</b> B2(1)(2)	<b>Internal fire spread (linings)</b>
<b>Comment:</b>	The board is classified Class 0 and is unrestricted by this Requirement. See section 7.2 of this Certificate.
<b>Requirement:</b> B3(1)(2)(3)	<b>Internal fire spread (structure)</b>
<b>Comment:</b>	The board will contribute to satisfying this Requirement. See sections 7.1 to 7.6 of this Certificate.
<b>Requirement:</b> C2(c)	<b>Resistance to moisture</b>
<b>Comment:</b>	The board can contribute to satisfying this Requirement. See section 9.2 of this Certificate
<b>Requirement:</b> E1	<b>Protection against sound from other parts of the building and adjoining buildings</b>
<b>Requirement:</b> E2(a)(b)	<b>Protection against sound within a dwelling-house etc</b>
<b>Comment:</b>	The board will contribute to satisfying these Requirements. See sections 8.2 to 8.7 of this Certificate.
<b>Regulation:</b> 7	<b>Materials and workmanship</b>
<b>Comment:</b>	The board is an acceptable material. See section 17 and the <i>Installation</i> part of this Certificate.



## The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b> 8(1)(2)	<b>Durability, workmanship and fitness of materials</b>
<b>Comment:</b>	The board can contribute to a construction satisfying this Regulation. See sections 16 and 17 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> 9	<b>Building standards applicable to construction</b>
<b>Standard:</b> 2.1	Compartmentation
<b>Standard:</b> 2.2	Separation
<b>Standard:</b> 2.4	Cavities
<b>Standard:</b> 2.5	Internal linings
<b>Comment:</b>	The board is classified as 'low risk' and is unrestricted by these Standards, with reference to clauses 2.1.1 <sup>(2)</sup> , 2.2.4 <sup>(2)</sup> , 2.2.7 <sup>(1)</sup> , 2.4.2 <sup>(1)(2)</sup> , 2.4.3 <sup>(1)</sup> , 2.4.4 <sup>(1)</sup> , 2.4.5 <sup>(2)</sup> , 2.4.6 <sup>(2)</sup> , 2.4.7 <sup>(1)</sup> , 2.4.9 <sup>(2)</sup> and 2.5.1 <sup>(1)(2)</sup> respectively. See section 7.2 of this Certificate. The board is classified as A2-s1,d0 and can contribute to walls and ceilings constructed with the product meeting the requirements of these Standards for fire resistance, with reference to clauses 2.1.1 <sup>(2)</sup> , 2.1.4 <sup>(2)</sup> , 2.1.8 <sup>(2)</sup> to 2.1.12 <sup>(2)</sup> , 2.2.1 <sup>(1)(2)</sup> , 2.2.7 <sup>(1)(2)</sup> , 2.2.8 <sup>(1)</sup> , 2.2.10 <sup>(1)</sup> , 2.4.1 <sup>(1)(2)</sup> , 2.4.2 <sup>(1)(2)</sup> , 2.4.3 <sup>(1)</sup> and 2.4.5 <sup>(2)</sup> . See sections 7.1 to 7.6 of this Certificate.
<b>Standard:</b> 3.15	Condensation
<b>Comment:</b>	The board can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)</sup> , 3.15.4 <sup>(1)</sup> and 3.15.5 <sup>(1)</sup> . See section 9.2 of this Certificate.
<b>Standard:</b> 5.1	Noise separation
<b>Comment:</b>	The board will contribute to meeting this Standard, with reference to clauses 5.1.4 <sup>(1)</sup> to 5.1.11 <sup>(1)</sup> . See sections 8.2 and 8.5 to 8.7 of this Certificate.
<b>Standard:</b> 6.1(b)	Carbon dioxide emissions
<b>Regulation:</b> 12	<b>Building standards applicable to conversions</b>
<b>Comment:</b>	All comments given for this product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2012

<b>Regulation:</b> 23	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	The board is an acceptable material. See section 17 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> 29	<b>Condensation</b>
<b>Comment:</b>	The board can contribute to satisfying this Regulation. See section 9.2 of this Certificate.
<b>Regulation:</b> 34	<b>Internal fire spread – Linings</b>
<b>Comment:</b>	The board is classified Class 0 and is unrestricted by this Regulation. See section 7.2 of this Certificate.
<b>Regulation:</b> 35	<b>Internal fire spread – Structure</b>
<b>Comment:</b>	The board will contribute to satisfying this Regulation. See sections 7.1 to 7.6 of this Certificate.
<b>Regulation:</b> 49	<b>Protection against sound from other parts of the buildings and from adjoining buildings</b>
<b>Regulation:</b> 50(a)(b)	<b>Protection against sound within a dwelling or room for residential purposes</b>
<b>Regulation:</b> 51	<b>Reverberation in the common internal parts of buildings containing flats or rooms for residential purposes</b>
<b>Comment:</b>	The board will contribute to satisfying these Regulations. See sections 8.2, 8.5 and 8.7 of this Certificate.

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.1 and 3.3) of this Certificate.

## Additional Information

### NHBC Standards 2014

NHBC accepts the use of Fermacell Gypsum-Fibreboard, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 6.3 *Internal walls*, and 8.2 *Wall and ceiling finishes*.

## Technical Specification

### 1 Description

1.1 Fermacell Gypsum-Fibreboard consists of a homogeneous mixture of water, gypsum and cellulose fibre compressed at high pressure.

1.2 The board is light grey in colour, is available as both square edged and tapered edged and is marked on the rear face with the product name and identification. Characteristics are given in Table 1.

*Table 1 Characteristics of board*

size (mm) <sup>(1)</sup>	600 x 1200, 1200 x 1200, 1000 x 1500, 1200 x 2400, 1200 x 2600, 1200 x 2700 and 1200 x 3000
thickness (mm)	10 <sup>(2)</sup> , 12.5, 15 and 18
approximate weight (kg·m <sup>-2</sup> )	12, 15, 18 and 22 respectively

(1) Other sizes are available on request up to a maximum of 2540 mm by 6000 mm.

(2) Not for facade backer board.

1.3 The fixing of the board depends on the application and must be in accordance with the Certificate holder's relevant specification.

1.4 Proprietary accessories and fixings comprise:

- Fermacell joint filler
- Fermacell bonding compound — for bonding the boards directly to solid walls
- Fermacell Joint-stick adhesive — for butt-glueing the boards
- hollow-head nails — 2.2 mm diameter by 32 mm for fixing the boards to timber framework
- Fermacell screws — 3.9 mm diameter by 30 mm, 40 mm or 55 mm for fixing the boards to timber or metal framework
- steel staples (normal or with diverging points) — in various lengths for fixing Fermacell boards to timber framework or to each other (in case of double boarding)
- Fermacell fine surface treatment (FST) — for smoothing boards ready to accept paint finish.

### 2 Manufacture

2.1 Quality control tests are carried out on the finished boards to determine:

- density
- geometry
- mechanical properties
- dimensional accuracy
- surface finish
- moisture content.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

### 3 Delivery and site handling

3.1 The board is delivered to site in stacks on wooden pallets. The stacks are wrapped in polythene and have a label marked with the product name, date of manufacture, size and quality control stamp.

3.2 Boards should be stored flat on a dry, level surface in a well-ventilated area protected from rain and snow.

3.3 Materials, such as joint filler and bonding compound, must be stored dry. Metal components should also be stored in dry conditions. Packaging for these component items is given in Table 2.

Item	Packaging	Weight
Fermacell joint filler	paper sack	5 kg and 20 kg
Fermacell bonding compound	paper sack	20 kg
Fermacell joint-stick adhesive	cartridge	310 ml tubes at 0.43 kg/tube or 580 ml sachets at 0.84 kg/sachet
Fermacell screws	boxes	0.65 kg, 2.1 kg, 2.6 kg and 3.4 kg

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Fermacell Gypsum-Fibreboard.

### Design Considerations

#### 4 General

4.1 Fermacell Gypsum-Fibreboard is satisfactory for use as non-loadbearing and loadbearing sheathing on external walls and as an internal lining board on non-loadbearing and loadbearing internal and external walls and ceilings of new or existing buildings. It will contribute to an improvement in the U value (thermal transmittance) and sound insulation performance of a wall or ceiling and, if installed correctly, will not promote interstitial condensation.

4.2 The product may be incorporated in timber-frame constructions to BS EN 1995-1-1 : 2004.

4.3 The product may be incorporated as an internal lining in masonry constructions (where masonry includes clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks). Masonry walls of new buildings should be designed and constructed in accordance with BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and PD 6697 : 2010 where the wall incorporates stone or cast stone, and in accordance with the relevant recommendations of BS 8000-0 : 2014 and BS 8000-3 : 2001.

4.4 The product is not intended to improve weather resistance and should not be used as an external cladding. Walls and ceilings should be dry before the product is installed.

4.5 Where metal sections or timber battens are used, the detailing at doors and windows must accommodate any increased depth. In addition, every attempt should be made to avoid thermal bridging at the reveals of openings and at separating wall/external wall junctions.

4.6 New work must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads, sills and in relation to ceiling heights. Where the dimensions of fixtures are critical (eg bathrooms), these should be checked before installation.

4.7 With installations forming a void, services can be incorporated behind the dry lining, making the chasing of the wall unnecessary. Where the services have a greater depth than the void, the wall can be chased provided the structural integrity is not affected. It is recommended that services penetrating the dry lining (eg light switches, power outlets) are kept to a minimum, or are correctly backed according to the Certificate holder's recommendations.

4.8 When using adhesive-based fixing systems, it is essential to establish, before installation, that a satisfactory bond can be achieved between the walling material and the adhesive. Backgrounds of high suction will obviously behave very differently to those of low suction. If difficulty with adhesion is expected, the Certificate holder's advice should be sought before proceeding.

4.9 When boards are used as a ceiling they must be mechanically fixed.

#### 5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor experienced in this type of product.

#### 6 Structural performance

6.1 When used as a sheathing board in timber-frame construction, the 12.5 mm thick board will contribute to the racking resistance of the frame.

6.2 Tests to BS EN 594 : 1996 were used to derive the basic racking properties given in Table 3 of this certificate. The values indicate that Fermacell 12.5 mm thick sheathing can achieve equivalent racking resistance to that of Category 1 materials as defined in BS EN 1995-1-1 : 2004, Table 3.

Table 3 Racking properties of panels<sup>(1)</sup>

Fixing	Design racking resistance to BS EN 594 and BS EN 1990 (kN·m <sup>-1</sup> ) run of wall <sup>(4)(5)</sup>		Vertical loading (kN per stud)
	Square edge	Taper edge	
Nailed <sup>(2)</sup>	1.71	1.88	0
Nailed <sup>(2)</sup>	4.34	4.21	5
Stapled <sup>(3)</sup>	1.94	1.91	0
Stapled <sup>(3)</sup>	4.17	3.68	5

- (1) The timber frame with overall dimensions of 2400 mm by 2400 mm comprised grade C16 38 mm by 89 mm top rail, bottom rail and studs at 600 mm centres. The studs were fixed to the top and bottom rail with two 90 mm long by 3.1 mm diameter wire nails.
- (2) Wire nails 2.8 diameter by 50 mm long were used at 150 mm centres around the perimeter of each panel and at 300 mm centres at internal locations.
- (3) Staples with a 10 mm wide crown and 44 mm legs made from 1.5 mm diameter austenitic stainless steel, were used at 150 mm centres around the perimeter of each panel and at 300 mm centres at internal locations.
- (4) These values relate to a wall height of 2.4 metres.
- (5) These values are the minimum of the deflection limited to height/334 or ultimate strength with a factor of 1.6 (calculation based on characteristic values in accordance with BS EN 1990 : 2002, clause D7.2).

6.3 The structural performance of a wall utilising Fermacell sheathing should be validated by a suitably qualified individual.

## 7 Performance in relation to fire



7.1 The boards were tested and shown to have a reaction to fire Class A2-s1,d0 in accordance with BS EN 13501-1 : 2007.

7.2 The board is classified Class 0 ('low risk') in Scotland as defined in the relevant documents supporting the national Building Regulations and so is unrestricted under these regulations.

7.3 A non-loadbearing timber stud internal wall with two layers of 10 mm thick Fermacell board on both faces was tested for fire resistance in accordance with BS 476-8 : 1972. The results of the assessments are given in Table 4.

Table 4 Fire resistance for partitions

Partition specification	Integrity (minutes)	Insulation (minutes)
20 (10 + 10) mm Fermacell both sides of 75 mm deep by 50 mm wide timber studs	73	69

7.4 The following tests have been undertaken to BS 476-21 : 1987 on loadbearing walls incorporating Fermacell Gypsum-Fibreboards as a lining:

- The construction from the exposed face out was: 15 mm thick Fermacell board fixed with screws, 1.2 mm thick 'C' channel studs (72 mm deep by 45 mm wide) and 40 mm thick Kingspan insulation board fixed with screws and wall tie channel. A loadbearing capacity, integrity and insulation rating of 34 minutes was achieved<sup>(1)</sup>
- The construction from the exposed face out was: 15 mm thick Fermacell board fixed with twisted nails, 12.5 mm thick Fermacell board fixed with twisted nails, 1.2 mm thick 'C' channel studs (72 mm deep by 45 mm wide), 75 mm thick Rockwool RW2 Slab friction-fitted into the void between the studs and 12.5 mm thick Fermacell board fixed with twisted nails. A loadbearing capacity, integrity and insulation rating of 72 minutes was achieved<sup>(1)</sup>.

7.5 The following fire tests have been undertaken to BS EN 1365-1 : 1999, on loadbearing internal walls incorporating Fermacell Gypsum-Fibreboards as a lining:

- an internal wall with overall dimensions of 2600 mm high by 3000 mm wide by 114 mm thick and comprising of one layer of 12.5 mm Fermacell Gypsum-Fibreboard on either side, stapled to 89 mm by 38 mm softwood studs at nominal 600 mm centres. A loadbearing capacity, integrity and insulation rating of 40 minutes was achieved<sup>(1)</sup>
- an internal wall with overall dimensions of 2600 mm high by 3000 mm wide by 127 mm thick and comprising of two layers on the fireside and one layer on the non-fireside of 12.5 mm Fermacell Gypsum-Fibreboards, stapled to 89 mm by 38 mm softwood studs at nominal 600 mm centres and 9.8 kg·m<sup>-3</sup> glasswool sandwiched between the softwood studs. A loadbearing capacity, integrity and insulation rating of 67 minutes was achieved<sup>(1)</sup>.

(1) A full description of the construction and fixings used in this test can be obtained from the Certificate holder.


7.6 The suitability of separating wall and floor constructions, other than those described in sections 7.3 to 7.5 should be demonstrated by an appropriate test or assessment.

7.7 Care must be taken to ensure continuity of fire resistance at junctions with fire-resisting elements, in accordance with the relevant provisions of the national Building Regulations.

7.8 Elements must incorporate cavity barriers at edges, around openings, at junctions with fire-resisting elements and in extensive cavities in accordance with the relevant provisions of the national Building Regulations. The design and installation of cavity barriers must take into account any anticipated differential movement.

## 8 Acoustic performance

8.1 The board can be used to improve sound insulation of new and existing floors and walls onto which it is fixed. The degree of sound insulation achieved will depend on the construction standard of the wall or floor.


 8.2 The contribution of the panels to meeting the minimum mass requirements for wall types 1 to 4 (only 3 and 4 in England and Wales) and floor types 1 to 3 (and 1 to 4 in Scotland only) as detailed in the relevant documents supporting the national Building Regulations, may be calculated using the masses given in section 1.2 of this certificate.

**England and Wales** — Approved Document E, sections 2 and 3


**Scotland** — Mandatory Standard 5.1, clauses 5.1.4<sup>(1)</sup> to 5.1.7<sup>(1)</sup> (walls) and 5.1.8<sup>(1)</sup> to 5.1.11<sup>(1)</sup> (floors)

(1) Technical Handbook (Domestic).

**Northern Ireland** — Technical Booklet G.

 8.3 The masses shown in section 1.2 can be used to assess compliance with the minimum mass requirements for wall and ceiling linings, from the set approved and published by Robust Details Ltd for dwellings, in accordance with Approved Document E.

8.4 In England and Wales, separating walls and floors, other than those described in 8.3 incorporating the product are subject to pre-completion testing in accordance with Approved Document E, Section 1.

 8.5 The measures to be taken in design and during installation to avoid direct paths for airborne sound and to minimise flanking sound transmission are defined in the relevant documents supporting the national Building Regulations:

**England and Wales** — Approved Document E, sections 2 and 3

**Scotland** — Mandatory Standard 5.1, clauses 5.1.2<sup>(1)</sup> to 5.1.11<sup>(1)</sup>

(1) Technical Handbook (Domestic).

**Northern Ireland** — Technical Booklet G.

8.6 From test data to BS EN ISO 140-4 : 1998, it is indicated that the separating floor construction shown in Figure 1 and the separating wall construction shown in Figure 2 can provide satisfactory airborne sound insulation (see also Tables 5, 6 and 7).

Figure 1 Fermacell Gypsum-Fibreboard ceiling lining

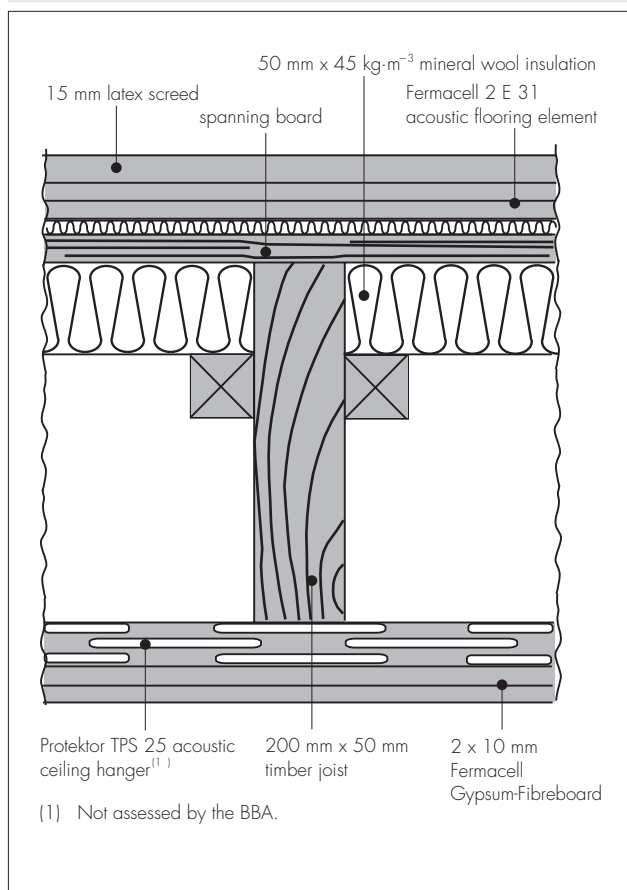


Figure 2 Fermacell Gypsum-Fibreboard wall lining

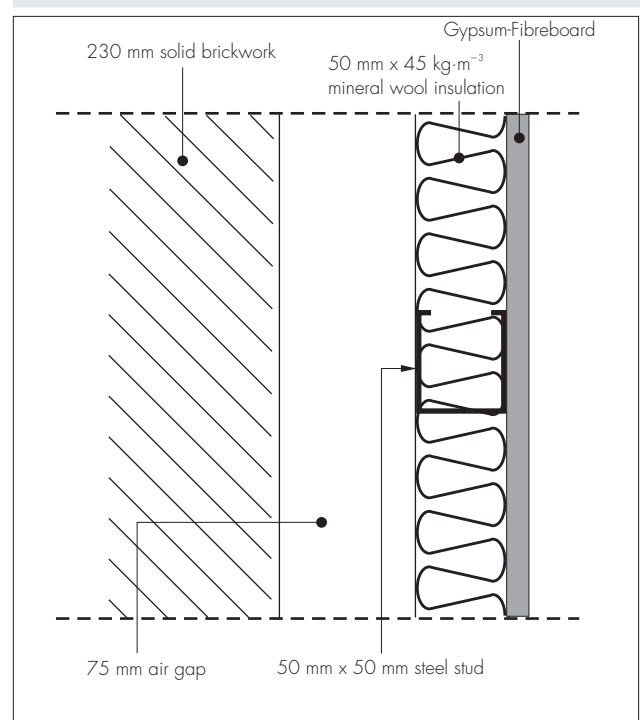


Table 5 Sound insulation (dB) — pre-completion test results

Description	Airborne $D_{nT,w}$	Airborne $D_{nT,w} + C_{tr}$
Between ground floor lounge and first floor lounge (see Figure 1)	58	54
Between kitchen and adjacent property (see Figure 2)	63	57

Table 6 Sound insulation (dB). Deemed to satisfy — England and Wales

Construction	Airborne $D_{nT,w} + C_{tr}$	Impact $L'_{nT,w}$
Purpose built dwelling-houses and flats	$\geq 45$	$\leq 62$
Dwelling-houses and flats formed by material change of use	$\geq 43$	$\leq 64$

Table 7 Sound insulation (dB). Deemed to satisfy — Scotland and Northern Ireland

Construction	Airborne $D_{nT,w}$	Impact $L'_{nT,w}$
Scotland (new constructions)	$\geq 56$	$\leq 56$
Northern Ireland (new constructions)		
Walls (dwellings)	$\geq 45$	—
Walls (residential rooms)	$\geq 43$	—
Floors and stairs	$\geq 45$	$\leq 62$
Northern Ireland (conversions)		
Walls	$\geq 43$	—
Floors and stairs	$\geq 43$	$\leq 64$

8.7 From test data to BS EN ISO 140-3 : 1995 it is indicated that the wall constructions detailed in Figures 3 and 4 can provide satisfactory resistance to airborne sound transmission, when used in conjunction with suitable flanking elements (see also Tables 6 to 8).

Figure 3 Steel stud party wall with Fermacell Gypsum-Fibreboard

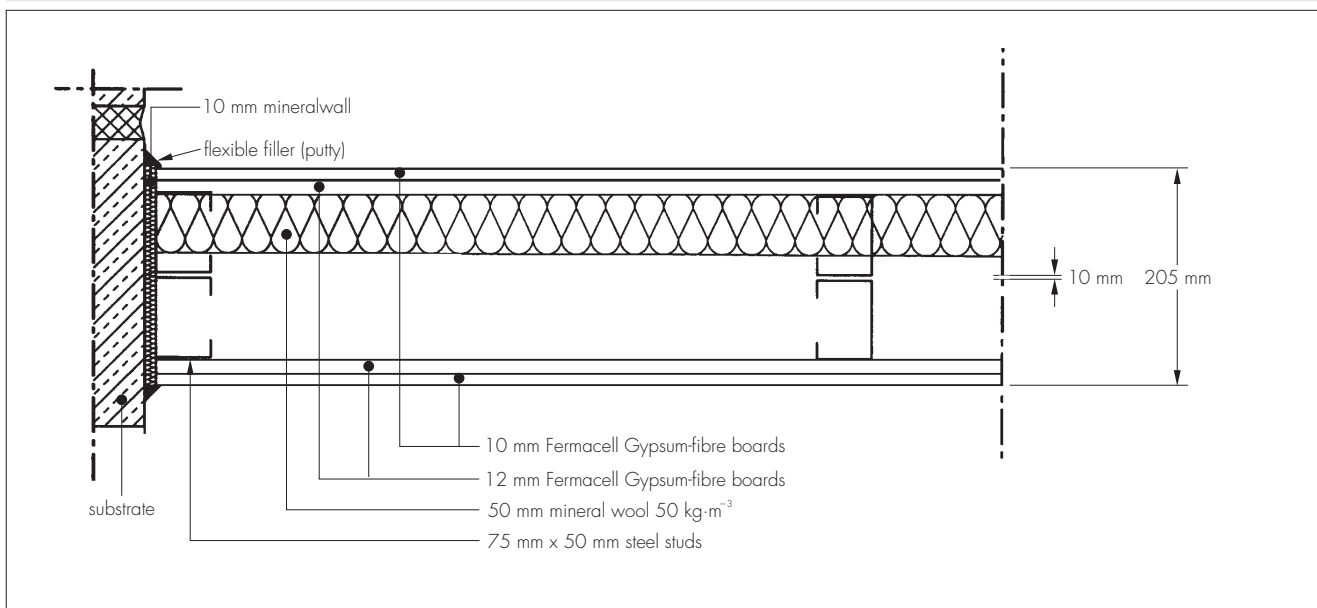


Figure 4 Timber based partition wall

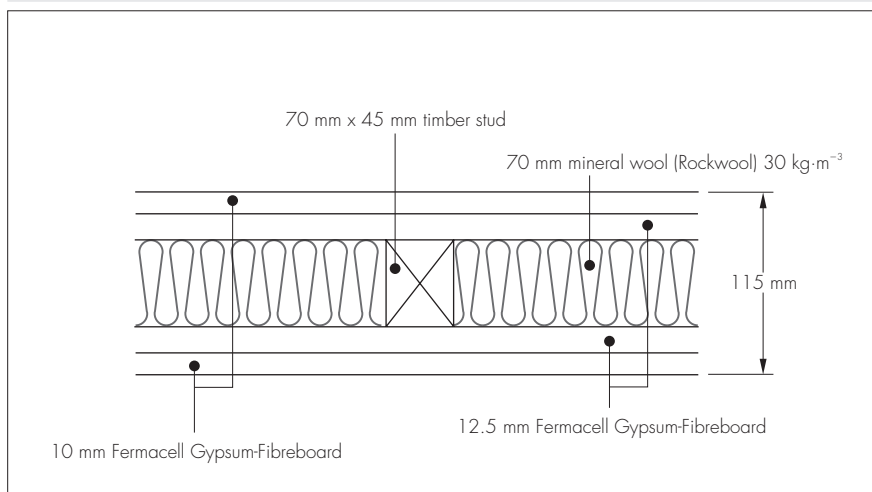




Table 8 Sound insulation (dB)

Construction	Airborne $R_w(C_1; C_2)$
10 mm and 12.5 mm Fermacell with 50 mm mineral wool and two isolated 75/50 mm steel studs (see Figure 3) <sup>(1)</sup>	64(-1;-5)
10 mm and 12.5 mm Fermacell with 70 mm mineral wool and 70/45 mm timber stud in the centre (see Figure 4)	54(-1;-5)

(1) A full description of the construction and fixings used in this test can be obtained from the Certificate holder.

## 9 Hygrothermal performance

9.1 When considering the U values of elements or minimum internal surface temperatures of heat loss paths such as repeating bridges, junctions and openings, the thermal conductivity ( $\lambda_D$ ) of the boards may be taken as  $0.32 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ .

### Interstitial condensation



9.2 Walls and ceilings should be designed and constructed in accordance with BS 5250 : 2011, Section 8 and Annex D, to minimise the risk of interstitial condensation. For the purposes of calculations, the boards vapour resistivity of the boards should be  $130 \text{ MN}\cdot\text{sg}^{-1}\cdot\text{m}^{-1}$ .

## 10 Infestation and fungal growth

10.1 The use of the board does not in itself promote infestation but the creation of voids within the wall structure may provide habitation for insects or vermin in areas already infested. Care should be taken to ensure that, wherever possible, all voids are sealed as any infestation may be difficult to eradicate.

10.2 The resistance of the board to timber-destroying fungi (Basidiomycetes) was successfully tested. Test specimens subjected to the attack of the common fungus cultures did not lose weight whereas pine sapwood tested simultaneously lost 45% of its weight.

## 11 Proximity of flues and appliances

When installing the product in close proximity to certain flue pipes and/or heat-producing appliances in buildings subject to national Building Regulations, the relevant provisions and guidance given below should be met:

**England and Wales** — Approved Document J

**Scotland** — Mandatory Standard 3.19, clauses 3.19.1<sup>(1)(2)</sup> to 3.19.9<sup>(1)(2)</sup>

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

**Northern Ireland** — Technical Booklet L.

## 12 Penetration by services

Any penetrations by services should be designed and constructed so as to maintain the fire resistance of the construction.

## 13 Materials in contact

The board does not present a risk of reaction with PVC insulated electric cables in wiring installations.

## 14 Impact resistance

The boards possess satisfactory resistance to impact. A sample comprising one layer of 12.5 mm Fermacell Gypsum Fibreboard fixed at 600 mm centres to 75 mm by 50 mm by 0.6 mm steel studs achieved a pass of 'Severe Duty'<sup>(1)</sup> level when tested to BS 5234-2 : 1992.

(1) Adjacent space intensively used by the public and others with little or no incentive to use care. Prone to vandalism and abnormally rough use.

## 15 Wall-mounted fittings

The recommendations of the Certificate holder on allowable weight of fixtures should be followed. The board will support the weight of the objects within the recommendations without the need to fix to the loadbearing structure, ie the studs.

## 16 Maintenance



Should repairs be required, they can be easily carried out.

## 17 Durability



The durability of the materials is satisfactory. Provided the board is used in accordance with this Certificate and the Certificate holder's instructions, and is fixed to satisfactory, stable and durable backgrounds by fully trained operatives, it should have a life equal to the building in which it is installed.



### 18 General

18.1 Installation of the Fermacell Gypsum-Fibreboard should be in accordance with the requirements given in the Certificate holder's literature.

18.2 The spacing of any battens or sections depends on the thickness of the board used, and the performance required. Wall batten spacings should be 50 times the product's thickness and 40 times the product's thickness for ceilings.

### 19 Procedure

#### Ceilings

19.1 When installing onto the underside of a suspended floor (solid or joisted) or to a suspended ceiling system, the board is fixed via timber battens or metal sections mechanically-fastened to the supporting structure.

#### Walls

19.2 Depending on the wall construction or its degree of unevenness, one of the following methods of fixing should be used:

- the board can be fixed to timber battens or metal sections with the fixings listed in section 19.3. These battens or sections are fixed directly to the solid wall in accordance with the manufacturer's guidelines. The distance between the battens or sections depends on the board thickness (see Certificate holder's instructions)
- the boards can be fixed directly to solid walls using Fermacell bonding compound without installing additional timber or metal studs or other framework. The bonding compound is applied to the board in dabs or strips (see Certificate holder's instructions)
- for uneven walls, the board can be fixed to timber studs or metal sections installed in front of the solid wall without direct connection to the wall. Boards are fixed to one side of the supporting framework
- with lightweight, non-loadbearing and loadbearing internal partitions, the board is fixed to one or both sides of a timber or metal framework.

#### Fixings

19.3 The board is secured to the framework described in sections 20.1 and 20.2 using the appropriate fixings:

- timber sections — Fermacell screws, hollow-head nails or steel staples
- metal sections — Fermacell screws.

19.4 Fermacell screws or diverging staples are used to secure the boards to each other.

## Technical Investigations

### 20 Tests

20.1 Tests were carried out on the Fermacell Gypsum-Fibreboard to determine:

- stability in changing humidity conditions
- impact resistance
- air permeability
- stability under temperature differences
- water absorption
- watertightness
- wind resistance
- wind resistance racking resistance in accordance with BS EN 594 : 1996.

20.2 Completed installations were tested for impact resistance and ability to take wall-mounted fittings.

### 21 Investigations

21.1 The manufacturing process was examined including the methods adopted for quality control and details of the quality and composition of the materials used.

21.2 Sites were visited where the various methods of installation were being carried out.

21.3 An examination was made of data relating to:

- water vapour permeability
- acoustic performance
- thermal conductivity ( $\lambda_D$ )
- fire performance
- bond strength of Fermacell bonding compound and joint filler.

- 21.4 Independent reports on the behaviour and performance of dry lining systems were examined.
- 21.5 A theoretical analysis of the hygrothermal behaviour of various installations was carried out.
- 21.6 A re-examination was made of the data and investigations on which the previous Certificate was based.

## Bibliography

- BS 476-8 : 1972 *Fire tests on building materials and structures — Test methods and criteria for the fire resistance of elements of building construction*
- BS 476-21 : 1987 *Fire tests on building materials and structures — Methods for determination of the fire resistance of loadbearing elements of construction*
- BS 5250 : 2011 *Code of practice for control of condensation in buildings*
- BS 5234-2 : 1992 *Partitions (including matching linings) — Specification for performance requirements for strength and robustness including methods of test*
- BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*
- BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*
- BS EN 594 : 1996 *Timber structures — Test methods — Racking strength and stiffness of timber frame wall panels*
- BS EN 1365-1 : 1999 *Fire resistance tests for loadbearing elements — Walls*
- BS EN 1990 : 2002 *Eurocode — Basis of structural design*
- BS EN 1995-1-1 : 2004 *Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*
- BS EN 1996-1-2 : 2005 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
- BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- BS EN 1996-3 : 2006 *Eurocode 6 : Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- BS EN 13501-1 : 2007 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN ISO 140-3 : 1995 *Acoustics — Measurement of sound insulation in buildings and of building elements — Laboratory measurement of airborne sound insulation of building elements*
- BS EN ISO 140-4 : 1998 *Acoustics — Measurement of sound insulation in buildings and of building elements — Field measurements of airborne sound insulation between rooms*
- PD 6697 : 2010 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

## 22 Conditions

22.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

22.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

22.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

22.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

22.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

22.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.