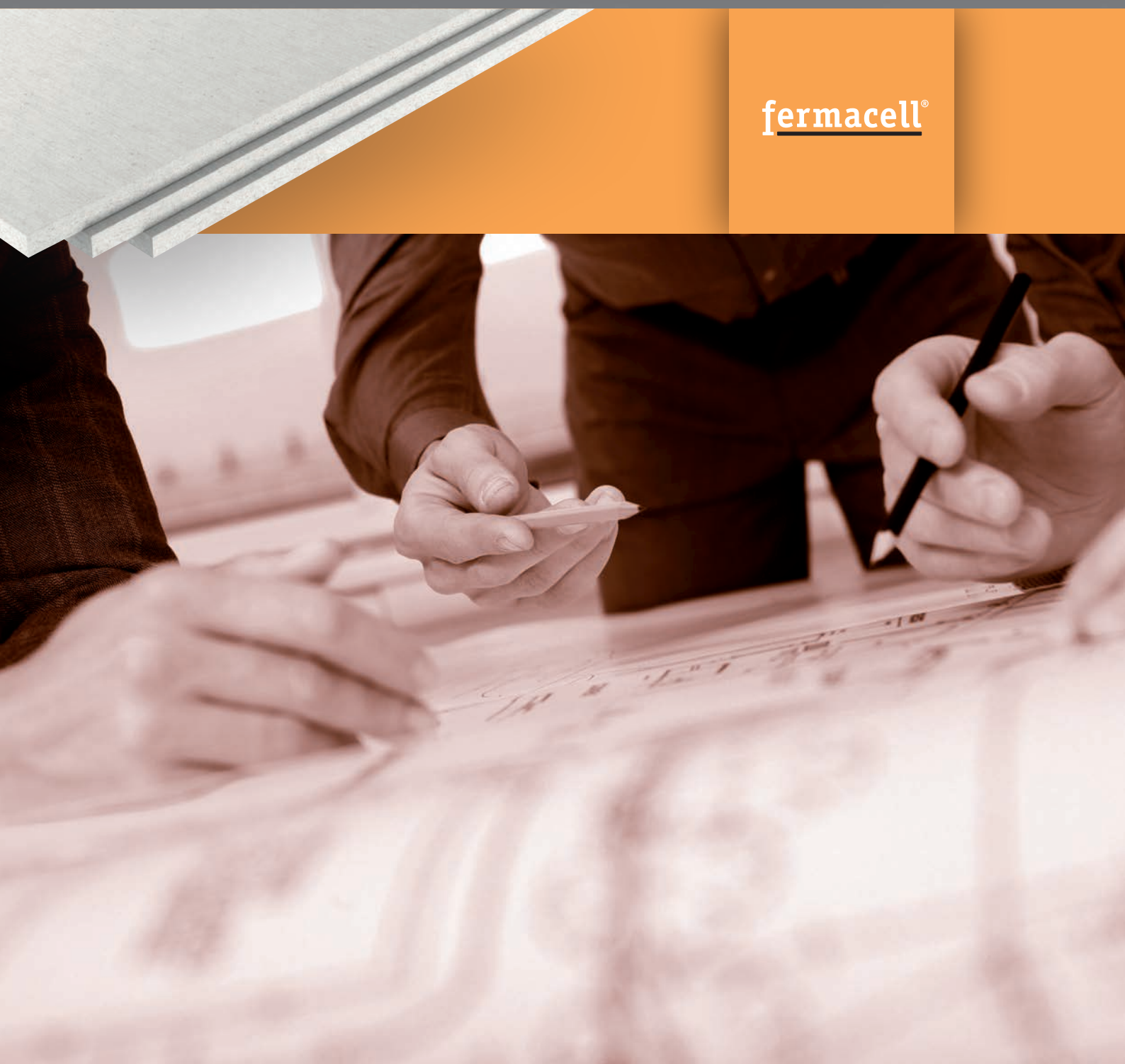


fermacell

The Orange Book

April 2016

fermacell[®]





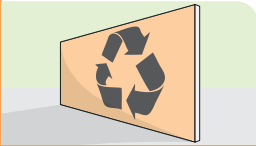
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FOR Maccell

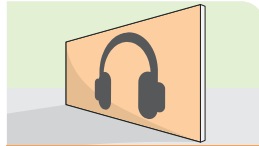
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Fermacell at a glance.



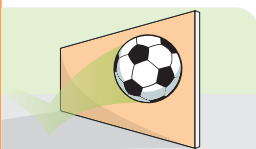
Environmentally Certified

Manufactured from recycled materials.



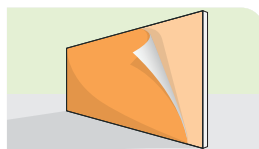
Sound Insulating

Simple Party Wall constructions.



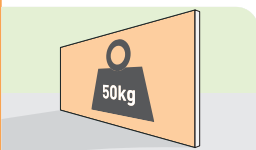
Impact Resistant

Reduces double layering or use of Sheathing Ply.



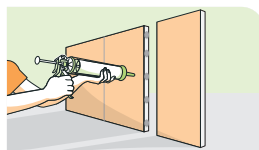
Ready to Decorate

Ready to accept paint, wallpaper, tiles.



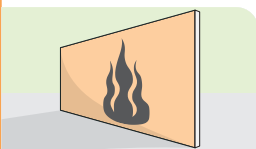
Load-carrying

Up to 50kg per cavity fixing and 30kg per screw. Eliminates Noggings.



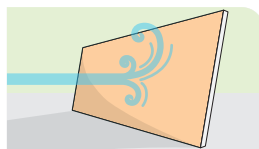
Unique Jointing System

Glued, square edge boards produce a continuous membrane.



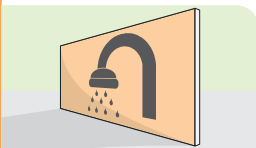
Fire Resistant

60 mins fire resistance from single layer partitions up to 10m high. Class '0' certification. European class A2.



Rigid Structure

Category 1 racking resistance provided by 12.5mm Fermacell.



Moisture Resistant

Suitable for humid areas.



Rapid Finishing

FST (Fine Surface Treatment) eliminates plastering trades.

Modern construction needs modern materials.

Design innovation combined with increasing pressure from Building Regulations means that materials must save time and money on site and offer technically superior solutions.

Fermacell is one such material. A high performance multi-purpose building board that when installed combines the properties of solid blockwork with the speed and flexibility of conventional drywall techniques, letting designers use radical solutions in internal space planning.

COMPOSITION

Fermacell is produced using ordinary materials in an extraordinary way. Recycled gypsum, recycled cellulose fibres from post consumer waste paper and recycled water are combined to form a homogenous mass, which is then formed into a dense sheet material. After drying, the large format boards are cut to size.

The manufacturing technique is not only unique because of the material it produces, but also due to the fact that the process itself is fully recycling – all by-products are fed back into the system, ensuring no waste is produced. Both the product and the process have been awarded the coveted Rosenheim Institute of Construction Biology and Ecology certificate.

Fermacell boards are third party accredited by BBA, ETA and the ECO Institute.



GENERAL PROPERTIES AND APPLICATIONS

There are a vast array of construction systems and techniques to consider when specifying internal finishes.




For partitions, this is most apparent when the properties required of the finished wall call for more than one type of building board to be used in the construction. Hotel bathrooms, for example, often require Moisture Resistance with Acoustic Insulation and Fire Protection. Hospitals will add Impact Resistance and flexibility in accepting wall mounted fittings to this. These criteria almost always demand compromise solutions involving specialist board selection and composite layers, often with costly and time consuming consequences. This in turn creates the potential for confusion, both at detailed drawing stage and on site. Additionally, multiple layering inevitably means thicker walls.

Fermacell offers a unique, single point solution to these problems, combining high levels of Fire Resistance, Acoustic Insulation and Impact Strength with exceptional Screw Holding ability and inherent Moisture Resistance.

From Commercial Projects through to DIY, Fermacell can reap rewards. Fermacell requires minimal additional work prior to painting and decorating. Wallpapers and tiles can be applied direct to the board, and plaster smooth finishes, which are ready to paint in about 45 minutes can be achieved by non-skilled trades using our FST (Fine Surface Treatment) system.

The end result is a finished partition that combines the properties associated with solid masonry with the flexibility of drywall, in a construction that is often thinner, quicker and cheaper to install than both. Using a multi-purpose board that eliminates unnecessary wet trades makes practical, technical and commercial sense.

FEATURES & BENEFITS		
Feature	Advantage	Benefit
Manufactured from Recycled Materials	No paper wrap and fully recyclable	Sustainability
Cellulose Fibre Reinforcement from Recycled Paper	Provides impact resistance for high traffic areas	Increased strength
Severe Duty Rating (Single layer of 12.5mm)	High impact resistance	Increased durability and decreased partition thicknesses
Slimmer Party Wall Solutions	Easier to achieve acoustic ratings	Potential time & cost saving
Moisture Resistant	Can be installed before envelope complete	Potential cost saving
F60 from a Single Layer, Class 0 Certified	Less sheets required to achieve desired fire resistance	Potential cost saving
Holds 30kg on a Screw, 50Kg with Toggle Bolt	Minimal service ply/patress or noggings required	Potential cost saving
Multi Purpose Board	Results in rationalisation of boards	Saving through quality control
Ecologically Certified	Important contribution to overall health & wellbeing	Comfort
Easily applied Fine Surface Treatment (FST)	No need for plastering trades or water ingress into the building	Time and co-ordination savings

LOAD-CARRYING CAPACITY OF Fermacell WALLS				
Fermacell Gypsum Fibreboards (thickness) ⁽¹⁾	Loadbearing strength in kg ⁽²⁾ NB: Factor of safety 2			
	Picture hooks fixed by nails	Screw with cont. thread 5mm dia. ⁽³⁾	Toggle Bolt/ Cavity Fixing ⁽⁴⁾	
				
10mm	15	20	40	
12.5mm	17	30	50	
12.5 + 10mm	20	35	60	
15mm	18	30	55	
18mm	20	35	60	

(1) Maximum stud centres = 50 x board thickness.

N.B. Where fixings are less than 500mm apart, reduce the load per fixing by 50%. If a stud support separates the fixings, then use the full loadbearing strength shown above.

(2) Safety factor: 2 (Static load with relative humidity of up to 85%).

(3) Depth of cupboard or shelves: max. 350mm.

(4) Standard toggle bolt with > 4mm dia. screw.

(The toggle bolt manufacturer's instruction should be followed.)

Fermacell is available in standard sizes as well as custom formats up to 6000mm x 2540mm.

Wallboard thicknesses range from 10mm to 18mm. This choice gives both specifier and installer the ability to select the most appropriate product to speed installation and eliminate waste.

ONE-MAN BOARD

One-man boards are available in 1200 x 800, 1200 x 1200 and 1500 x 1000mm.

STANDARD SIZE BOARDS

Standard size boards in thicknesses from 10mm to 18mm are available. Special sizes to eliminate waste and reduce jointing are available to order.

TAPERED EDGE BOARDS

Tapered edge boards are available with 2 or 4 sided Tapered edges for conventional Dry Lining installation techniques.

POWERPANEL H₂O BOARDS

Powerpanel H₂O is a cement bonded light-concrete board with a laminated structure, reinforced both sides with an alkali-resistance glass fibre mesh. H₂O is a water resistant board for wet areas and semi exposed applications.

FLOORING SYSTEMS

Fermacell Flooring Systems are a dry alternative to conventional wet screed systems and are designed for upgrading both impact and airborne sound insulation in floors, or for increasing thermal performance. They are also particularly suitable for use with warm water underfloor heating systems and can be used for upgrading the fire protection to the upper surface of a floor construction.

MODULAR BUILDING

For factory based modular construction and timber frame housing applications, boards up to 6000 x 2540mm can be supplied reducing the need of jointing.

SHEATHING BOARD

Fermacell Gypsum Fibreboard has been tested independently for use as a sheathing board in vented and insulated rainscreen applicaitons.

The boards should be covered with a protective membrane at the earliest opportunity, ensuring they are not left exposed for more than 7 days. In extreme conditions, cover boards as soon as possible.

Test in accordance with CWCT Standard Test Methods at a UKAS accredited facility.

ACCESSORIES

A full range of accessories is available including Fermacell Screws, Jointstik, Joint Filler and Fine Surface Treatment ensuring perfect results whatever the applications.

STEEL PROFILES

Metal studs, tracks and reinforcement steel profiles specifically developed and tested for fermacell boards, offering a complete system solution for demanding specifications.



FERMACELL BOARD DATA

DATA, NOMINAL VALUES

Dimensional tolerances at constant humidity – Board dimensions

Length	+ 0 / -2mm
Width	+ 0 / -2mm
Diagonal difference	≤ 2mm
Thickness: 10 / 12.5 / 15 / 18	± 0.2mm

Nominal density, strength

Nominal density (production target)	1150 ± 50kg/m ³
Bending strength (after drying at 40°C), at right angles to the board surface	≥ 5.8 N/mm ²
Transverse strength	≥ 0.3 N/mm ²

Certified tensile values according to DIN 1052 (Permit No: Z-9.1-434)

Bending perpendicular to the board surface	1.2 N/mm ²
Bending in board surface	1.1 N/mm ²
Tension in board surface	0.5 N/mm ²
Pressure in board surface	2.0 N/mm ²
Pressure perpendicular to the board surface	2.5 N/mm ²
Shearing in board surface	0.3 N/mm ²
Shearing perpendicular to the board surface	0.6 N/mm ²

Modulus calculations (Permit No. Z-9.1-434)

E-Modulus perpendicular to the board surface	3800 N/mm ²
E-Modulus parallel to the board surface	3800 N/mm ²
E-Modulus tension	3800 N/mm ²
E-Modulus compression	3800 N/mm ²
Shearing modulus G perpendicular to the board surface	1600 N/mm ²
Shearing modulus G bending in the board surface	1600 N/mm ²

Additional data

Vapour Diffusion Resistance EN ISO 12572 μ	13
Thermal conductivity λ	0.32 W/mK
Specific heat capacity c	1.1 kJ/kgK
Brinell hardness	30 N/mm ²
Swelling after 24 hrs saturation	< 2%
Thermal co-efficient of expansion	0.001%/K
Expansion/shrinkage on alteration of the relative humidity of 30% (20°C)	0.25mm/m
Moisture content at 65% relative air humidity and 20°C air temperature	1.3%
Construction material category according EN 13501-1	A2-s1, d0
pH value	7-8

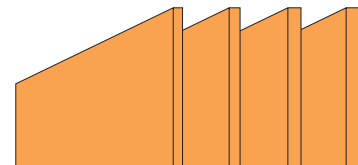
Characteristic strength and stiffness values of Fermacell Gypsum Fibreboard in N/mm² for design calculation according to EN 1995-1-1 and WN 1993-1-1 - See ETA document

	Thickness of board in mm			
	10	12.5	15	18

Perpendicular to the plane of the board				
Bending f _{m,k}	4.6	4.3	4.0	3.6
Shear f _{v,k}	1.9	1.8	1.7	1.6
In plane of the board				
Bending f _{m,k}	4.3	4.2	4.1	4.0
Tension f _{t,k}	2.5	2.4	2.4	2.3
Compression f _{c,k}	8.5	8.5	8.5	8.5
Shear f _{v,k}	3.7	3.6	3.5	3.4

BOARDS

Sizes (mm)	10	12.5	15	18
Weight per m ² (kg)	11.5	15	18	21



Square edge boards

	10	12.5	15	18
1500 x 1000mm	•	•	•	•
1200 x 1200mm	•	•	•	•
2400 x 1200mm	•	•	•	•
2700 x 1200mm	•	•	•	•
3000 x 1200mm	•	•	•	•

Tapered edge boards

	10	12.5	15	18
1200 x 800mm (4 s.)	•	•	•	•
2400 x 1200mm (4 s.)	•	•	•	•
2400 x 1200mm (2 s.)	•	•	•	•

Specially cut sizes on request

FERMACELL CORRESPONDS TO TYPE GF-W2 AND GF-1 TO EN 15283-12

12.5MM FERMACELL GIVES CATEGORY 1 RACKING RESISTANCE, ELIMINATING THE NEED FOR A PLYWOOD AND A PLASTERBOARD.

FERMACELL NOW HAS A RANGE OF CHARACTERISTIC VALUES FOR REDUCED CENTRE FIXINGS. PLEASE CALL OUR TECHINCAL DEPARTMENT FOR FURTHER INFORMATION.

Our technical support staff are fully qualified to provide detailed technical solutions – usually at the time of your enquiry.

Where special detailing or a non-standard solution is required we shall undertake to have given a preliminary answer within 48 hours.

Visits either to your premises or site may be arranged according to your requirements. Please call us for further assistance.

Fermacell's daily and continued use in thousands of high profile projects worldwide is a testament not only to the product's huge appeal and breadth of application, but also to the service and professionalism of our staff in supporting its users. Call our Technical Department to experience the benefits of Fermacell for yourself **+44 (0) 121 311 3480**.



TRAINING

Fermacell is an innovative, high performance product and installation techniques, whilst not difficult, are different to standard Dry Lining practice. For this reason we recommend that first time users of Fermacell – either specifiers or installers – contact us for a brief explanation of the main differences in the use of the board. Although this can be usually accomplished by telephone, we always encourage training. On site training can be arranged by contacting one of our Sales Managers.

CPD

RIBA approved CPD accredited presentations on the features, benefits and use of Gypsum Fibreboards can be arranged at short notice. These presentations are free and are available to professional and trade bodies, architectural and other building practices as well as schools of architecture and building colleges.

INTERNATIONAL CERTIFICATION

Fermacell is produced to the highest international quality standards. In addition to the accreditation of our factories to ISO 9001 and ISO 14001 to ensure consistent product quality, Fermacell itself has been certified by various leading authorities, as well as international equivalent bodies throughout Europe.

RESEARCH LED R&D

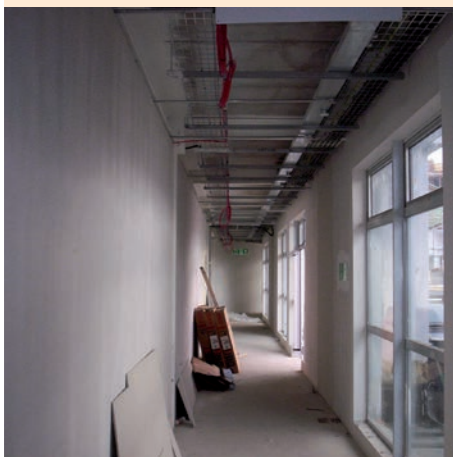
Increasing innovation in building techniques, changes in Building Regulations and requests and suggestions from our customers lead us to develop both new products and methods of application.

Our purpose built R&D centre in the Harz Mountains in Germany has a continuous programme of New Product Development.



All materials used in construction in England and Wales must meet “reaction to fire” and “fire resistance” performance criteria.

The “reaction to fire” regulations deal with the potential contribution to a fire that basic materials may make and carry the award of a Class 0 Materials of Limited Combustibility classification covering ignitability, fire propagation as well as Class 1 surface spread of flame.



Fermacell Gypsum Fibreboards carry this Class 0 classification together with Euroclass A2, the second highest performance level under new EU rules of appropriately tested gypsum wallboards. Fermacell also carries a class 1 surface spread of flame certification, the highest achievable.

The “fire resistance” performance criteria deal with the duration that a complete construction can delay the collapse of a building that is burning, or even how long it can prevent a fire from spreading from one room or one property to another. The effectiveness of the construction is measured in the number of minutes achieved in a variety of British Standard tests.

These tests have become more stringent with the introduction of new EU fire resistance tests – the BS EN 1363 series – which will use plate thermocouples to give a slower reaction to rises in temperature leading to a requirement for additional heat to follow what is nominally the same time/temperature curve as specified in BS 476.

Fermacell have solutions for loadbearing and non-loadbearing constructions, as well as K ratings and assessments for non-standard details. Please contact the Fermacell Technical Helpline for further information.

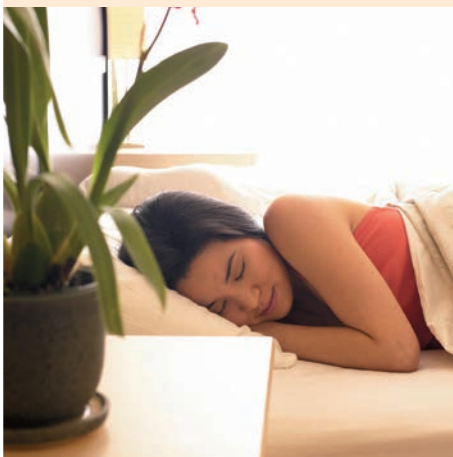
What is acoustics?

The term “acoustics” embraces all aspects of sound: its generation, spread, reduction and reception in the spoken word, music and all other forms of audio.

Airborne sources of sound, generated in the air by a vibrating object, include:

- the human voice
- radio and television
- loudspeakers
- musical instruments
- machinery

Unwanted or intrusive sound is normally referred to as “noise”.



WHAT ARE DECIBELS?

Sound is measured by comparing the pressure wave it creates as it travels from its source with the nominal threshold of hearing pressure and then compressing the range using a logarithmic scale.

The result is the decibel scale, which starts at 0 dB – the point at which humans begin to hear sound – and progresses to 140 dB, the point at which a single short noise is likely to irreparably damage hearing. The scale enables sound levels picked up by the ear to be easily and meaningfully analysed – even a 3 dB change in sound pressure level is considered significant.

WHAT IS SOUND FREQUENCY?

The vibrations that produce individual sounds are measured in cycles per second and written in hertz (Hz) units which are termed the “frequency”. The human ear, which picks up sound from 20 Hz to 20,000 Hz, has varying sensitivities to different frequencies although the optimum range is between 1,000 Hz to 4,000 Hz.

WHAT IS PITCH?

Pitch is another term for frequency.

EFFECTS OF SOUND REDUCTION VALUES ON AUDIBILITY	
R _w	Noise level
30 dB	Normal conversation can be distinguished
35 dB	Loud conversation can be distinguished
40 dB	Loud conversation can be heard but not distinguished
45 dB	Loud conversation can be heard
50 dB	Shouting can be heard but not distinguished
55 dB	Speech is totally unheard with a high level of privacy from other domestic noise
60 dB	High level of privacy including noise from Hi-fi and television

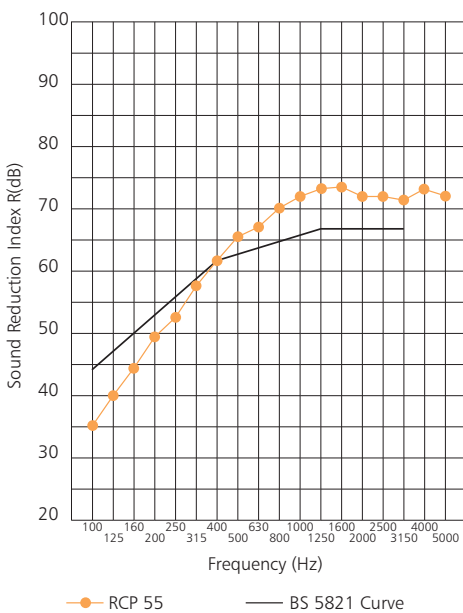
THE THEORY OF SOUND INSULATION

Airborne sound insulation is the ability of material separating two rooms to minimise the passage of airborne sound through either the dividing element or its surrounding structure. The materials are assessed on a sound reduction index by relating the sound power reduction through the material itself.

Purpose built laboratories consist of two rooms with an opening between them, into which a test sample is inserted, thus allowing an evaluation of partitioning and other insulation structures.

Similarly, testing on site also involves establishing the values relating to the sound pressure level reductions between two rooms. Then reverberation time of the receiving room indicates the Standardised Level Difference (D_{nT}).

While a graph of sound insulation vs. frequency may be plotted from one third octave band measurements between 100 Hz and 5,000 Hz, a simplified rating method has been drawn up. By overlaying the measured sound insulation graph with a standard curve shape on which the position may be altered to meet certain criteria, a single figure may be calculated from the sound insulation spectrum. This single figure, when achieved in lab tests, is the Weighted Sound Reduction Index (R_w) and is called the Weighted Standardised Level Difference ($D_{nT,w}$) following site tests.



IMPACT SOUND

Impact sound, essentially vibration caused by the collision of one object with another, usually footsteps, applies only to floors.

Testing of impact sound insulation involves dropping, in turn, five similar hammer heads that comprise a standard tapping machine onto a floor at a rate of ten impacts per second. The resultant impact sound is measured in the room below in terms of sound pressure levels.

The use of a resilient layer during testing is not allowed.

SOUND INSULATION DESIGN

By plotting surface mass against "mean" sound insulation, it has been demonstrated by The Empirical Mass Law that the insulation increases by 4 dB to 5 dB with every doubling of the surface mass.

This has led to the development of a series of practical and economical methods of sound insulation. They include:

- The use of a single light gauge metal stud frame, lined with a layer of board, to produce separation and discontinuity. Even though the air in the cavity can act as a "spring" connection between the boards, this method gives insulation **at least 5 dB greater than the empirical prediction.**
- The use of glass wool or rock wool infill to effectively dampen the air spring in the cavity to produce a **5 dB improvement to the value.**
- Double layers of wallboard operating as semi independent linings and producing up to **10 dB improvements.**
- Creation of virtually independent linings by fixing a resilient bar to one side of the metal stud frame for **6 dB improvement.**
- It is possible to optimise airspring discontinuity and produce good low frequency improvements by incorporating twin independent frames that increase wall width as well as provide structural discontinuity. Acoustic cross braces optimise the maximum partition heights achievable.

The Approved Document E is guidance to acoustic performance standards for houses, flats, schools, hotels and hostel types of accommodation.

Whether new build or material change of use, all projects have different criteria, to improve the sound insulation and privacy between domestic and residential rooms.

There are several ways of approaching compliance, primarily with the design of separating walls and floors that will meet and exceed the requirements in the guidance document. The onus is then on the installer to ensure good on site workmanship and consideration to the prevention of flanking transmission around the installed systems. As Part E sets out a requirement for 10% pre-completion site testing of separating (party) walls and floors, builders will need to prove, by site testing, that the sound insulation meets the requirements of the new regulations.

Acoustic failure will prove costly.

New build dwellings are exempt if built with approved Robust Details (RDs), however sample testing is still carried out.

PART E AT A GLANCE

E1 The regulations to protect against sound from other parts of a building or adjoining buildings apply to dwelling houses, flats and “rooms for residential purposes” in hotels, hostels, boarding houses, halls of residence and care homes and call for pre-completion testing.

E2 Internal walls and floors between bedrooms, WCs and other rooms are required to meet a specific laboratory test standard of airborne sound insulation of 40 dB R_w or by minimum mass calculations depending on construction. There is no requirement for pre-completion site testing.

E3 Common internal areas of buildings containing flats or rooms for residential purposes must be designed to prevent more reverberation than is reasonable.

E4 Acoustic insulation guidelines for schools – which require control of sound insulation, reverberation and indoor ambient noise levels are contained in Building Bulletin 93.

SCOTLAND AND IRELAND

Fermacell can also provide solutions in relation to Scottish, Northern Irish and Irish building regulation requirements.

SOUND INSULATION IN DWELLINGS

SEPARATING WALLS, FLOORS AND STAIRS

The airborne sound insulation standard for separating walls, floors and stairs in purpose built dwelling houses and flats is 45 dB, expressed as $D_{nT,w} + C_{tr}$. This target, with the addition of the C_{tr} correction factor, will ensure substantial sound insulation. Floors and stairs should have maximum values of impact sound insulation of 62 dB $L_{nT,w}$.

The figures for dwellings and flats formed by material change of use are 43 dB and 64 dB respectively.

Walls in purpose built rooms for residential purposes carry a standard for airborne sound insulation of 43 dB $D_{nT,w} + C_{tr}$, floors and stairs require 45 dB $D_{nT,w} + C_{tr}$ and 64 dB $L_{nT,w}$ impact sound requirements.

INTERNAL WALLS AND FLOORS

Laboratory values for all categories of internal walls are 40 dB R_w in both wall and floor calculations. There is no requirement for pre-completion testing under the legislation.

PART E AND RD SOLUTIONS

Fermacell Gypsum Fibreboard totally satisfies the requirements of Part E. It must be remembered that pre-completion tests must be carried out on site by an accredited third party test body on 10% of all different types of new dwellings.

An alternative to pre-completion testing is the approval of separating (party) walls and floors for new builds only, as Robust Details (RDs). They will be deemed to satisfy Part E if they are built correctly.

RD solutions used in projects other than new build will, however, be subject to pre-completion testing.

SOUND INSULATION IN SCHOOLS

Building Bulletin 93 associated with Document E deals specifically with acoustics in new school buildings, covering airborne insulation between teaching and learning spaces, and impact sound insulation of their floors. It does not cover administration and ancillary areas.

The table below shows the performance requirements for airborne sound insulation between rooms expressed in $D_{nT}(tmf,max)_w$ and impact sound insulation of floors maximum weighted BB93 standardised impact sound pressure level $L_{nT}(tmf,max)_{w'}$

AIRBORNE SOUND INSULATION BETWEEN ROOMS																	
	Nursery play room	Nursery quiet room	Primary / secondary classroom	Open plan teaching / resource	Music classroom	Music performance room / recording studio	Lecture room (fewer than 50)	Lecture room (more than 50)	Library	Science laboratory	Drama studio	Metal / woodwork room	Assembly hall	Gymnasium	Dining room	Offices / toilets / corridors	Impact sound insulation of floors
Nursery play room	55																65
Nursery quiet room	55	40															60
Primary / secondary classroom	55	45	45														60
Open plan teaching / resource	50	45	45	40													60
Music classroom	55	55	55	55	55												55
Music performance room / recording studio	60	45	55	55	60	60											55
Lecture room (fewer than 50)	55	45	45	45	55	55	45										60
Lecture room (more than 50)	55	45	50	50	60	60	50	50									55
Library	55	40	45	45	55	55	45	50	45								60
Science laboratory	50	45	45	40	55	55	45	50	45	40							65
Drama studio	55	55	55	50	60	60	55	55	55	50	55						55
Metal / woodwork room	55	55	55	50	55	55	55	55	55	50	55	50					65
Assembly hall	55	55	55	50	55	55	55	55	55	50	55	55	55				60
Gymnasium	55	55	55	50	55	55	55	55	55	50	55	50	55	50			65
Dining room	55	55	55	50	55	55	55	55	55	50	55	50	55	50	45		65
Offices / toilets / corridors	55	55	55	50	55	55	55	55	55	50	55	50	55	50	50	50	65

SOUND INSULATION IN HOSPITALS

Hospitals are expected to meet acoustic design and performance criteria as set out in a number of HTM documents.

Performance requirements for airborne sound insulation set out in the table below, range from 43 dB R_w to 53 dB R_w depending on the location of the rooms within the building. Designers seeking to achieve these values should also consider the potential for eliminating or minimising flanking sound transmission (sound that might be transferred through surrounding structures, such as plant and mechanical services).

Careful selection of internal surface finishes contributes greatly to the control of reverberation which can also affect acoustic qualities.

Fire requirement in hospitals outlined in HTM81, which is based on Approved Document B of the building regulations, state that partition walls and floors between rooms must be provided with appropriate levels of fire resistance as well as acoustic insulation.

Robust Fermacell boards meet the acoustic and fire requirements for walls and floors in hospitals, offering superior strength, resistance to impact damage and pull-out for fixings.

PERFORMANCE REQUIREMENT FOR AIRBORNE SOUND INSULATION BETWEEN ROOMS IN dB(R_w) for HTM56

	Consulting room	Examination rooms	Treatment rooms	Speech therapy rooms	Offices	Seminar rooms	Single-bed wards	Multi-bed wards	Day rooms	Nurseries	Toilets and bathrooms	Utility rooms	Ward pantries	Plant motor rooms
Consulting room	43													
Examination rooms	43	43												
Treatment rooms	●	53	43											
Speech therapy rooms	48	48	●	48										
Offices	43	43	53	48	48									
Seminar rooms	48	43	48	53	43	38								
Single-bed wards	43	43	●	48	43	48	43							
Multi-bed wards	53	53	48	●	48	43	53	43						
Day rooms	53	53	43	●	48	43	53	43	48					
Nurseries	●	●	43	●	53	48	●	48	43	43				
Toilets and bathrooms	48	48	48	53	43	43	48	48	48	48	43			
Utility rooms	●	●	43	●	53	48	●	48	43	43	48	43		
Ward pantries	48	48	48	53	43	38	48	43	43	48	43	48	38	
Plant motor rooms	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● Special construction may be necessary. Please consult Building Control for details.

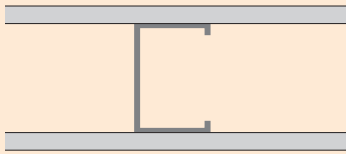
Fermacell SOLUTIONS FOR WALLS				
Acoustic performance (R _w dB)	Fire resistance (minutes)	Timber frame	Steel frame	Masonry upgrade
38	30	1H13	1S15	3S01
	60	1H22	1S21	3S21
	90	1H31	1S31	-
43	30	1H23 or 1H31	1S15	3S01
	60	1H23 or 1H31	1S21	3S21
	90	1H31	1S31	-
48	30	1H23 or 1H31	1S11	3S01
	60	1H23 or 1H31	1S21	3S21
	90	1H32 or 1H31	1S31	-
53	30	1H32, 1H23 or 1H35	1S21	3S01
	60	1H32, 1H23 or 1H35	1S21	3S21
	90	1H32	1S31	-

HTM08-01 has recently been introduced and offers simpler guidance on performance of partitions within Hospitals. These areas include:

- (1) The performance requirements are shown as on-site figures.
- (2) Guidance is given on designing from Laboratory (R_w) performance to on-site performance (D_{nT,w}). A minimum difference of 5dB should be allowed, and even up to 7dB to allow for typical services and construction details.
- (3) The effect of doors in partitions is clearly defined, allowing a more common sense approach for design.
- (4) An additional allowance must be made for the area of the separating element and the volume of the room.
- (5) Fermacell systems can provide simple solutions for all these criteria, Tables 3, 4, 5 and appendix a should be referenced for design.

Duty Rating & Impact Performance – Tested to BS 5234-2:1992.

The simplest Fermacell steel stud partitions have been tested to BS5234-2 and achieve a SEVERE duty rating.*



Thus specifying duty rating with Fermacell solutions is a simple process. In addition Fermacell has carried out a vast range of testing, to DIN 4103, for greater wall heights with different board configurations, stud profiles and centres. This allows Fermacell to provide a comprehensive range of rated build heights. This includes soft and hard body impact testing. A severe duty can be achieved by using a single 75mm DIN standard Fermacell stud with a single layer of 12.5mm Fermacell to one side.



*up to 3 and 5 metres

CERAM TEST DATA TO BS 5234:Pt2

Test wall	Description	Build height	Result
Fermacell 1S15 (1)	Partition 4.50m long by 5.0m high with overall thickness of 100mm; comprising 1 layer each side of 12.5mm Fermacell Board fixed to 0.6mm x 75mm x 50mm Fermacell steel studs at 600mm centres	3m & 5m	Severe Duty
Fermacell 3S01 (2)	Independent Lining 4.50m long by 3.0m high with overall thickness of 100mm; comprising 1 layer one side of 12.5mm Fermacell Board fixed to 0.6mm x 75mm x 50mm Fermacell steel studs at 600mm centres	3m	Severe Duty
Fermacell 1S15 H ₂ O (3)	Partition 4.50m long by 3.0m high with overall thickness of 100mm; comprising 1 layer each side of 12.5mm Powerpanel H ₂ O Board fixed to 0.6mm x 75mm x 50mm Fermacell steel studs at 600mm centres	3m	Heavy Duty

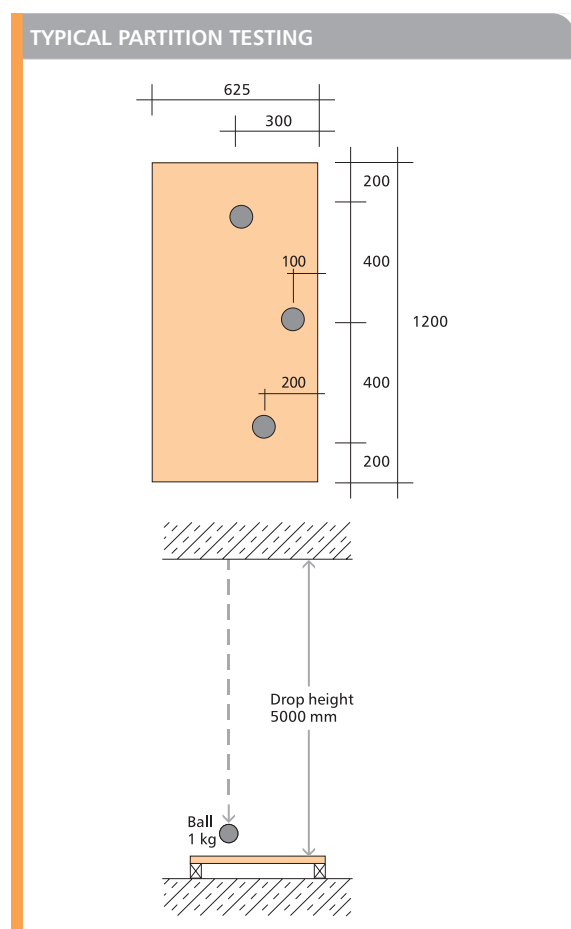
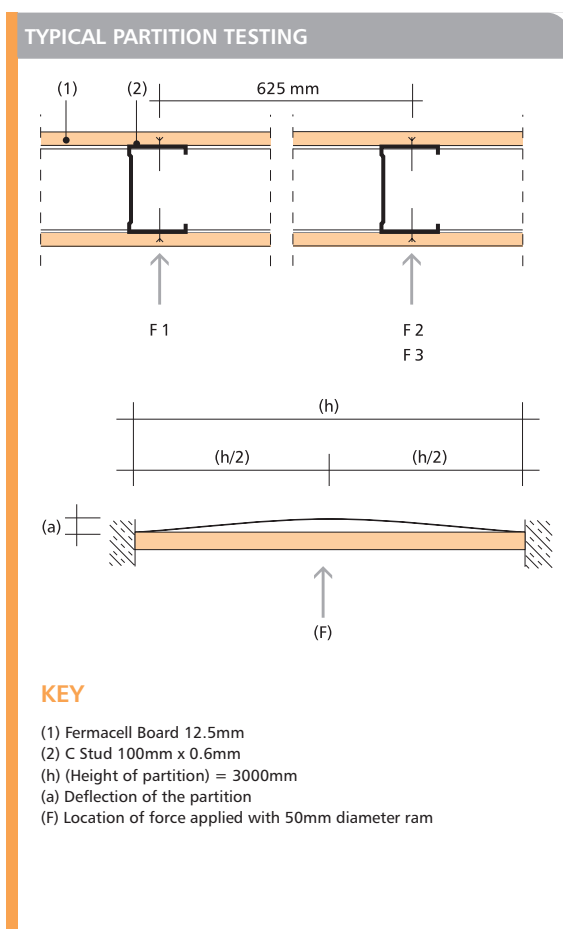
<p>1S15 (1)</p>	
<p>3S01 (2)</p>	<p>1S15 H₂O (3)</p>

FERMACELL SOFT IMPACT TEST TO DIN 4103

The certificate for soft impact is based on an assessment of the ability of the whole partition to withstand a semi static load. A soft impact on light-weight partitions can result from, for example, the impact of a human body or in the case of panic caused by fire as a result of the crowd pressure in corridors that line an escape route.

FERMACELL HARD IMPACT TEST TO DIN 4103

The resistance to hard impact is determined by a drop ball test. A steel ball 63.5mm in diameter weighing 1030g is released in free fall on to the face of a 12.5mm Fermacell Board. The drop ball tests are carried out on 1200mm wide pieces of board, spanned between two supports at 625mm. The impact points are in the middle of the board and near the edge of the board.



Load type	Force
Soft horizontal impact	kN
F1 Force applied over stud to create deflection of 5mm	1.119
F2 Force applied between studs to create deflection of 5mm	0.605
F3 Force applied between studs to break through board	1.505

FERMACELL FIXINGS AND LOADINGS

The flexibility of fixing to Fermacell means you can put your shelves or cupboards where you want to.

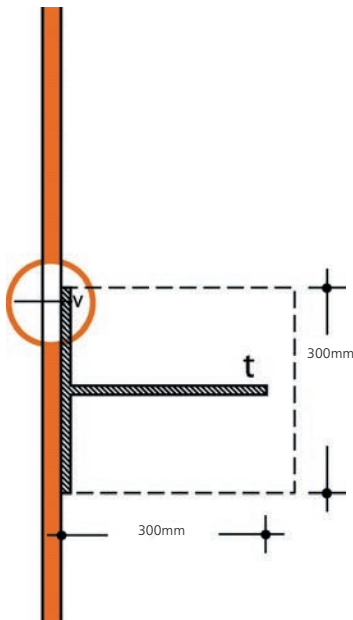
FIXINGS TO WALLBOARDS

- Fermacell boards have a great hanging strength.
- Many items can be fixed directly to the boards without fastening to the sub-structure.
- The table below shows the loadbearing capability of a wide range of fittings.
- The loadbearing capability refers to static (dead) loads only.
- The loadbearing capability refers to static (dead) loads only.
- For live loads which are subject to increase (eg washbasins or stair-rails), the maximum load should be calculated and patresses of plywood added behind the wall.
- Fixing back to the existing studs will provide additional support where required.

MAXIMUM WALL LOADING

- With single stud walls a maximum of 150kg/m is recommended.

For separated stud walls and independent wall linings, please contact the Fermacell Technical Department for further details.



- Permissible load t applied to a cantilevered arm at distance shown, using a single fixing directly into the board.

LOAD-CARRYING CAPACITY OF Fermacell WALLS				
Fermacell Gypsum Fibreboards (thickness) ⁽¹⁾	Loadbearing strength in kg ⁽²⁾ NB: Safety factor of 2			
	Picture hooks fixed by nails	Screw with cont. thread 5mm dia. ⁽³⁾	Toggle Bolt ⁽⁴⁾	
10mm	15	25	20	40
12.5mm	17	27	30	50
12.5 + 10mm	20	30	35	60
15mm	18	28	30	55
18mm	20	30	35	60
12.5mm H ₂ O	N/A	N/A	N/A	40
2 x 12.5mm H ₂ O	N/A	N/A	N/A	50

- (1) Maximum stud centres = 50 x board thickness.
N.B. Where fixings are less than 500mm apart, reduce the load per fixing by 50%. If a stud support separates the fixings, then use the full loadbearing strength shown above.
- (2) Safety factor: 2 (Static load with relative humidity of up to 85%).
- (3) Depth of cupboard or shelves: max. 350mm.
- (4) Standard toggle bolt with > 4mm dia. screw.
(The toggle bolt manufacturer's instruction should be observed.)

The stated load values can be added up, if the fixing centres are ≥ 500 mm. For lesser fixing centres, 50% of the relevant permissible load per fixing should be used. The total single loads for walls should not exceed 1.5 kN/m and for free-standing Dry Lining and double studwalls not physically connected to one another, 0.4 kN/m. The stability of the wall or casing should be verified as described above according to DIN 4103 Part 1 and BS 5234.

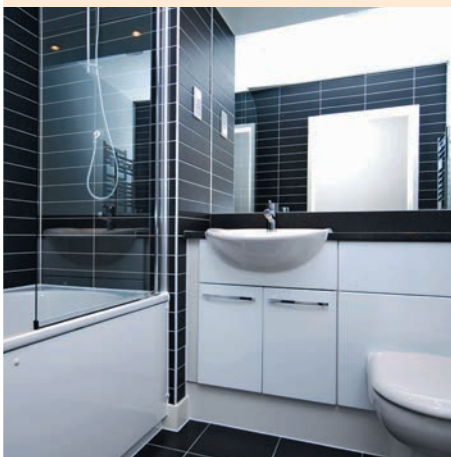
MAXIMUM TILE WEIGHTS

- The maximum recommended tiles weight is:
 - Fermacell Gypsum Fibreboards - 35kg/m²
 - Fermacell Powerpanel H₂O - 50kg/m²
- *Reduce stud centres as required, dependant on tile substrate requirements.
- For any weight greater than that please contact our Technical Department on **+44 (0) 121 311 3480** for more details.

The moisture resistance qualities of Fermacell boards have been confirmed by a series of the most uncompromising tests developed specifically for rainscreen evaluation.*

Simulated cascading rain, 600 kpa wind speeds and intense humidity, far in excess of normal weather conditions that would hit a building in its entire lifetime, have demonstrated that the 12.5mm Fermacell as a backerboard product is ideal for external use.

It may be applied as a sheathing board on both timber frames and structural steel framed external wall infill panels, used as a liner for unexposed canopies and also for lining roof trusses used as separating wall frames.



Fermacell gypsum fibreboard is moisture resistant and can be used in semi exposed applications. Fermacell also offers a good degree of mould resistance.

As well as a sheathing board, Fermacell Gypsum Fibreboards provide outstanding performance as a tile backing board in environments with frequent exposure to water and moisture – up to 80% humidity and it is the ideal solution for:

- Kitchens
- Laundries
- Bathrooms
- Shower Cubicles
- Plant Rooms

Furthermore, fermacell board can make a significant contribution to improved BREEAM ratings of new and refurbished commercial and residential buildings.

The moisture resistance qualities of Fermacell are accompanied by a host of additional advantages including: substantial financial benefits (Fermacell can save up to 50% per m² when compared to other boards); its excellent fire and acoustic properties; its ease of fixing, cutting, jointing and general handling; and considerably less remedial problems.

The ability of Fermacell to withstand a degree of moisture lends it to reducing project time and glitches on site, where inclement weather can really slow things down. Spandrel Panels, prefabricated with Fermacell, are already fitted into roof spaces where limited weather protection is in place. We would always recommend that our advice is sought in these matters first as Fermacell is moisture resistant, not waterproof.

All these benefits are accompanied by Fermacell's commitment to a totally environmentally friendly product manufactured from recyclable materials which therefore makes Fermacell itself also completely recyclable.

*The tests were conducted in accordance with guidelines set down by the Centre for Windows and Cladding Technology and included air permeability, static and dynamic watertightness, and wind resistance from both serviceability and safety points of view.

Fermacell, the high performance Dry Lining board with Class 0 fire rating, excellent acoustic qualities and superb resistance to impact and moisture, brings the highest levels of environmental care and sustainability to the construction industry.

Fermacell's unique manufacturing technique produces board of quality, flexibility and strength completely from recycled materials, making it a sustainable product that is ideal for walls, ceilings or floors.



At a state-of-the-art production facility in Holland, gypsum, a waste product from a nearby power station, and cellulose fibres from recycled paper and magazines collected throughout the Netherlands are mixed with recycled water in an 80%-20% ratio to produce homogenous sheet materials that are cured and cut to size.

All by products are fed back into the production cycle and Fermacell have even instigated a scheme for the collection and recycling of off cuts and waste created on construction sites, giving customers the opportunity to enhance their environmental reputations by demonstrating social responsibility through reduced demand for land fill.

Since its introduction to the U.K. in 1971, Fermacell, one of the brands of world-wide building materials group Xella International, has developed a fine reputation for effective solutions that meet today's challenging building and sustainability requirements.

The product, and its manufacturing process, have been awarded the coveted Rosenheim Institute of Construction Biology and Ecology Certificate and the Low Emissions Product Eco Certificate. In addition Fermacell itself has been defined as a "healthy living building material" for allergy-free environments.

CERTIFICATION

- BBA certificate No 90/2439
- DN EN ISO : 14001
- Recycled content to ISO 14021: newspaper and gypsum recovered from desulphurisation plants
- ETA – 03/0050
- EWC – European Waste Catalogue Ref listing REF – NO 1708 02
- Life expectancy = life of the building
- Environmental certification: Rosenheim Institute Ecology Certificate
- eco INSTITUT – Quality Assurance
- Greenspec – Material Details
- GreenGuide –
 - England
 - Wales
 - Scotland



Fermacell's unique range of DIN standard steel studs, head and base track and reinforcement profiles are manufactured to meet the most demanding designs and building regulations.

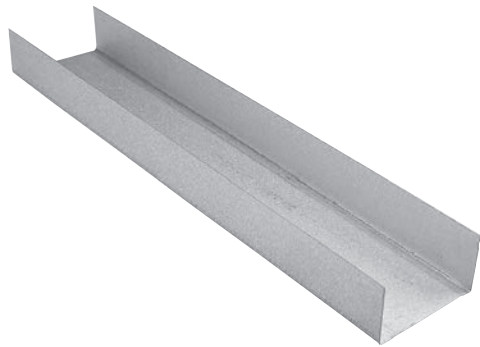
Fermacell steel profiles are specifically designed and manufactured to work with fermacell boards. The studs have a 50mm fixing face, made in 0.6mm thick and come in a wide range of widths and lengths. Our range of acoustic foam strips are designed to isolate the track or stud from the substrate hence reducing the possibility of flanking transmission through the frame. The acoustic foams trips are self adhesive and can be easily applied on site.



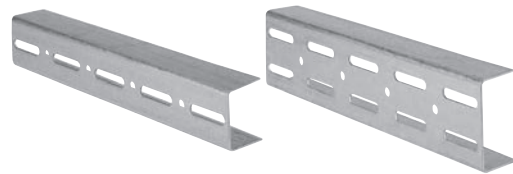
Stud Profiles



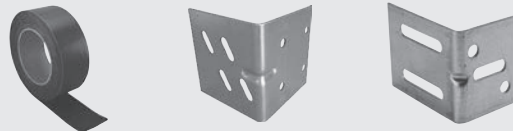
Head & Base Track



Door Reinforcement



Accessories



Different construction projects naturally have different partitioning requirements, but it is often the case that no matter what the final use of a building, there are common partitioning needs.

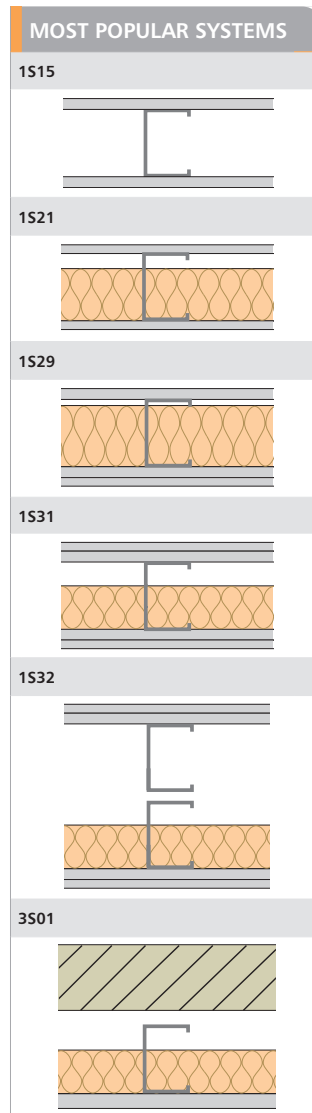
Acoustic, Fire, Impact Performance and Environmental considerations are at the top of the list of partitioning priorities: whether it is an educational or hospital establishment; retail store; sport or recreational centre or residential development, partitioning with a demonstrable pedigree such as Fermacell is no longer an option, it is essential.

Architects, main contractors and installers also have a second common goal: an installation method that is fast, and easy to schedule into the fitting out programme. Fermacell can help in both those benefits, as well as the unique FST finishing system which ensures a quality finish that eliminates the wet trades such as plastering.

EDUCATION AND HEALTHCARE

The Education and Healthcare construction sectors are alike in many ways and have similar needs when specifying internal partitions, linings and ceilings. The careful selection of the systems used in these public buildings is vital as they have to perform at the highest level in demanding environments. Particular attention has to be paid to the 'whole life costs' of the products used during the construction as the cost of maintenance of the building has to be managed from strict budgets.

Fermacell Gypsum Fibreboards provide significant benefits and often exceed the requirements in relation to durability and low life costs with such projects. Due to the composition of Fermacell boards our systems give the Architect, Main Contractor and Client peace of mind as they have the ability to withstand the everyday knocks and impacts that the partitions in these sectors receive everyday.



For individual system performance please refer to the Partition performance tables starting on page 38.

Fermacell boards have very high load carrying capabilities which means that the amount of reinforcement within the partition can be drastically reduced, saving cost and on site installation time. Due to the strength of Fermacell, high performance partitions with high fire protection and excellent acoustic performance can be achieved with a narrow width partition which means that the overall footprint of the partitions can be significantly reduced saving space and optimising room space.

All Fermacell boards are tested during rigorous performance tests by third party test establishments, listed here are the most commonly specified Fermacell systems in the Education and Healthcare sector.

RETAIL

Loadbearing comes high on the list of essentials in retail developments, although an ability to cope with impact is equally as important. An enviable loadbearing performance enables retailers using Fermacell to install most of the fixtures and fittings directly to the Fermacell Board reducing the amount of reinforcement.

SPORTS, RECREATION AND THE ARTS

The smooth finish of Fermacell, enhanced by the use of Fine Surface Treatment, is ideal for arts and cultural centres where large, heavy pictures and paintings are hung and regularly rehung in a quality environment.

These needs for strong partitioning are accompanied by a requirement for high impact resistance, but probably not quite as high as sports and recreation centres where hard ball sports and hefty human impact resistance is paramount. Not only does Fermacell meet all these criteria – it can be supplied in standard size sheets up to 3m high (special longer boards available) making it ideal for installations of this type.

Note: For further design guidance please refer to:

‘Designing Galleries: the complete guide to developing & designing spaces & services for temporary exhibitions’ Author: Mike Sixsmith ISBN: 0728707802 - Fermacell reference section ‘Wall-Lining Material’.

RESIDENTIAL

The single board solution with fewer layers and less insulation than plasterboard is one of the many attractions that Fermacell holds for the house builder, particularly those operating in the high end of the market and self builders seeking the best for their property. The Fermacell package of superior acoustic performance, strength, speed, quality, ease of finish, and moisture resistance have made it a firm favourite in this market – and even more so with builders of timber frame properties seeking a strong breathing wall construction that eliminates the need for plywood as a racking board at the same time.

PRISONS AND DETENTION CENTRES

There is no environment more demanding than the HM Prison and Magistrates Court facilities. Fermacell provides an accepted solution with a range of historical and current projects throughout England, Wales & Scotland. Drawing on this expertise Fermacell can provide tailored design and accepted systems to suit all requirements demanded by Home Office or HM Prison Services.



Fermacell Gypsum Fibreboards are produced for use in commercial and domestic construction projects as a Dry Lining board for partitions, linings, ceilings, fire protection, flooring and a cladding backerboard.

COSHH Data Sheets for all Fermacell products including accessories are available, please contact our Technical Department on **+44 (0) 121 311 3480** or email **Fermacell-uk@xella.com**

At Fermacell, we take our responsibilities for the health of people seriously, which is why we strive to ensure that where possible all of our products are safe from an environmental and health viewpoint.



HEALTH AND SAFETY

Due to the multifunctional nature of Fermacell Gypsum Fibreboards, they are stored and used in both internal and external environments. Care must be taken when using Fermacell and its associated accessories in areas of limited ventilation and around other working personnel. Although Fermacell itself does not contain any dangerous chemicals, it is imperative that safe working practices are followed.

Health and Safety Executive Guidance Note EA44 outlines the general approach to control occupational exposure to airborne dust, but it should always be considered that good working practice will ensure that occupational exposure is minimised. When installing Fermacell boards these include:

- Ensure good ventilation when cutting Fermacell
- Use dust extractors where possible to minimise airborne dust contamination when cutting with power tools
- Use a dust mask that meets EN 149 specifications
- Avoid contact of the dry products with the skin
- Irrigate eyes immediately with water in the event of contact with dust
- Always wash exposed skin after use

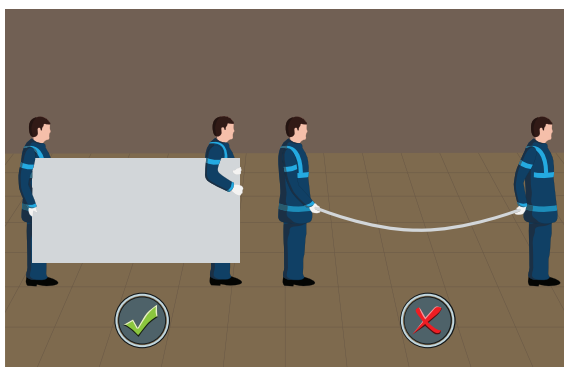
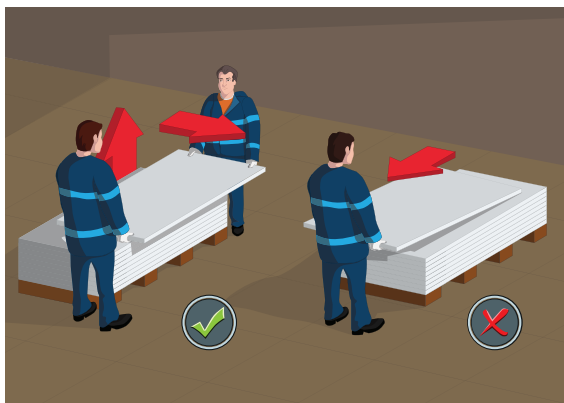
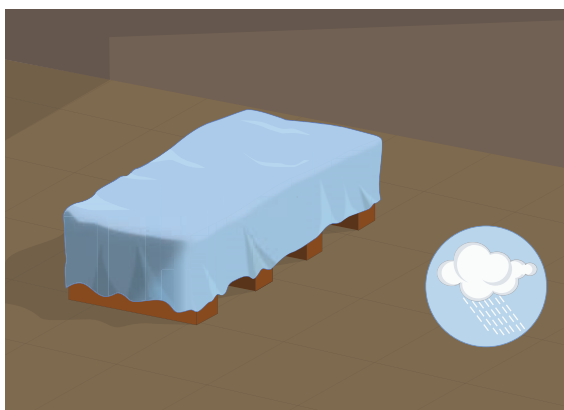
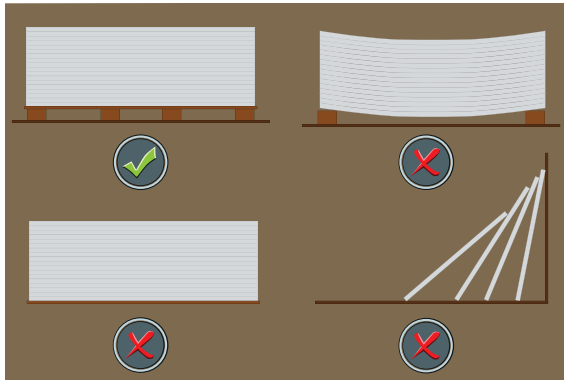
FERMACELL JOINTSTIK AND FLOOR GLUE

Skin contact: Wipe off uncured product with a paper towel or cotton pad. Wash skin thoroughly with soapy water. Cured product should not be removed. Please note: should skin irritation persist obtain medical assistance.

Eye contact: Keep the eyelids open and rinse thoroughly with clean running water, and obtain medical assistance immediately.

Ingestion: DO NOT induce vomiting. Seek IMMEDIATE medical assistance.

NB: Please refer to the SDS and DoP information on our products.



HEALTH AND SAFETY

FERMACELL FINE SURFACE TREATMENT AND JOINT FILLER

General information: Wash soiled clothing before reuse.

Inhalation: Inhalation of dust when mixing or sanding may cause short term irritation. Use a dust mask that meets EN 149 specifications.

Skin contact: Flush and wash with water and soap.

Eye Contact: Rinse eyes immediately with clean water.

Ingestion: Drink plenty of milk or water.

Safe working habits and conditions also cover lifting of heavy materials (which should be undertaken in the correct manner using mechanical handling equipment where appropriate); cutting and handling of metal components (the wearing of gloves to avoid cuts and abrasions is recommended); and the avoidance of contact between the eyes and liquid products.

Please see the diagrams opposite for handling and storage guidance.

Where possible, Fermacell boards should be stored on a flat level base. They should be protected from moisture; wet boards should be allowed to dry out completely on a level surface before use. The stacking of boards on their edges can lead to deformation of the boards and damage to the edges. Boards should generally be carried upright and the use of board lifters is advised when fitting boards to ceilings.

Occupational Exposure Standards (OES) are reviewed annually by the Health and Safety Executive in the light of any new medical evidence.








Please contact our Technical Department on **+44 (0) 121 311 3480** or email **Fermacell-uk@xella.com** for further SDS and DoP information.

Partitions





Introduction	29
Accessories	30
Detailed Overview	31
Component Details	32
Installation Overview	37
Performance Details	38






MARKET SECTORS

	Arts
	Education
	Residential
	Healthcare
	Recreation
	Industrial/Office
	Prisons

PERFORMANCE RATINGS

	41 dB	71 dB
	30 mins	120 mins

Fermacell PERFORMANCE

-  Impact – Severe duty, able to withstand impact from people as well as objects (door handles etc).
-  Acoustics – Greater acoustic performance often with less layers than plasterboard constructions providing slimmer partitions.
-  Loadbearing – The composition of Fermacell allows up to 50kg per fixing to be hung from Fermacell using a toggle bolt and 30kg from a single screw.
-  Speed of construction – Due to the unique finishing system (FST) the overall installation of Fermacell is faster than plasterboard.
-  Environmental – Fermacell boards are manufactured from recycled content and are recyclable. Decreasing the carbon footprint and increasing the BREEAM rating of the building.

Using Fermacell boards on either Metal or Timber partitions provides properties associated with solid masonry with the flexibility and speed of drywall, in a construction that is often thinner, quicker and cheaper to install.

This is largely achievable due to the all round performance of Fermacell boards that provide superior Fire, Acoustic and Impact performance, it eliminates wet trades making practical, technical and commercial sense.

METAL STUD PARTITIONS

Fermacell boards are fixed to Fermacell steel studs⁽¹⁾, which have a 0.6mm gauge metal thickness with a 50mm fixing face allowing a versatile, high performing and cost effective solution for domestic to commercial applications often achieving superior Fire, Acoustic and Impact resistance over drywall construction.

The excellent screw retention properties of Fermacell means that significantly fewer noggings or plywood is needed for dead load fixtures and fittings; this also allows junctions to be started from any point.

TIMBER STUD PARTITIONS

These are more commonly used in domestic applications. Timber partitions provide versatility and performance including racking strength for timber framed properties. The ability of Fermacell to be stapled to timber studs means increased speed of fixing.

TWIN FRAME SYSTEMS

Fermacell partitions achieve a number of advantages over masonry construction by reducing the weight, build time and cost often associated with masonry construction. We offer a number of Robust Detail Compliant solutions.

(1) Typically DIN standard

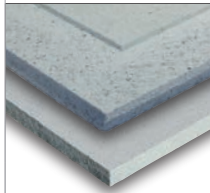
PARTITIONS

COMPONENTS & ACCESSORIES

www.fermacell.co.uk

ACCESSORIES

COMPONENTS



Fermacell Gypsum Fibreboard
Fermacell Square edge or Tapered edge.

Thickness	10mm, 12.5mm, 15mm and 18mm
Sizes	1200 x 1000mm to 1200 x 3000mm



Fermacell Fine Surface Treatment
For giving Fermacell boards a smooth finish prior to painting.

Coverage	4-5m ² per ltr
Pack Size	3ltr or 10ltr



Fermacell Joint Filler
For filling 5-7mm gaps between boards & stopping screw heads.

Coverage	5m ² per kg for filling Tapered edge joints. 10m ² for finishing glue joints and screw heads.
Pack Size	5kg or 20kg



Fermacell Jointstik
For edge glueing square edged Fermacell boards.

Coverage	20 lm / 310ml tube
Pack Size	310ml tubes



Fermacell Mesh Jointing Tape
Mesh tape or paper tape used to reinforce Tapered edge joints.

Pack Size	45m roll
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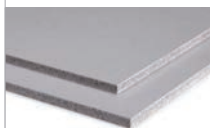
Fermacell Paper Jointing Tape
Paper tape or mesh tape used to reinforce Tapered edge joints.

Pack Size	75m roll
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30/40/55mm Fermacell Screws
For fixing Fermacell boards to steel and timber subframes.

Coverage	13 screws per m ² for walls (for each side) 30 screws per m ² for ceilings
Pack Size	Box of 250 screws or box of 1000 screws



Fermacell Powerpanel H₂O
12.5mm thickness.

Size	1200 x 1000mm, 1200 x 2600mm or 1200 x 3000mm
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ACCESSORIES



Fermacell Board Knife
For scoring and snapping Fermacell boards.



Fermacell Spatula
For applying Fine Surface Treatment.

Size	250mm
-------------	-------



DIN steel profiles - e.g fermacell steel range

Size	Nominal 0.6 gauge 50mm fixing face
-------------	------------------------------------



35/40/50mm Fermacell Powerpanel Screws
For fixing Powerpanel H₂O boards to steel or studs.

Coverage	13 screws per m ² for walls (for each side) 30 screws per m ² ceilings
Pack Size	250/500



Fermacell Powerpanel H₂O Surface Finish
Cement-based surface covering for a smooth plaster finish, without the need for reinforcement mesh. Colour: grey.

Coverage	1ltr at 1mm thickness
Pack Size	10ltr



Fermacell Primer/Sealer
For sealing floors, walls and ceilings prior to waterproof applications or tiling.

Coverage	Approx. 100-200 g / m ² depending on substrate and dilution
Pack Size	5kg bottle



Fermacell Flexible Sealing Tape
For sealing and waterproofing at corners.

Coverage	As required
Pack Size	5m long, 12 cm wide 0.5kg 50m long, 12 cm wide 1kg

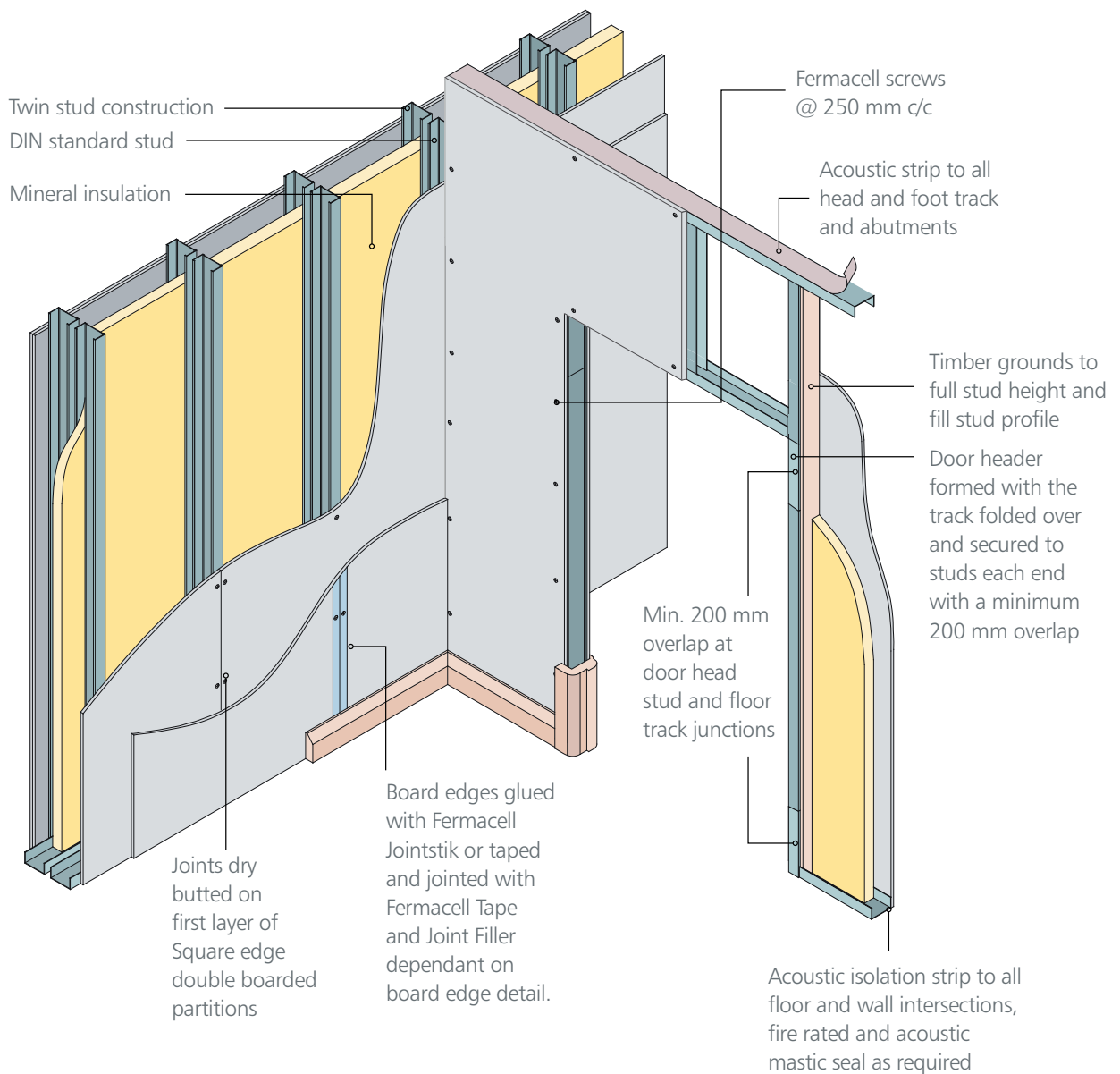


Fermacell Waterproofing Application
For sealing all splashback areas prior to tiling.

Coverage	4 - 6m ² per 5kg bucket 16 - 25m ² per 20kg bucket
Pack Size	5kg or 20kg bucket

METAL STUD CONSTRUCTION

Finishing Partitions – following stopping of screws or staples and filling of joints, Fermacell accepts a range of finishes. Fermacell FST (Fine Surface Treatment) is used as an alternative to plastering. Refer to finishing section of manual for guidelines on FST, plastering, tiling or wall papering.



Fermacell Board should be fixed at max 250mm centres for partitions applications.

Introduction	Partitions
Components & Accessories	Linings
Installations Overview	Floorings & Ceilings
Performance Details	Fire Protection
Installation Overview	Timber Frames
Fix & Finish	Rainscreens
Wet Areas	

JUNCTIONS, CONNECTIONS, EXPANSION JOINTS

WALL AND CEILING JUNCTIONS WITH SINGLE-LAYER FERMACELL BOARDING

Separate wall and ceiling connections

Where Fermacell abuts other materials such as plaster, exposed concrete, masonry, steel or wood, care must be taken as each has a different differential movement rate (expansion and contraction with environmental changes).

(1) Junctions with elastic/flexible sealing material.

The back of the profile being fixed to the wall must be backed with an isolation strip (for fire and acoustic purposes). Any gaps can then be filled with a flexible sealant which has a permanent expansion of at least 20%. Nominally the gap left should be a minimum of 3–5mm.

(2) Junctions using Fermacell Joint Filler.

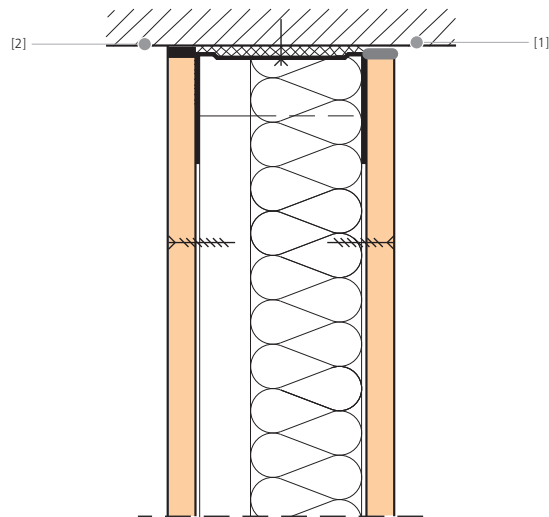
Fit studwork and isolation material. When fixing the boards to the studs, leave a 5–7mm gap and fill with Fermacell Joint Filler.

For fire resistance requirements:

Use a fire rated isolation strip. Rockwool type material should be of a thickness ≤ 5 mm.

(1) Junctions with sealing material

(2) Junctions with Fermacell Joint Filler



DEFLECTION HEAD CONNECTIONS

Deflection head details

Deflection head details are required where deflection is expected to exceed 10mm.

There are three sections which must have the same minimum distance left for the deflection head to work. These are:-

1. The distance from the top of the board to the Soffit.
2. The distance from the top of the stud to the head track.
3. The distance from the bottom of the head track leg to the first fixing into the stud.

A = Deflection ≤ 20 mm, maximum 25mm using timber at the head

Fermacell partition, single-layer boarding, F-30 B/F 60-B, Deflection Head Detail

Deflection head detail can be constructed using Fermacell strips or timber sections. The total thickness of the Fermacell strips or timber section must correspond to the deflection specified/expected, plus the overlap for the boarding.

Minimum timber widths for F30 and F60 solutions are:

F30 = Minimum 50mm wide timber

F60 = Minimum 70mm wide timber

For F90 partitions use Fermacell strips, minimum 50mm wide.

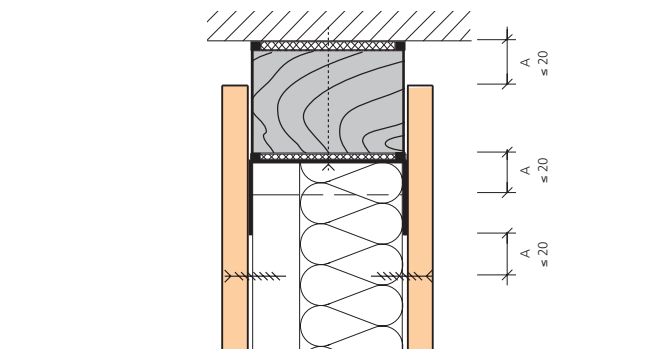
For F120 solution please contact the Fermacell Technical Department.

For wall heights above 5000mm, the deflection head detail must be mechanically stabilised with appropriate extra measures, such as support brackets.

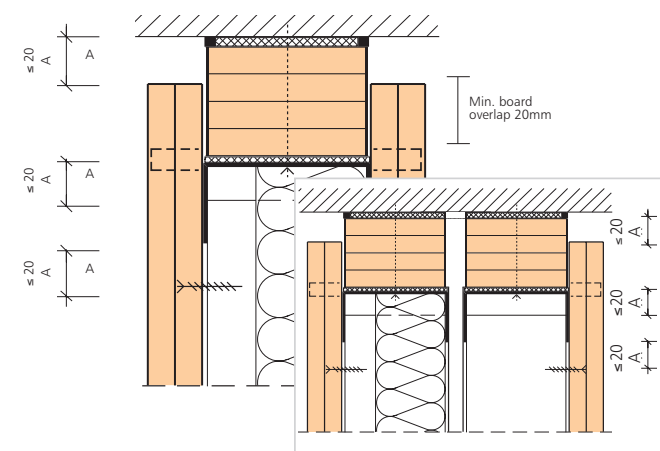
A = Deflection in ≤ 20 mm Maximum for F90 and F120 Partition.

Fermacell partition, double-layer boarding, F 90-A, Deflection Head Detail

Fermacell separated stud partition, double-layer boarding, F 90-A, Deflection Head Detail



Deflection Head constructions will give a reduction in overall acoustic performance unless special detailing is used.



Dimension A is shown here as 20mm. Contact our Technical Department for Deflections in excess of 25mm

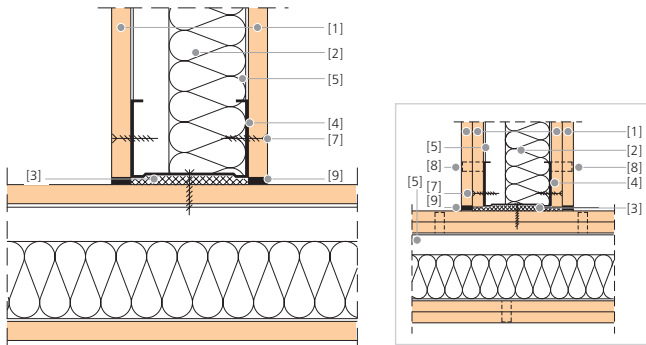
JUNCTIONS, CONNECTIONS, EXPANSION JOINTS

T-JUNCTIONS

T-junctions with single or double-layer boarding, with C stud fixed to Fermacell Board.

- (1) Fermacell boards 12.5 or 10mm
- (2) Insulating material
- (3) Edge isolation strips
- (4) Stud profile
- (5) Header or footer track
- (7) Fermacell screws 3.9 x 30mm
- (8) Staples, galvanised, for fixing Fermacell in Fermacell
- (9) Fermacell Joint Filler

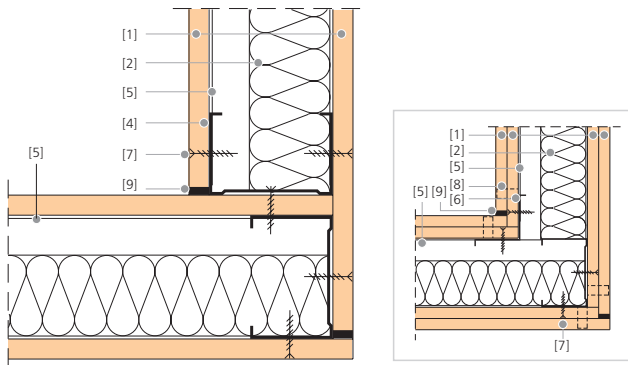
For fire rated junctions greater than 60 minutes performance, contact our Technical Department.



CORNER DETAIL

Corner connections with single or double-layer boarding.

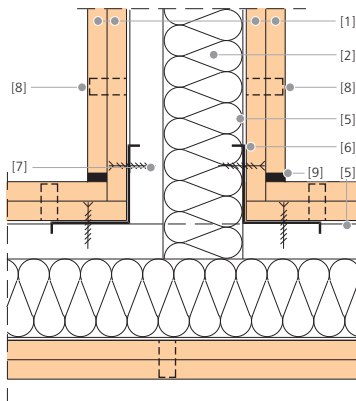
- (1) Fermacell boards 12.5 or 10mm
- (2) Insulating material
- (4) Stud profile
- (5) Header or footer track
- (6) Inner corner profile
- (7) Fermacell screws 3.9 x 30mm
- (8) Staples, galvanised, for fixing Fermacell in Fermacell
- (9) Fermacell Joint Filler



ACOUSTIC T-JUNCTIONS

Wall T-junction with interrupted longitudinal flanking transmission and inner corner profile.

- (1) Fermacell boards 12.5 or 10mm
- (2) Insulating material
- (5) Header or footer track
- (6) Header or footer track
- (7) Fermacell screws 3.9 x 30mm
- (8) Staples, galvanised, for fixing Fermacell in Fermacell
- (9) Fermacell Joint Filler



Standard Details are available from Fermacell. Please contact the Technical Department Helpline on **+44 (0) 121 311 3480**

JUNCTIONS, CONNECTIONS AND EXPANSION JOINTS

MOVEMENT CONTROL JOINTS

Movement control joints

Movement control joints are required in Fermacell steel stud partitions. They should also be placed in linings or partitions to mirror any structural movement joints in the main shell of the building.

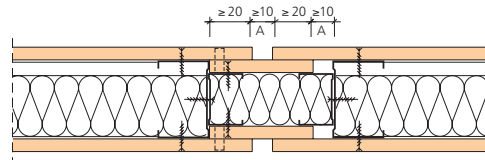
The spacing of movement control joints is dependant on the jointing method used. When using the adhesive Jointstik method then they can be placed at maximum 10m intervals. When using the Joint filler method or Tapered edge board method then they can be placed at maximum intervals of 8m.

Where required, movement joints and end wall movement joints can be used together to provide the simplest solution.

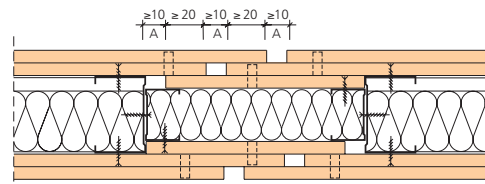
A = Degree of expansion in mm

Minimum expansion allowance = 10mm

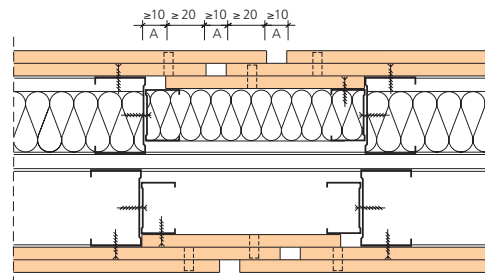
For Powerpanel H₂O Movement Joints must be placed at maximum 8m intervals.



Fermacell stud partition wall, single-layered boarding F 30-A/F 60-A. Expansion joint



Fermacell stud partition wall, double-layered boarding, F 90-A. Expansion joint



Fermacell separated stud partition wall, double-layer boarding, F 90-A. Expansion joint

CURVED PARTITIONS

Bending Fermacell Gypsum Fibreboards

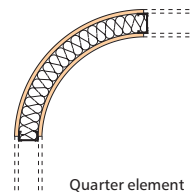
When preparing curved wall and ceiling structures using standard size 10mm and 12.5mm Fermacell boards, there are two methods of application. These depend on the areas where the curved walls are to be used and the required radius.

For a radius ≥ 4000 mm, use dry bending with stud spacing ≤ 300 mm. In this case, standard size boards are fixed lengthways on to the studs.

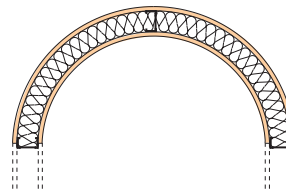
For 10mm Fermacell only

For a radius between ≤ 4000 mm to ≥ 1500 mm, wet bending (locally, on site) is possible.

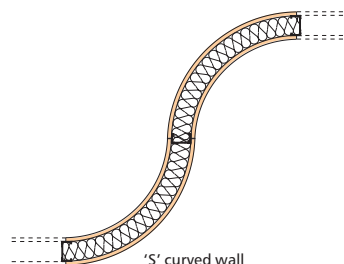
For further details please contact our technical department.



Quarter element



Half element



'S' curved wall

JUNCTIONS, CONNECTIONS AND EXPANSION JOINTS

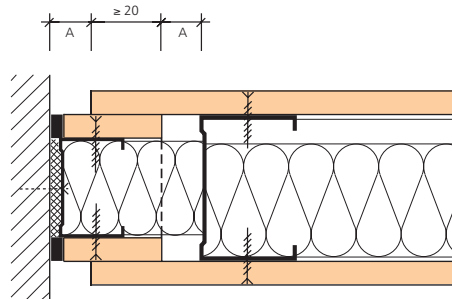
REDUCTION JUNCTIONS

Wall movement joints and façade junctions.

Exterior facades, principally curtain walls, can be subject through wind loads, causing pressure and suction movements, and must be designed accordingly. Ensure that no structural forces affect the Fermacell boards and that the required sound-reduction and fire resistance characteristics are met.

Fermacell partition, single-layer boarding, F 30-A/F 60-A. Wall movement joint and/or façade junction with a steel stud and strips of board.

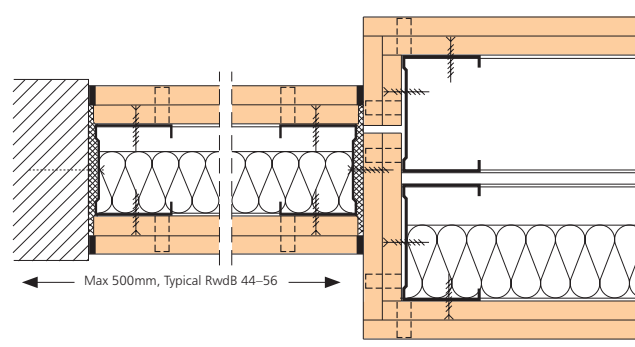
A= Expansion in mm



Reduction junctions (Tapered wall and façade junctions).

When joining partitions to narrow building components (such as window posts), the thickness of the partition must be reduced to match the size of the junction section. To compensate acoustically, a lead sheet can be fitted in the reduced wall section on one or both sides.

Reduction junction for a double stud wall with sound reduction requirements



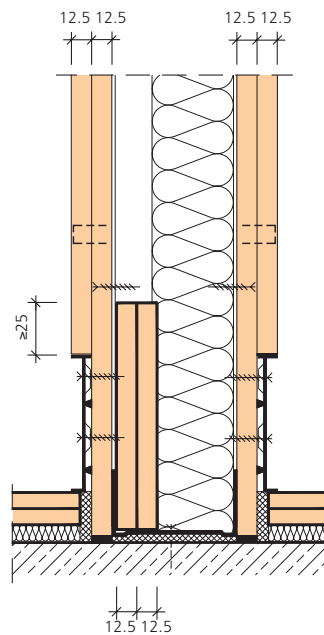
SKIRTING

Skirting and Recessed Skirting

The junction of the Fermacell boards with the floor can be constructed in various ways to meet function and design requirements.

- Conventional skirting
- Recessed skirting
- Recessed skirting partition with double-layer boarding – to maintain the sound reduction and fire resistance, additional layers of board material should be built into the wall cavity.

Recessed skirting F 90-A according to report on DIN 4102 Part 4 (sizes in mm)



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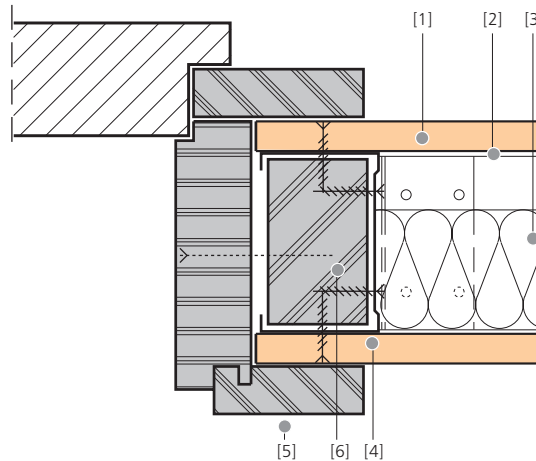
DOORS AND WINDOWS

DOOR MOUNTINGS, FRAMES AND WALL OPENINGS

Door mountings, frames, glazing and wall openings

Please refer to the Fermacell Data Sheet about door reinforcement recommendations.

Frame fixing to steel studs with timber inserts
 (1) Fermacell (2) Header/footer track (3) Rockwool
 (4) C stud (5) Door frame (6) Timber reinforcement



FIXING DOOR FRAMES USING 2MM THICK DOOR REINFORCEMENT KITS

Door frame installation methods

There are many different methods of fixing that can be used for securing door frames to/in Fermacell partitions and fire walls. These depend on the room height (wall height), door width, weight of the door leaf, including door furniture, etc.

Please see the Fermacell datasheet regarding door frame reinforcement.

The guidelines for different door support types are based on the following door weights as a guide. Double door and leaf and a half doors will always require additional support.

≤ 25kg doors – Timber inserts are required up to 2.5m of the partition height.

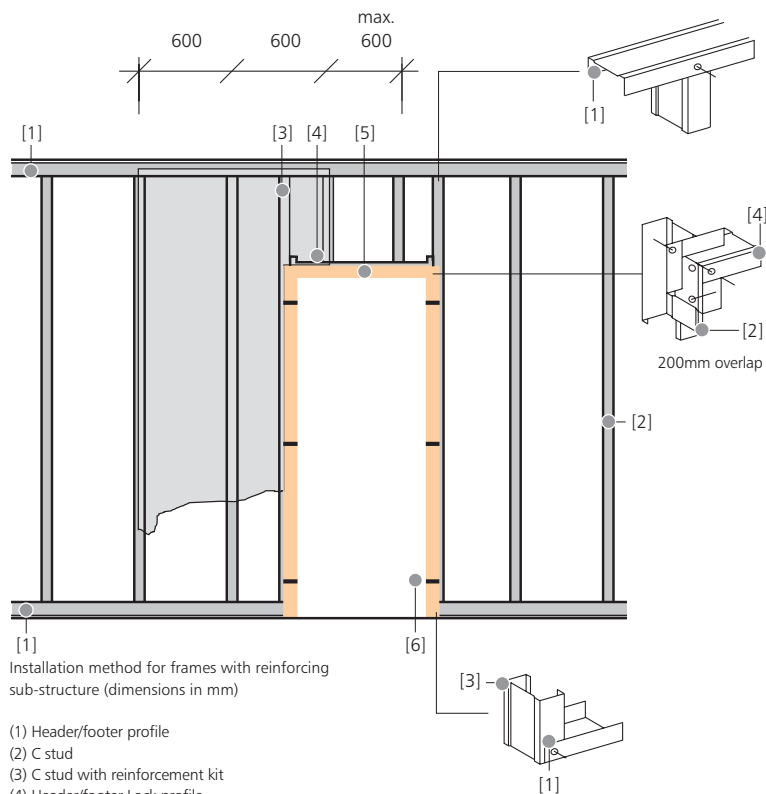
25kg – 60kg doors – Timber inserts are required to a minimum of 3m. An L bracket is required at the head of the timber support.

60kg + doors – Steel Door Reinforcement kit and timber insert. Alternatively, call the Technical Department for further assistance.

When boarding around doors and openings it is imperative that joints do not run vertically from corners. The boards should be cut to allow joints to sit above the door head and offset from the edge of the door/opening by > 200mm.

Installation methods for glazing

Where glazing details are to be installed in Fermacell walls, additional support will be required.



Installation method for frames with reinforcing sub-structure (dimensions in mm)

- (1) Header/footer profile
- (2) C stud
- (3) C stud with reinforcement kit
- (4) Header/footer Lock profile
- (5) Frames
- (6) Fixing strap

Ensure Track Profile is turned up door opening stud by 200mm

NB: For any openings in Fire Rated Partitions, close off all edges with the same number of layer of board as on the face of the studs.

STEEL STUDS

STEP ONE



Ensure the floor is clean and flat; mark out the line of the partition allowing for the width of the Fermacell boards.

STEP TWO



Fix the base track to the floor at 600mm centres using suitable fixings. Isolating strips must be used to ensure the correct Acoustic and Fire performance.

STEP THREE



Once the base track is fixed, plumb the top track in to position and fix with Fermacell screws or proprietary fixings. Fix end studs to the substrates ensuring adequate acoustic insulation at 600mm centres.

STEP FOUR



The intermediate studs should be cut no more than 10mm shorter than the floor to ceiling height and not mechanically fixed. They should be installed facing the same direction. Door openings should be marked and the studs either side of the door opening fixed.

STEP FIVE



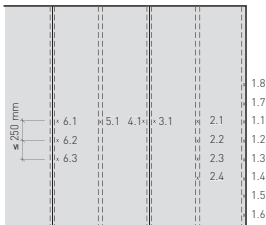
Install insulation (if required) making sure that there is a cavity between the insulation and one face of the Fermacell boards. Cut the Fermacell boards 10mm less than the room height and install leaving gaps as required for jointing to ceiling. (See step 2 page 60).

STEP SIX



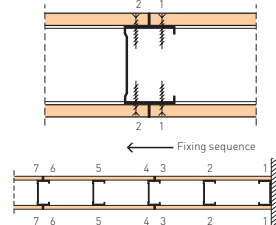
Screw fix the boards as per the fixing sequence (7 & 8) at 250 maximum centers using Fermacell screws. The vertical joints can be "mirrored" through the partition when using Fermacell Jointstik. Do not fix the boards to the top and bottom tracks.

STEP SEVEN



Ensure the boards are fixed as per this fixing sequence to ensure a flat and uniform surface.

STEP EIGHT



Screw fix to the open side of the stud first working from the end of the partition.

PARTITIONS

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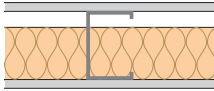
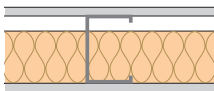
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Fermacell PARTITION WALLS ON STEEL WALLS WITHOUT INSULATION

SYSTEM SPECIFICATIONS				Wall Weight	Wall Height (Without Fire Rating)	Wall Height (With Fire Rating)	Wall Thickness	Fire Rating	Sound Insulation	BS 5234	
				kg/m ²	m	m	mm	mins	R _w	Grade	
1S15											
	Studs	50mm DIN standard studs @ 600mm centres	31	3.42	3.42	75	30	41	Severe*	Heavy*	
	Facings	1 layer 12.5mm Fermacell Board each side									
	Studs	75mm DIN standard studs @ 600mm centres	32	4.75	4.75	100	30	43			
	Facings	1 layer 12.5mm Fermacell Board each side									
	Studs	100mm DIN standard studs @ 600mm centres	33	5.98	5.98	125	30	43			
	Facings	1 layer 12.5mm Fermacell Board each side									
1S15/2											
	Studs	75mm DIN standard studs @ 600mm centres	38	3.7	3.7	105	60	43	Severe		
	Facings	1 layer 15mm Fermacell Board each side									
1S22											
	Studs	75mm DIN standard studs @ 600mm centres	63	6.1	3.8	125	60	52	Severe		
	Facings	2 layers 12.5mm Fermacell Board each side or 12.5 + 10mm each side									
	Studs	100mm DIN standard studs @ 600mm centres	63	8.65	4.84	150	60	54			
	Facings	2 layers 12.5mm Fermacell Board each side or 12.5 + 10mm each side									

* - Interpolated Performance

Fermacell PARTITION WALLS ON STEEL WALLS WITHOUT INSULATION

SYSTEM SPECIFICATIONS			Wall Weight	Wall Height (Without Fire Rating)	Wall Height (With Fire Rating)	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
			kg/m ²	m	m	mm	mins	R _w	Grade
1S11									
	Studs	50mm DIN standard studs @ max 500mm centres							
	Facings	1 layer 10mm Fermacell Board each side	27	3.75	N/A	70	30	48	Heavy*
	Insulation	40mm mineral stone wool density 40kg/m ³							
	Studs	75mm DIN standard studs @ max 500mm centres							
	Facings	1 layer 10mm Fermacell Board each side	28	4.25	N/A	95	30	48	Heavy*
	Insulation	40mm mineral stone wool density 40kg/m ³							
	Studs	50mm DIN standard studs @ 600mm centres							
	Facings	1 layer 12.5mm Fermacell Board each side	34	3.7	3.32	75	30	48	Heavy*
	Insulation	40mm mineral stone wool density 40kg/m ³							
	Studs	75mm DIN standard studs @ 600mm centres							
	Facings	1 layer 12.5mm Fermacell Board each side	34	4	4.65	100	30	52	Severe
	Insulation	60mm mineral stone wool density 20kg/m ³							
Studs	100mm DIN standard studs @ 600mm centres								
Facings	1 layer 12.5mm Fermacell Board each side	35	5.7	5.89	125	30	52	Severe	
Insulation	60mm mineral stone wool density 20kg/m ³								
1S21									
	Studs	75mm DIN standard studs @ 600mm centres							
	Facings	1 layer 12.5mm Fermacell Board each side	35	5	4	100	60	52	Severe
	Insulation	40mm mineral stone wool density 45kg/m ³							
	Studs	75mm DIN standard studs @ 600mm centres							
	Facings	1 layer 12.5mm Fermacell Board each side	35	5	4	100	60	54	Severe
	Insulation	60mm mineral stone wool density 30kg/m ³							
	Studs	100mm DIN standard studs @ 600mm centres							
	Facings	1 layer 12.5mm Fermacell Board each side	35	5.7	5.03	125	60	52	Severe
	Insulation	40mm mineral stone wool density 45kg/m ³							
	Studs	100mm DIN standard studs @ 600mm centres							
	Facings	1 layer 12.5mm Fermacell Board each side	35	5.7	5.03	125	60	54	Severe
	Insulation	60mm mineral stone wool density 30kg/m ³							

* - Interpolated Performance

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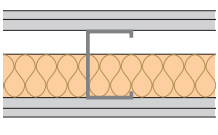
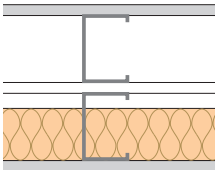
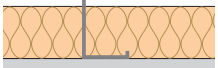
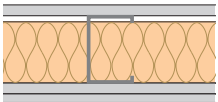
PARTITIONS

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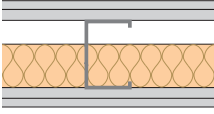
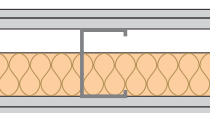
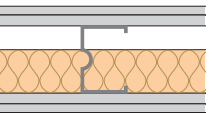
Fermacell PARTITION WALLS ON STEEL WALLS WITH INSULATION

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SYSTEM SPECIFICATIONS		kg/m ²	m	m	mm	mins	R _w	Grade
1S24								
	Studs	50mm DIN standard studs @ 600mm centres						
	Facings	58	4	2.75	95	60	59	Heavy*
	Insulation							
1S25								
	Studs	2 x 75mm DIN standard studs @ 600mm centres						
	Facings	38	3.89	3.89	≥185	60	60	Severe
	Insulation							
	Studs	2 x 75mm DIN standard studs @ 600mm centres						
	Facings	38	3.89	3.89	≥185	60	57	Severe
	Insulation							
1S29								
	Studs	50mm DIN standard studs @ 600mm centres						
	Facings	46	4	2.47	85	60	54	Heavy*
	Insulation							
	Studs	75mm DIN standard studs @ 600mm centres						
	Facings	46	5	3.51	110	60	56	Severe
	Insulation							
	Studs	100mm DIN standard studs @ 600mm centres						
	Facings	46	6.65	4.56	135	60	57	Severe
	Insulation							

* - Interpolated Performance

Fermacell PARTITION WALLS ON STEEL WALLS WITH INSULATION

SYSTEM SPECIFICATIONS		kg/m ²	m	m	mm	mins	R _w	Grade
		Wall Weight	Wall Height (Without Fire Rating)	Wall Height (With Fire Rating)	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
1S31								
	Studs	75mm DIN standard studs @ 600mm centres						
	Facings	58	5.75	5.5	120	90	62	Severe
	Insulation	60mm mineral stone wool density 30kg/m ³						
	Studs	75mm DIN standard studs @ 600mm centres						
	Facings	64	6.1	5.5	125	90	62	Severe
	Insulation	60mm mineral stone wool density 30kg/m ³						
	Studs	100mm DIN standard studs @ 600mm centres						
	Facings	59	8.2	6.5	145	90	62	Severe
	Insulation	60mm mineral stone wool density 30kg/m ³						
	Studs	100mm DIN standard studs @ 600mm centres						
	Facings	65	8.65	6.5	150	90	62	Severe
	Insulation	60mm mineral stone wool density 30kg/m ³						
1S31 120 minute								
	Studs	75mm DIN standard studs @ 600mm centres						
	Facings	65	6	3.04	125	120	62	Severe
	Insulation	50mm mineral stone wool density 50kg/m ³						
1S31W								
	Studs	75mm acoustic DIN standard studs @ 600mm centres						
	Facings	58	3.5	3.5	120	90	64	Heavy*
	Insulation	60mm mineral stone wool density 50kg/m ³ or 60mm mineral stone wool density 35kg/m ³						
	Studs	100mm acoustic DIN standard studs @ 600mm centres						
	Facings	59	3.5	3.5	145	90	64	Heavy*
	Insulation	60mm mineral stone wool density 50kg/m ³ or 60mm mineral stone wool density 35kg/m ³						

When using Acoustic Studs, confirm the test data with the Stud manufacturer first
 *Heavy due to deflection on studs due to resilient nature.

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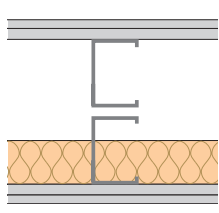
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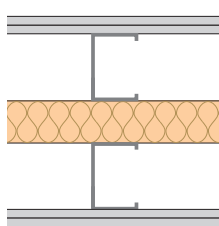
SYSTEM SPECIFICATIONS

1S32



	Studs	Facings	Insulation	Wall Weight kg/m ²	Wall Height (Without Fire Rating) m	Wall Height (With Fire Rating) m	Wall Thickness mm	Fire Rating mins	Sound Insulation R _w	BS 5234 Grade
1S32	Studs	2 x 50mm DIN standard studs @ 600mm centres		60	3.05	3.05	≥150	90	64	Heavy*
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side								
	Insulation	50mm mineral stone wool density 50kg/m ³ or 60mm mineral stone wool density 35kg/m ³								
1S32	Studs	2 x 75mm DIN standard studs @ 600mm centres		60	4	3.5	≥200	90	64	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side								
	Insulation	50mm mineral stone wool density 50kg/m ³ or 60mm mineral stone wool density 35kg/m ³								

1S32/2

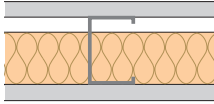

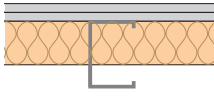
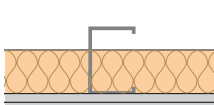


Robust detail solution must have a minimum cavity gap of 200mm between inner board faces.

	Studs	Facings	Insulation	Wall Weight kg/m ²	Wall Height (Without Fire Rating) m	Wall Height (With Fire Rating) m	Wall Thickness mm	Fire Rating mins	Sound Insulation R _w	BS 5234 Grade
1S32/2	Studs	2 x 75mm DIN standard studs @ 500mm centres		61	3.8	3.8	≥205	60	64	Severe
	Facings	2 layers 10mm or 12.5 + 10mm Fermacell Board each side								
	Insulation	60 - 70mm mineral stone wool density 33-60kg/m ³								

* - Interpolated Performance

Fermacell PARTITION WALLS ON STEEL WALLS WITH INSULATION

SYSTEM SPECIFICATIONS		kg/m ²	m	m	mm	mins	R _w	Grade
		Wall Weight	Wall Height (Without Fire Rating)	Wall Height (With Fire Rating)	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
1S33								
	Studs	75mm DIN standard studs @ 900mm centres						
	Facings	1 layer 18mm Fermacell Board each side						
	Insulation	60mm mineral stone wool density 50kg/m ³						
	Studs	100mm DIN standard studs @ 900mm centres						
	Facings	1 layer 18mm Fermacell Board each side						
	Insulation	60mm mineral stone wool density 50kg/m ³						
	Studs	100mm DIN standard studs @ 900mm centres						
	Facings	1 layer 18mm Fermacell Board each side						
	Insulation	60mm mineral stone wool density 50kg/m ³						
	Studs	100mm DIN standard studs @ 600mm centres						
	Facings	1 layer 18mm Fermacell Board each side*						
	Insulation	80mm mineral stone wool density 50kg/m ³						
* - F120 Solution								
1S36								
	Studs	2 x 75mm DIN standard studs @ 600mm centres						
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
	Insulation	2 x 60mm mineral stone wool density 30kg/m ³						
	Studs	2 x 75mm DIN standard studs @ 600mm centres						
	Facings	2 layers 12.5mm Fermacell Board each side						
	Insulation	2 x 60mm mineral stone wool density 30kg/m ³						

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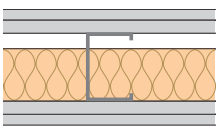
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SYSTEM SPECIFICATIONS			Wall Weight	Wall Height (Without Fire Rating)	Wall Height (With Fire Rating)	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
			kg/m ²	m	m	mm	mins	R _w	Grade
1S41									
	Studs	75mm DIN standard studs @ 600mm centres							
	Facings	1 layer 15mm Fermacell Board each side plus 1 layer 12.5mm Fermacell Board each outer side	76	5.5	5.5	135	120	62	Severe
	Insulation	50mm mineral stone wool density 50kg/m ³							
	Studs	100mm DIN standard studs @ 600mm centres							
	Facings	1 layer 15mm Fermacell Board each side plus 1 layer 12.5mm Fermacell Board each outer side	77	6.5	6.5	160	120	62	Severe
	Insulation	50mm mineral stone wool density 50kg/m ³							
	Studs	125mm DIN standard studs @ 600mm centres							
	Facings	1 layer 15mm Fermacell Board each side plus 1 layer 12.5mm Fermacell Board each outer side	77	7.5	7.5	185	120	62	Severe
	Insulation	50mm mineral stone wool density 50kg/m ³							

Fermacell H₂O PARTITION WALLS ON STEEL STUD

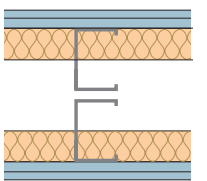
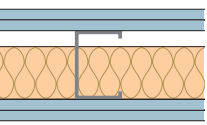
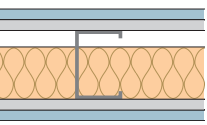
SYSTEM SPECIFICATIONS			kg/m ²	m	m	mm	mins	R _w	Grade
			Wall Weight	Wall Height (Without Fire Rating)	Wall Height (With Fire Rating)	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
1S15 H₂O									
	Studs	50mm DIN standard studs @ 600mm centres	29	4.15	3	75	30	41	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O inner side plus 1 layer 12.5mm Fermacell Board outer side							
	Studs	75mm DIN standard studs @ 600mm centres	29	4.75	3	100	30	41	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O inner side plus 1 layer 12.5mm Fermacell Board outer side							
	Studs	100mm DIN standard studs @ 600mm centres	29	5.95	3.5	125	30	41	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O inner side plus 1 layer 12.5mm Fermacell Board outer side							
1S11 H₂O									
	Studs	75mm DIN standard studs @ 600mm centres	30	4.75	4.75	100	30	49	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O each side							
	Insulation	60mm mineral stone wool density 25kg/m ³	30	5.98	5.98	125	30	49	Heavy
	Studs	100mm DIN standard studs @ 600mm centres							
	Facings	1 layer 12.5mm Powerpanel H ₂ O each side	30	5.98	5.98	125	30	49	Heavy
	Insulation	60mm mineral stone wool density 25kg/m ³							
1S12 H₂O									
	Studs	50mm DIN standard studs @ 600mm centres	33	4.15	4.15	75	30	49	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O inner side plus 1 layer 12.5mm Fermacell Board outer side							
	Insulation	40mm mineral stone wool density 50kg/m ³							
	Studs	75mm DIN standard studs @ 600mm centres	33	4.75	4.75	100	30	51	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O inner side plus 1 layer 12.5mm Fermacell Board outer side							
	Insulation	60mm mineral stone wool density 25kg/m ³							
	Studs	100mm DIN standard studs @ 600mm centres	33	5.98	5.98	125	30	51	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O inner side plus 1 layer 12.5mm Fermacell Board outer side							
	Insulation	60mm mineral stone wool density 25kg/m ³							
1S13 H₂O									
	Studs	50mm DIN standard studs @ 600mm centres	48	3.3	3.04	85	30	56	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O on inner side plus 1 layer 12.5mm plus 10mm Fermacell Board outer side							
	Insulation	60mm mineral stone wool density 25kg/m ³							
	Studs	75mm DIN standard studs @ 600mm centres	48	4.5	4.5	110	30	56	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O on inner side plus 1 layer 12.5mm plus 10mm Fermacell Board outer side							
	Insulation	60mm mineral stone wool density 25kg/m ³							
	Studs	100mm DIN standard studs @ 600mm centres	48	5.32	5.32	135	30	56	Heavy
	Facings	1 layer 12.5mm Powerpanel H ₂ O on inner side plus 1 layer 12.5mm plus 10mm Fermacell Board outer side							
	Insulation	60mm mineral stone wool density 25kg/m ³							

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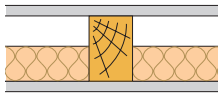
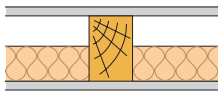
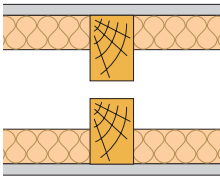
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Fermacell H₂O PARTITION WALLS ON STEEL STUDS WITH INSULATION

			Wall Weight	Wall Height (Without Fire Rating)	Wall Height (With Fire Rating)	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
			kg/m ²	m	m	mm	mins	R _w	Grade
SYSTEM SPECIFICATIONS									
1S31 H₂O									
	Studs	2 x 50mm DIN standard studs @ 600mm centres	64	3.5	3	155	90	61	Heavy
	Facings	2 layers 12.5mm Powerpanel H ₂ O on both sides							
	Insulation	2 x 40mm mineral stone wool density 50kg/m ³							
1S41 H₂O									
	Studs	75mm DIN standard studs @ 600mm centres	55	4	4	125	120	57	Heavy
	Facings	2 layers 12.5mm Powerpanel H ₂ O each side							
	Insulation	60mm mineral stone wool density 27kg/m ³							
	Studs	100mm @ 600mm centres	55	5.85	5.85	150	120	57	Heavy
	Facings	2 layers 12.5mm Powerpanel H ₂ O each side							
	Insulation	60mm mineral stone wool density 27kg/m ³							
1S42 H₂O									
	Studs	75mm DIN standard studs @ 600mm centres	60	4	4	125	120	60	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 12.5mm Powerpanel H ₂ O each outer side							
	Insulation	60mm mineral stone wool density 27g/m ³							
	Studs	100mm @ 600mm centres	60	5.85	5.85	150	120	60	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 12.5mm Powerpanel H ₂ O each outer side							
	Insulation	60mm mineral stone wool density 27kg/m ³							

Fermacell TIMBER WALLS WITH INSULATION – NON LOADBEARING

SYSTEM SPECIFICATIONS			Wall Weight	Wall Height	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
			kg/m ²	m	mm	mins	R _w	Grade
1H11								
	Studs	89mm x 38mm @ 600mm centres	40	4.1	114	30	44	Severe
	Facings	1 layer 12.5mm Fermacell Board each side						
	Insulation	40mm mineral stone wool density 30kg/m ³						
1H12								
	Studs	75mm x 50mm @ 500mm centres	35	4.1	95	30	44	Heavy
	Facings	1 layer 10mm Fermacell Board each side						
	Insulation	40mm mineral stone wool density 30kg/m ³						
	Studs	89mm x 38mm @ 500mm centres	34	4.1	109	30	44	Heavy
	Facings	1 layer 10mm Fermacell Board each side						
	Insulation	40mm mineral stone wool density 30kg/m ³						
1H15								
	Studs	2 x 50mm x 75mm @ 600mm centres with 30mm air gap	41	3.1	205	30	57	Severe
	Facings	1 layer 12.5mm Fermacell Board each side						
	Insulation	2 x 60mm mineral stone wool density 20kg/m ³						
	Studs	2 x 89mm x 38mm @ 600mm centres with 30mm air gap	41	3.1	233	30	57	Severe
	Facings	1 layer 12.5mm Fermacell Board each side						
	Insulation	2 x 60mm mineral stone wool density 20kg/m ³						

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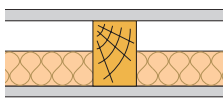

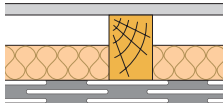
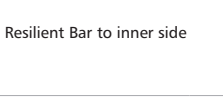
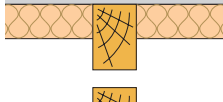
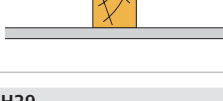
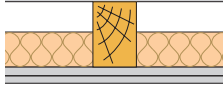

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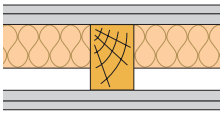
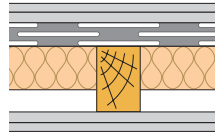
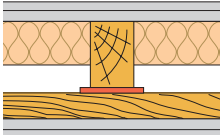
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		Wall Weight	Wall Height	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
		kg/m ²	m	mm	mins	R _w	Grade
SYSTEM SPECIFICATIONS							
1H22							
	Studs	75mm x 50mm @ 600mm centres					
	Facings	1 layer 12.5mm Fermacell Board each side					
	Insulation	40mm mineral stone wool density 45kg/m ³ or 60mm mineral stone wool density 30kg/m ³					
		40	4.1	100	60	44	Severe
	Studs	89mm x 38mm @ 600mm centres					
	Facings	1 layer 12.5mm Fermacell Board each side					
	Insulation	70mm mineral stone wool density 35kg/m ³					
		41	4.1	114	60	44	Severe
1H22RB							
	Studs	75mm x 50mm @ 600mm centres					
	Facings	1 layer 12.5mm Fermacell Board each side					
	Insulation	40mm mineral stone wool density 45kg/m ³ or 60mm mineral stone wool density 30kg/m ³					
		40	4.1	116	60	50	Severe
 <p>Resilient Bar to inner side</p>	Studs	89mm x 38mm @ 600mm centres					
	Facings	1 layer 12.5mm Fermacell Board each side					
	Insulation	70mm mineral stone wool density 35kg/m ³					
		41	4.1	130	60	50	Severe
1H23							
	Studs	2 x 75mm x 50mm @ 600mm centres with 30mm air gap					
	Facings	1 layer 12.5mm Fermacell Board each side					
	Insulation	70mm mineral stone wool density 30kg/m ³					
		43	3.1	205	60	57	Severe
	Studs	2 x 89mm x 38mm @ 600mm centres with 30mm air gap					
	Facings	1 layer 12.5mm Fermacell Board each side					
	Insulation	70mm mineral stone wool density 35kg/m ³					
		43	3.1	233	60	57	Severe
1H29							
	Studs	75mm x 50mm @ 600mm centres					
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board outer side					
	Insulation	70mm mineral stone wool density 30kg/m ³					
		53	4.1	110	60	51	Severe
	Studs	89mm x 38mm @ 600mm centres					
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board outer side					
	Insulation	70mm mineral stone wool density 35kg/m ³					
		53	4.1	124	60	51	Severe

Fermacell TIMBER WALLS WITH INSULATION – NON LOADBEARING

SYSTEM SPECIFICATIONS			kg/m ²	m	mm	mins	R _w	Grade
			Wall Weight	Wall Height	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
1H31								
	Studs	75mm x 50mm @ 600mm centres	64	4.1	120	90	54	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
	Insulation	70mm mineral stone wool density 30kg/m ³						
	Studs	89mm x 38mm @ 600mm centres	64	4.1	134	90	54	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
	Insulation	70mm mineral stone wool density 35kg/m ³						
1H31RB								
 Resilient Bar to inner side	Studs	75mm x 50mm @ 600mm centres	64	4.1	136	90	58	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
	Insulation	70mm mineral stone wool density 30kg/m ³						
	Studs	89mm x 38mm @ 600mm centres	64	4.1	155	90	58	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
	Insulation	70mm mineral stone wool density 35kg/m ³						
1H32								
	Studs	75mm x 50 @ 600mm centres (one-sided traverse 30/50 timber without mineral stone wool strip)	65	4.1	150	90	54	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
	Insulation	50mm mineral stone wool density 50kg/m ³						
	Studs	75mm x 50mm @ 600mm centres (one-sided traverse 30/50 timber with mineral stone wool strip)	65	4.1	150	90	57	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
	Insulation	50mm mineral stone wool density 50kg/m ³						

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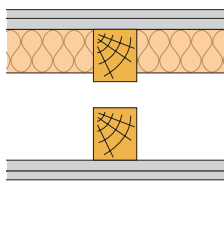
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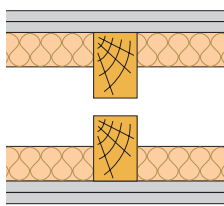
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1H35



		kg/m ²	m	mm	mins	R _w	Grade
Studs	2 x 75mm x 50mm @ 500mm centres with 10mm air gap	69	4.1	205	90	66	Severe
Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
Insulation	50mm mineral stone wool density 50kg/m ³						
Studs	2 x 89mm x 38mm @ 500mm centres with 10mm air gap	70	4.1	233	90	66	Severe
Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
Insulation	50mm mineral stone wool density 50kg/m ³						

1H36

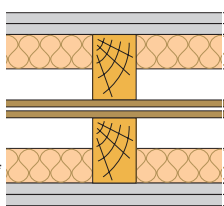


Robust Detail compliant with 240mm gap between inner faces of boards

Studs	2 x 75mm x 50mm @ 500mm centres with 30mm air gap	41	4.1	280	60	62	Severe
Facings	2 layers 10mm Fermacell Board each side						
Insulation	2 x 60mm mineral stone wool density 20kg/m ³						
Studs	2 x 50mm x 100mm @ 600mm centres with 30mm air gap	41	4.1	290	60	64	Severe
Facings	2 layers 12.5mm Fermacell Board each side						
Insulation	2 x 60mm mineral stone wool density 20kg/m ³						
Studs	2 x 89mm x 38mm @ 500mm centres with 90mm air gap	41	3.1	233	60	64	Severe
Facings	2 layers 10mm Fermacell Board each side						
Insulation	2 x 60mm mineral stone wool density 20kg/m ³						

* 9mm Sheathing Board or 10mm Fermacell Board

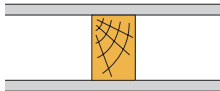
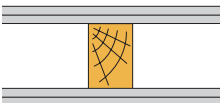
1H37



Robust Detail compliant with 240mm gap between inner faces of boards

Studs	2 x 75mm x 50mm @ 500mm centres with 90mm air gap	41	4.1	230	60	64	Severe
Facings	2 layers 10mm Fermacell Board each side						
Insulation	2 x 60mm mineral stone wool density 20kg/m ³						

Fermacell TIMBER WALLS WITHOUT INSULATION – NON LOADBEARING

SYSTEM SPECIFICATIONS			kg/m ²	m	mm	mins	R _w	Grade
1H13								
	Studs	75mm x 50mm @ 600mm centres	40	4.1	100	30	41	Severe
	Facings	1 layer 12.5mm Fermacell Board each side						
	Studs	89mm x 38mm @ 600mm centres	40	4.1	114	30	41	Severe
	Facings	1 layer 12.5mm Fermacell Board each side						
	Studs	75mm x 50mm @ 600mm centres	46	4.1	100	60	41	Severe
	Facings	1 layer 15mm Fermacell Board each side						
1H21								
	Studs	75mm x 50mm @ 500mm centres	61	4.1	115	60	48	Severe
	Facings	2 layers 10mm Fermacell Board each side						
	Studs	75mm x 50mm @ 600mm centres	67	4.1	120	60	51	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
	Studs	89mm x 38mm @ 500mm centres	61	4.1	129	60	48	Severe
	Facings	2 layers 10mm Fermacell Board each side						
	Studs	89mm x 38mm @ 600mm centres	67	4.1	134	60	51	Severe
	Facings	1 layer 12.5mm Fermacell Board each side plus 1 layer 10mm Fermacell Board each outer side						
Similar performance is achievable by using 40mm x 60mm studs, and 40mm x 80mm studs with the same boarding and insulation configurations. Contact the Technical Department for further details.								

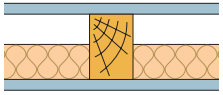


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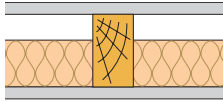
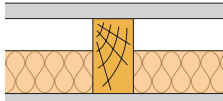
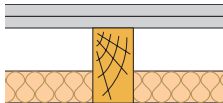
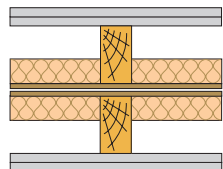
Fermacell TIMBER WALLS – H₂O – NON LOADBEARING

		Wall Weight	Wall Height (Without Fire Rating)	Wall Height (With Fire Rating)	Wall Thickness	Fire Rating	Sound Insulation	BS 5234		
		kg/m ²	m	m	mm	mins	R _w	Grade		
SYSTEM SPECIFICATIONS										
1H21 H₂O										
	Studs	60mm x 40mm @ 600mm centres		33	3.1	3.1	85	60	42	Heavy
	Facings	1 layer 12.5mm Fermacell Powerpanel H ₂ O Board each side								
	Insulation	60mm mineral stone wool density 25kg/m ³								
	Studs	75mm x 50mm @ 600mm centres		35	4.1	4.1	100	60	42	Heavy
	Facings	1 layer 12.5mm Fermacell Powerpanel H ₂ O Board each side								
	Insulation	60mm mineral stone wool density 25kg/m ³								
	Studs	89mm x 38mm @ 600mm centres		36	4.1	4.1	114	60	42	Heavy
	Facings	1 layer 12.5mm Fermacell Powerpanel H ₂ O Board each side								
	Insulation	60mm mineral stone wool density 25kg/m ³								

Fermacell TIMBER WALLS WITHOUT INSULATION - LOADBEARING

1HT14										
	Studs	89mm x 38mm @ 600mm centres		5.56	35	2.6	114	30	41	Severe
	Facings	1 layer 12.5mm Fermacell Board each side								
1HT15										
	Studs	89mm x 38mm @ 600mm centres		5.56	39	2.6	119	30	41	Severe
	Facings	1 layer 15mm Fermacell Board each side								

Fermacell TIMBER WALLS WITHOUT INSULATION – LOADBEARING

SYSTEM SPECIFICATIONS			Applied Load	Wall Weight	Wall Height	Wall Thickness	Fire Rating	Sound Insulation	BS 5234
			kN/stud	kg/m ²	m	mm	mins	R _w	Grade
1HT11									
	Studs	89mm x 38mm @ 600mm centres	5.56	41	2.6	114	30	44	Severe
	Facings	1 layer 12.5mm Fermacell Board each side							
	Insulation	90mm mineral glass wool density 10kg/m ³ or 40mm mineral stone wool density 30kg/m ³							
1HT22									
	Studs	89mm x 38mm @ 600mm centres	A	58	3	125	60	44	Severe
	Facings	1 layer 18mm Fermacell Board each side							
	Insulation	90mm mineral stone wool density 30kg/m ³							
	Studs	120mm x 45mm @ 600mm centres	10.8	48	3	150	60	44	Severe
	Facings	1 layer 15mm Fermacell Board each side							
	Insulation	120mm mineral stone wool density 30kg/m ³							
	Studs	140mm x 38mm @ 600mm centres	10	48	3	150	60	44	Severe
	Facings	1 layer 15mm Fermacell Board each side							
	Insulation	140mm mineral stone wool density 30kg/m ³							
1HT23									
	Studs	89mm x 38mm @ 600mm centres	5.56	56	2.6	127	60/30 ⁺	44	Severe
	Facings	2 layers 12.5mm Fermacell Board inner side plus 1 layer 12.5mm Fermacell Board outer side							
	Insulation	90mm mineral glass wool density 10kg/m ³							
1HT23 – Twin Wall									
	Studs	2 x 89mm x 38mm @ 600mm centres	5.56	112	2.6	270	60	≥66	Severe
	Facings	2 layers 12.5mm Fermacell Board inner side plus 2 layers 12.5mm Fermacell Board outer side. Inner cavity single layer may be timber based product. Refer to Fermacell technical information							
	Insulation	2 x 90mm mineral glass wool density 10kg/m ³							

* 9mm Sheathing Board or 10mm fermacell board

A – Loading up to maximum for timber grade stress in accordance with EN 1995-1-1 and EN 1995-1-2

N.B. Refer to the Fermacell Technical Department for board fixing option.

+ = Fire rating from Fermacell side only.

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A close-up photograph of several vertical metal railings or balusters. The railings are made of a dark, possibly stainless steel or aluminum, material with a brushed or perforated texture. They are set against a background of a brick wall with reddish-brown mortar. The lighting is bright, creating highlights on the metal surfaces and casting soft shadows.

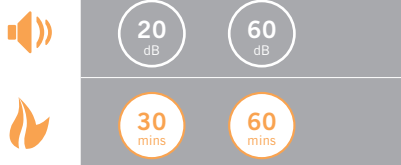
Linings

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MARKET SECTORS

-  Refurbishment
-  Academic
-  Residential
-  Healthcare
-  Recreation
-  Industrial

PERFORMANCE RATINGS



Fermacell PERFORMANCE

-  Impact – Able to withstand impact from people as well as objects (door handles etc).
-  Acoustics – Enhanced acoustic insulation providing simple solutions to upgrade existing walls.
-  Ease of construction – A variety of Shaftwall and variable cavity lining systems allowing simple, cost effective solutions for refurbishment projects eliminating wet trades.
-  Environmental – Fermacell boards are manufactured from recycled content and are recyclable. Decreasing the carbon footprint and increasing the BREEAM rating of the building.

Fermacell is perfectly suited for wall lining solutions, from lining of proprietary metal systems to traditional timber frame as well as dot and dab fixing.

METAL FRAME LINING SYSTEMS

The use of Fermacell with metal frame Dry Lining systems allows a dry system to be installed for lining walls where the background may be unsuitable for “dabbing”, where the existing wall may be out of true or the surface may not allow the adhesion of the Fermacell Bonding Compound.

Metal frame systems allow the system to be fixed directly to the existing wall allowing different cavity widths to be accommodated. This can be as little as 15mm with a metal furring system. Insulation and vapour barriers can be installed behind the Fermacell boards. Where possible place the insulation between the battens and the wall where there is a narrow cavity otherwise this will reduce its overall effectiveness and may cause cold bridging. We recommend that thermal calculations are undertaken to eliminate cold bridging issues.

TIMBER BATTENS

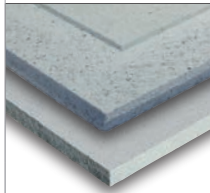
Fermacell may be fixed to timber battens of a minimum size of 50mm x 30mm using 30mm Fermacell screws or Galvanised staples. The use of battens adds little to the lining thickness and provides a service cavity.

Where greater level of thermal insulation are required insulation boards may be sandwiched between the battens and the wall. If possible place the insulation between the battens and the wall otherwise this will reduce its overall effectiveness and may cause cold bridging.

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DIRECT BOND & ADJUSTABLE WALL LININGS

COMPONENTS



Fermacell Board
Fermacell Square edge or Tapered edge.

Thickness	10mm, 12.5mm, 15mm and 18mm
Sizes	1200 x 1000mm to 1200 x 3000mm



Fermacell Fine Surface Treatment
For giving Fermacell boards a smooth finish prior to painting.

Coverage	4-5m ² per ltr
Pack Size	3ltr or 10ltr



Fermacell Joint Filler
For filling 5-7mm gaps between boards & stopping screw heads.

Coverage	5m ² per kg for filling Tapered edge joints. 10m ² for finishing glue joints and screw heads.
Pack Size	5kg or 20kg



Fermacell Jointstik
For edge glueing square edged Fermacell boards.

Coverage	20 lm / 310ml tube
Pack Size	310ml tubes



30/40/55mm Fermacell Screws
For fixing Fermacell boards to steel and timber subframes.

Coverage	13 screws per m ² for walls (for each side) 30 screws per m ² for ceilings
Pack Size	Box of 250 screws or box of 1000 screws



Fermacell Bonding Compound
For dot & dabbing Tapered edge Fermacell boards.

Coverage	3-4kg/m ²
Pack Size	20kg bag



Fermacell Mesh Jointing Tape
Mesh tape used to reinforce Tapered edge joints.

Pack Size	45 mtr roll
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Fermacell Paper Jointing Tape
Paper tape used to reinforce Tapered edge joints.

Pack Size	75 mtr roll
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ACCESSORIES



Fermacell Board Knife
For scoring and snapping Fermacell boards.



Fermacell Spatula
For applying Fine Surface Treatment.

Size	250mm
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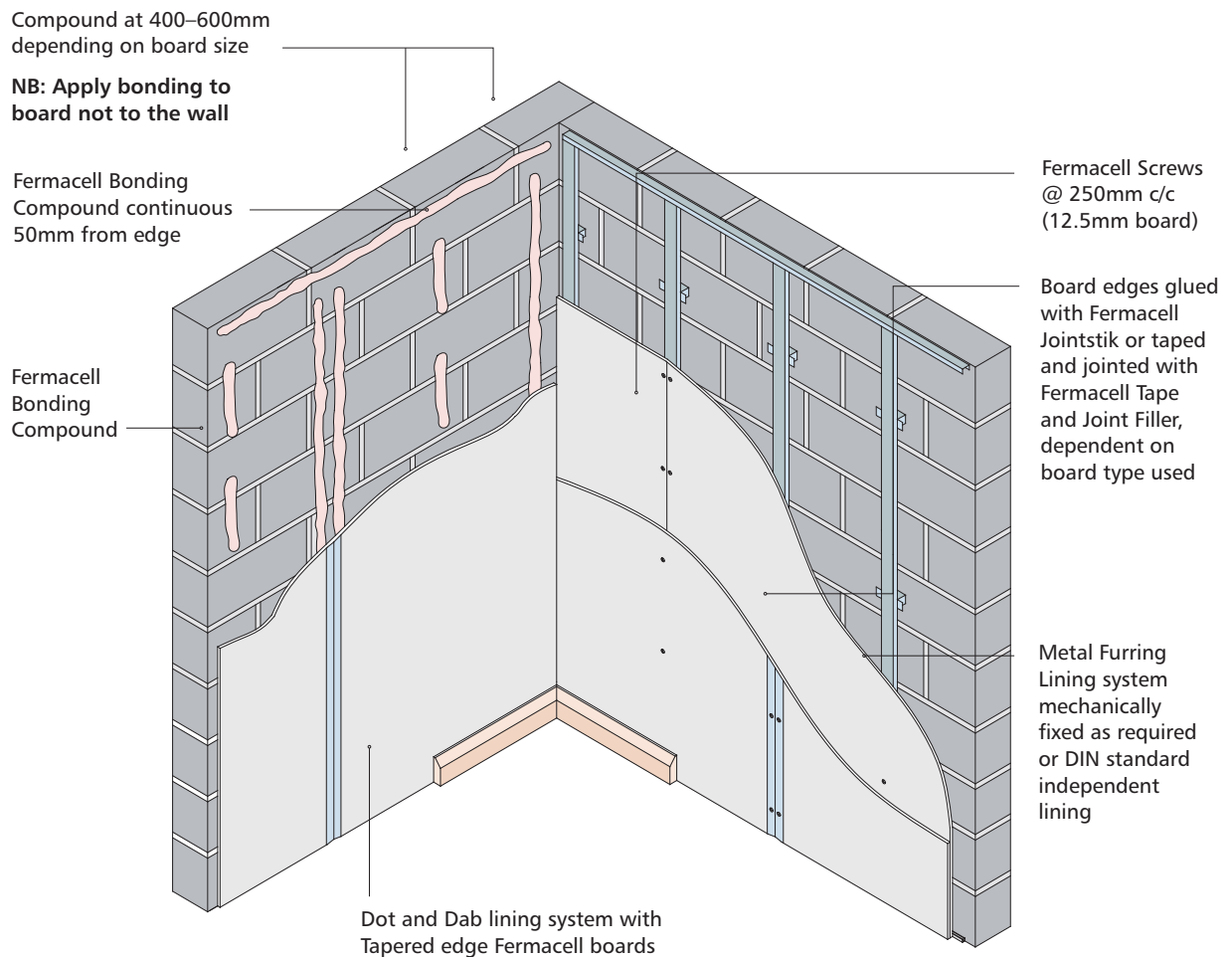


DIN standard metal lining - e.g fermacell

Size	Nominal 0.6 gauge 50mm fixing face
-------------	------------------------------------

NB: For direct bond fixing method use Tapered Edge Fermacell Boards.

LINING SYSTEM CONSTRUCTION



With Dot and dab fixing, Fermacell recommends two mechanical fixings once bonding has set. Advisable where greater loads are to be fixed directly to the boards.

For installation data please refer to the Fermacell Handy Guide.

NB: Apply bonding compound to boards, not to supporting surface. Illustration above shows final positions of dabs once board is fitted.

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INDEPENDENT & ADJUSTABLE WALL LININGS

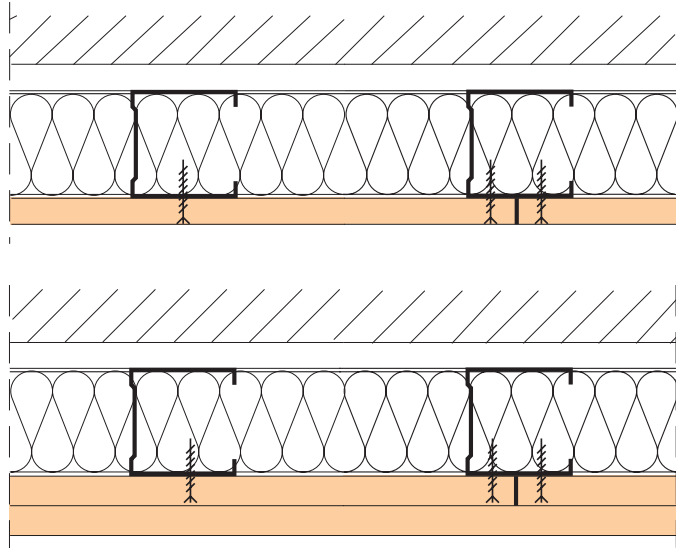
LININGS

(1) Independent Wall Lining

Independent wall linings can be constructed by using DIN standard C Stud sections

- Allow a minimum cavity of 10mm; a vapour control barrier should be installed as required
- Fix the bottom track allowing for the desired cavity at 600mm centres using proprietary fixings. Plumb the ceiling line track in to position and fix
- Cut the DIN standard studs 5mm shorter than the floor – ceiling height and position at the recommended centres for the board width
- Insulation can be inserted either between the studs or in the cavity providing there is adequate clearance to the existing substrate
- Install the board as per fixing instructions in the Fixing and Finishing section

* For double layer systems the second layer can be screw fixed or stapled into place – please contact our technical department for staple fixing details.

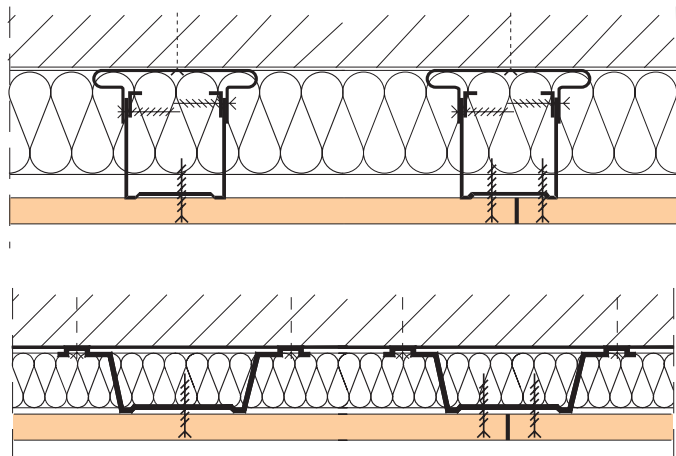


LININGS

(2) Adjustable cavity steel lining systems

Variable cavity width from 30 – 125mm can be achieved by using DIN standard Lining systems.

- Mark horizontal lines at 800mm centres and 600mm vertical centres on the existing wall
- Fix the bottom track allowing for the desired cavity at 600mm centres using proprietary fixings. Plumb the ceiling line track and fix
- Install the adjustable brackets fixing directly to the wall using proprietary fixings at the intersections of the setting out lines
- Cut the adjustable channels 5mm shorter than the floor – ceiling height and position inline with the brackets. Fix the brackets to the channels, bend back excess
- Install the board as per fixing instructions in the Fixing and Finishing section

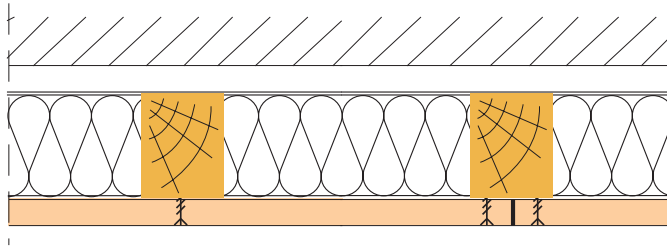


DIRECT BOND & INDEPENDENT WALL LININGS

LININGS

(3) Timber lining systems

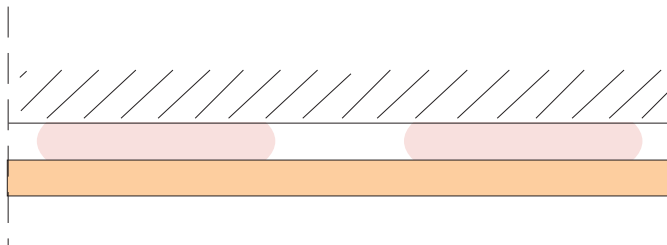
- Allow a minimum cavity of 50mm and a breather membrane to BS 4016 should be installed for timber frame constructions
- Construct the timber lining as required
- Insulation can be inserted either between the studs or in the cavity allowing adequate clearance to the existing substrate
- Install the board as per fixing instructions in the Fixing and Finishing section. Fermacell boards can be screw fixed or stapled in to place – please contact our technical department for staple fixing details



DOT & DAB

(4) Dot and Dab (Direct Bond)

- Ensure the masonry background is dry and dust free
- Direct bonding is not recommended for solid exterior walls prone to moisture ingress, an adjustable or independent lining system should be used instead
- The minimum finished dab thickness should be no less than 10mm and not greater than 25mm
- Apply Fermacell Bonding Compound dabs at 400mm or 600mm centres vertically to suit the board width
- Each dab should be 50-75mm wide x 250mm long and 25mm in from the board edge at 30mm vertical centres
- A continuous ribbon of Fermacell Bonding Compound should be applied around the perimeter of the board where they are to be fitted to external walls and around door/window frames and sockets
- The contact area of the dabs should be at least 20% of the board surface



NB: Bonding compound should be applied to the board, not to the supporting background. Contact Technical Services for assistance.

WALL LININGS

STEP ONE



Ensure the floor is clean and flat; mark out the line of the wall lining allowing for the width of the Fermacell boards and any desired cavity. If using an adjustable cavity metal system mark out the bracket centres along the channel paths.

Plumb the ceiling line with the floor track and mark out. Fix the base and ceiling tracks at 600mm centres using suitable fixings and insert DIN standard studs into the tracks. If using an adjustable cavity system, fit the brackets and then secure the channels to them.

STEP TWO



Insert any desired insulation whilst maintaining a cavity from the background, cut the Fermacell boards 10mm less than the room height and install, leaving gaps as required for jointing to the ceiling.

STEP THREE



Screw fix the boards at maximum 250mm centres using Fermacell screws. When direct bonding using a traditional dot & dab method, the use of Tapered edge boards is recommended. NB: Apply dabs to boards.

STEP FOUR



Square edge boards: Apply Fermacell Jointstik to the board edge, tightly butt the next board and screw fix.
Tapered edge board: Position and fix the next board. Once bonding is dry, apply Fermacell Joint filler, embedding a reinforcement tape, and strike off flush with the taper area.

STEP FIVE



After a minimum of 8 hours remove the excess Jointstik and fill the screw heads, sand the Joint Filler for Tapered edge boards once dry.

STEP SIX



For both Square edge and Taper Edge boards apply Fermacell Fine Surface Treatment to the entire surface for a smooth finish prior to painting. See installation manual for other finishing options.

FERMACELL INDEPENDENT WALL LININGS – STEEL

SYSTEM SPECIFICATIONS			Wall Weight	Wall Height	Wall Thickness	Fire Rating	Improved Sound Insulation	BS 5234
			kg/m ²	m	mm	mins	ΔR^1_w	Grade
3S01								
	Studs	50mm DIN standard studs @ 600mm centres	20	3	62.5	N/A	N/A	Heavy
	Facings	1 layer 12.5mm Fermacell Board one side						
	Insulation	Optional						
	Studs	75mm DIN standard studs @ 600mm centres	20	4	87.5	N/A	N/A	Severe
	Facings	1 layer 12.5mm Fermacell Board one side						
	Insulation	Optional						
	Studs	100mm DIN standard studs @ 600mm centres	20	4.25	112.5	N/A	N/A	Severe
	Facings	1 layer 12.5mm Fermacell Board one side						
	Insulation	Optional						
3S12								
	Studs	50mm DIN standard studs @ 600mm centres	32	3	72.5	30 [†]	N/A	Heavy*
	Facings	1 layer 12.5mm Fermacell Board plus 1 layer 10mm Fermacell Board one side						
	Studs	75mm DIN standard studs @ 600mm centres	32	3.5	97.5	30 [†]	N/A	Severe
	Facings	1 layer 12.5mm Fermacell Board plus 1 layer 10mm Fermacell Board one side						
	Studs	100mm DIN standard studs @ 600mm centres	32	4.5	122.5	30 [†]	N/A	Severe
	Facings	1 layer 12.5mm Fermacell Board plus 1 layer 10mm Fermacell Board one side						
3S21								
	Studs	50mm DIN standard studs @ 600mm centres	41	3	75	60 [†]	22	Heavy*
	Facings	2 layers 12.5mm Fermacell Board one side						
	Insulation	50mm mineral stone wool density 38kg/m ³						
	Studs	75mm DIN standard studs @ 600mm centres	41	3.5	100	60 [†]	22	Severe
	Facings	2 layers 12.5mm Fermacell Board one side						
	Insulation	50mm mineral stone wool density 38kg/m ³						
	Studs	100mm DIN standard studs @ 600mm centres	41	4	125	60 [†]	22	Severe
	Facings	2 layers 12.5mm Fermacell Board one side						
	Insulation	50mm mineral stone wool density 38kg/m ³						

* - Interpolated Performance

[†]Classification from both sides

Fermacell INDEPENDENT WALL LININGS – STEEL

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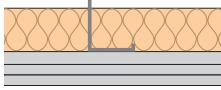
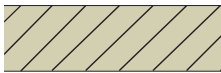
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SYSTEM SPECIFICATIONS

3S31



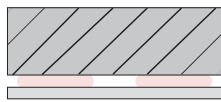
		Wall Weight kg/m ²	Wall Height m	Wall Thickness mm	Fire Rating mins	Improved Sound Insulation ΔR _w [†]	BS 5234 Grade
Studs	50mm DIN standard studs @ 600mm centres	53	3.5	90	90 [†]	≥22	Severe*
Facings	1 layer 15mm Fermacell Board plus 2 layers 12.5mm Fermacell Board outer side						
Insulation	50mm mineral stone wool density 40kg/m ³						
Studs	75mm DIN standard studs @ 600mm centres	53	4	115	90 [†]	≥22	Severe
Facings	1 layer 15mm Fermacell Board plus 2 layers 12.5mm Fermacell Board outer side						
Insulation	60mm mineral stone wool density 40kg/m ³						
Studs	100mm DIN standard studs @ 600mm centres	53	4.5	140	90 [†]	≥22	Severe
Facings	1 layer 15mm Fermacell Board plus 2 layers 12.5mm Fermacell Board outer side						
Insulation	100mm mineral stone wool density 30kg/m ³						
Studs	125mm DIN standard studs @ 600mm centres	53	5	165	90 [†]	≥22	Severe
Facings	1 layer 15mm Fermacell Board plus 2 layers 12.5mm Fermacell Board outer side						
Insulation	100mm mineral stone wool density 30kg/m ³						

* - Interpolated Performance

DIRECT BOND

SYSTEM SPECIFICATIONS

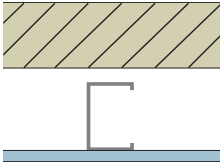
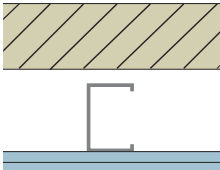
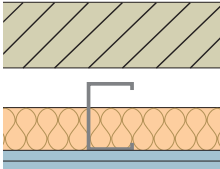
3TP01



		Wall Weight kg/m ²	Wall Thickness mm	Thermal Performance m ² k/W
Facings	1 layer 10mm Tapered Edge Fermacell Board one side	12.5	10	0.03
Facings	1 layer 12.5mm Tapered Edge Fermacell Board one side	15	12.5	0.03

NB: Apply bonding compound to boards, not to the supporting background.

Fermacell INDEPENDENT WALL LININGS – STEEL WITH POWERPANEL H₂O

SYSTEM SPECIFICATIONS		kg/m ²	m	mm	mins	ΔR _w ¹	Grade
3S01 H₂O							
	Studs	50mm DIN standard studs @ 600mm centres					
	Facings	19	2.45	62.5	N/A	N/A	Heavy*
	Studs	75mm @ 600mm centres					
	Facings	19	3.7	87.5	N/A	N/A	Heavy*
3S02 H₂O							
	Studs	75mm DIN standard studs @ 600mm centres					
	Facings	32	3.9	100	N/A	N/A	Heavy*
3S11 H₂O							
	Studs	75mm DIN standard studs @ 600mm centres					
	Facings	37	3	100	30 [‡]	21	Severe*
	Insulation	60mm mineral stone wool density 30kg/m ³					

* - Interpolated Performance

[‡]Classification from both sides

Fermacell VARIABLE CAVITY WALL LININGS

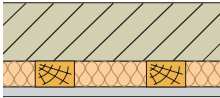


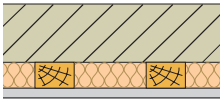
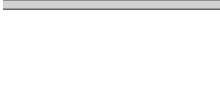

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SYSTEM SPECIFICATIONS			Wall Weight	Wall Height	Wall Thickness	Flanking Sound Performance	Thermal Resistance	BS 5234
			kg/m ²	m	mm	R _{L,W}	k ² kW	Grade
	DIN Std Studs	Wall Liner System @ 600mm centres	17	8	≥42	57	0.53	Severe
	Facings	1 layer 12.5mm Fermacell Board one side						
	Insulation	20mm mineral stone wool density 20kg/m ³						
	DIN Std Studs	Wall Liner System @ 600mm centres	20	8	62.5	57	1.28	Severe
	Facings	1 layer 12.5mm Fermacell Board one side						
	Insulation	50mm mineral stone wool density 20kg/m ³						
DIN Std Studs	Wall Liner System @ 600mm centres	20	8	87.5	57	1.28	Severe	
Facings	1 layer 12.5mm Fermacell Board one side							
Insulation	50mm mineral stone wool density 20kg/m ³							
	DIN Std Studs	Wall Liner System @ 600mm centres	32	8	≥55	62	0.57	Severe
	Facings	2 layers 12.5mm Fermacell Board one side						
	Insulation	20mm mineral stone wool density 20kg/m ³						
	DIN Std Studs	Wall Liner System @ 600mm centres	35	8	75	62	1.31	Severe
	Facings	2 layers 12.5mm Fermacell Board one side						
	Insulation	50mm mineral stone wool density 20kg/m ³						
DIN Std Studs	Wall Liner System @ 600mm centres	35	8	100	62	1.31	Severe	
Facings	2 layers 12.5mm Fermacell Board one side							
Insulation	50mm mineral stone wool density 20kg/m ³							
	DIN Std Studs	Wall Liner System @ 600mm centres	17	8	≥62.5	57	1.31	Severe
	Facings	1 layer 12.5mm Fermacell Board one side						
	Insulation	50mm mineral stone wool density 40kg/m ³						
	DIN Std Studs	Wall Liner System @ 600mm centres	20	8	62.5	57	1.31	Severe
	Facings	1 layer 12.5mm Fermacell Board one side						
	Insulation	50mm mineral stone wool density 40kg/m ³						
	DIN Std Studs	Wall Liner System 50mm DIN standard studs @ 600mm centres	32	8	≥75	62	1.31	Severe
	Facings	2 layers 12.5mm Fermacell Board one side						
	Insulation	50mm mineral stone wool density 40kg/m ³						
	DIN Std Studs	Wall Liner System @ 600mm centres	35	8	75	62	1.31	Severe
	Facings	2 layers 12.5mm Fermacell Board one side						
	Insulation	50mm mineral stone wool density 40kg/m ³						

For installation details please refer to the Fermacell Handy Guide.

Fermacell WALL LINING ON TIMBER

SYSTEM SPECIFICATIONS			Wall Weight	Wall Height	Wall Thickness	Flanking Sound Performance	Thermal Resistance	BS 5234
			kg/m ²	m	mm	R _{LW}	k ² kW	Grade
3WH01								
	Battens	30mm x 50mm @ 600mm centres						
	Facings	1 layer 12.5mm Fermacell Board one side	16	8	42.5	59	0.78	Severe
	Insulation	30mm mineral stone wool density 20kg/m ³						
Battens	40mm x 50mm @ 600mm centres							
	Facings	1 layer 12.5mm Fermacell Board one side	16	8	52.5	59	1.03	Severe
	Insulation	40mm mineral stone wool density 20kg/m ³						
	Battens	60mm x 40mm @ 600mm centres						
	Facings	1 layer 12.5mm Fermacell Board one side	17	8	72.5	59	1.53	Severe
	Insulation	60mm mineral stone wool density 20kg/m ³						
3WH02								
	Battens	30mm x 50mm @ 600mm centres	26	8	52.5	63	0.81	Severe
	Facings	1 layer 12.5mm Fermacell Board plus 1 layer 10mm Fermacell Board one side						
	Insulation	30mm mineral stone wool density 20kg/m ³						
	Battens	40mm x 50mm @ 600mm centres	26	8	62.5	63	1.06	Severe
	Facings	1 layer 12.5mm Fermacell Board plus 1 layer 10mm Fermacell Board one side						
	Insulation	40mm mineral stone wool density 20kg/m ³						
	Battens	60mm x 40mm @ 600mm centres	27	8	82.5	63	1.56	Severe
	Facings	1 layer 12.5mm Fermacell Board plus 1 layer 10mm Fermacell Board one side						
	Insulation	60mm mineral stone wool density 20kg/m ³						

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Wet Areas



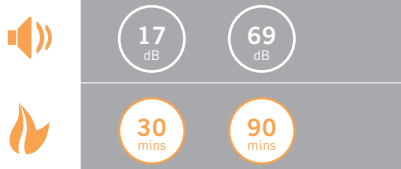
Floors & Ceilings

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MARKET SECTORS

-  Residential & Self build
-  Refurbishment
-  Healthcare
-  Education
-  Timber Frame

PERFORMANCE RATINGS



Fermacell PERFORMANCE

-  Impact sound insulation – Fermacell flooring systems offer a variety of cost effective, simple to install solutions for improving the acoustic insulation of solid masonry floors and timber floor constructions.
-  Airborne sound insulation – The use of Fermacell with resilient or suspended ceiling systems to the underside of the joists will greatly enhance the airborne acoustic performance.
-  Fire protection – Using the floor elements along with our ceiling systems provide superior fire protection from above and below the structure.
-  Speed of installation – The Fermacell dry flooring systems allows a dry screed to be laid on uneven floors and heating systems, eliminating drying times and reducing installation time and cost.
-  Environmental – Fermacell boards are manufactured from recycled content and are recyclable, decreasing the carbon footprint and increasing the BREEAM rating of the building.

Using Fermacell Flooring and Ceiling systems provide simple solutions to acoustic and fire requirements.

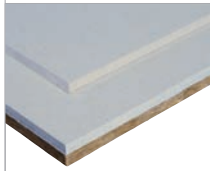
The flooring systems offer a dry screed system solution which provides impact acoustic performance for refurbishment as well as new build and timber frame.

The range of systems we produce not only increase sound insulation but also give a dry screed solution to overlay underfloor heating and levelling solutions to uneven floors.

Fermacell’s ceiling systems provide superior acoustic and fire protection to timber and concrete ceilings by using either a resilient bar or a suspended ceiling system, decreasing the airborne acoustic transmission.

FLOORING ELEMENTS

COMPONENTS



Fermacell Flooring Element
For screeding and insulating floors.

Pack Size	20mm, 25mm, 30mm, 40mm, 45mm and 50mm
Coverage	1500mm x 500mm per sheet



Fermacell Floor Glue
For bonding floor elements.

Pack Size	1kg bottle
Coverage	25m – 28m ² /bottle



Fermacell Joint Filler
For stopping screw heads.

Pack Size	5kg or 20kg
Coverage	10m ² per kg for fine finishing glue joints and stopping screw heads



19mm or 22mm Fermacell Floor Screws
For securing flooring elements.

Pack Size	1000 or 250
Coverage	15 per m ²



30mm, 50mm, 100mm Fermacell Perimeter Strip
To reduce flanking transmission between flooring and walls.

Pack Size	60 lm for 30mm and 50mm depth 30 lm for 100mm depth
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Fermacell Dry Levelling Compound
To level uneven floors 10mm – 60mm.

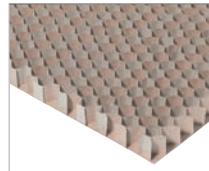
Pack Size	50ltr bag
Coverage	5m ² /bag @ 10mm thick



Fermacell Trickle Protection Sheet
For use under Fermacell Dry Levelling Compound.

Pack Size	1.5m x 50m Roll
Coverage	75m ²

COMPONENTS



30mm, 60mm Fermacell Honeycomb sheets
1500mm x 1000mm
A retaining sheet for honeycombing infill.

Pack Size	30mm – 30 sheets, 60mm – 15 sheets
Coverage	1.5m ² per sheet



Honeycomb Infill
Mass providing infill for honeycomb sheets.

Pack Size	22.5kg bag/48 per pallet
Coverage	2 bags per m ² for 30mm infill



Fermacell Bonded Levelling Compound
Cement base levelling compound for levelling from 40mm to 2000mm.

Pack Size	80 ltr bag (22kg) /16 per pallet
Coverage	10 litres/m ² per 10mm of levelling



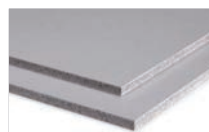
Fermacell Self Levelling Compound
To level uneven floors.

Pack Size	50 ltr bag/ 25kg
Coverage	15m ² per 1mm thickness



Fermacell Levelling Set
For levelling dry flooring compound.

Pack Size	Each 15kg
------------------	-----------



Fermacell H₂O Flooring Element 25mm
For use in wet areas.

Pack Size	60 per pack
Coverage	1250mm x 500mm per sheet



23mm Fermacell H₂O Flooring Screws
For fixing H₂O flooring elements.

Pack Size	500
Coverage	20 screws per m ²

TIMBER JOIST/FLOOR CONSTRUCTION

FERMACELL FLOORING SOLUTIONS

Fermacell's flooring solutions are designed for use as floating floors in a wide variety of applications. Manufactured from Fermacell Gypsum Fibreboards, they give a dry, robust and simple solution to your flooring requirements.

Used in conjunction with Fermacell to the ceiling, the flooring elements give a wide variety of solutions as a complete floor/ceiling specification.

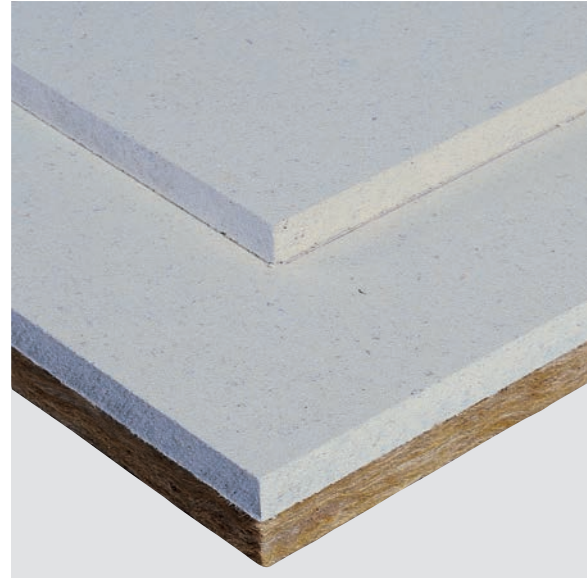
There are five main areas of use for Fermacell flooring, and the constructions vary slightly according to the specific application. All the systems share the same basic technology which produces a continuous floating membrane capable of installation and use in 24 hours, and which is ready to accept a wide range of floor finishes.

1. Improving acoustic insulation:
Types 2E31
2. Over floor heating: Types 2E22 & 2E11
3. Levelling uneven floors: A range of solutions from 0 – 2000mm are available.
4. Improving thermal insulation:
Types 2E13 & 2E14
5. Wet-room floors: TE Powerpanel H₂O Flooring element.

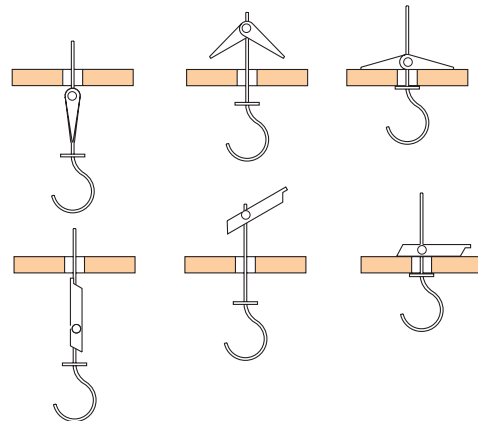
FERMACELL CEILING SOLUTIONS

Fermacell's ceiling solutions give simple solutions to timber, steel and concrete floors by providing acoustic, fire, thermal mass and fixing performance. Due to the nature of the Fermacell, Robust details can be easily achieved as 2 layers of 10mm board to the ceiling, giving the minimum mass requirement. This mass is used in multiple layers in thermal mass applications giving a fast dry solution.

Due to the screw holding ability, simple fittings can be screwed directly into the ceiling board, or where greater loads are required, specialist fittings can be used. Please see table opposite, or contact our Technical Department for more details on **+44 (0) 121 311 3480**.



CEILING LOADS



Maximum allowable load in kg ⁽¹⁾ per Fermacell Board thickness inmm ⁽²⁾

Fermacell Board thickness (mm)	kg ⁽³⁾
10mm	20
12.5mm	22
15mm	23
10 + 10mm	24
12.5 + 12.5mm	25
12.5mm H ₂ O	20

(1) Tested to DIN 4103, safety factor 2.

(2) Support spacing of the sub-structure ≤ 35 x board thickness. Board fixed to the sub-structure with Fermacell screws.

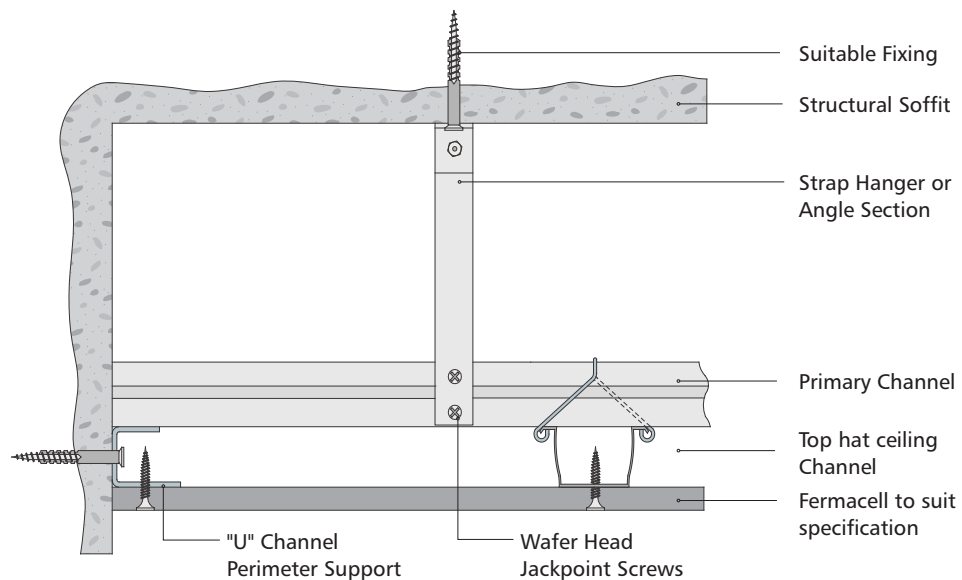
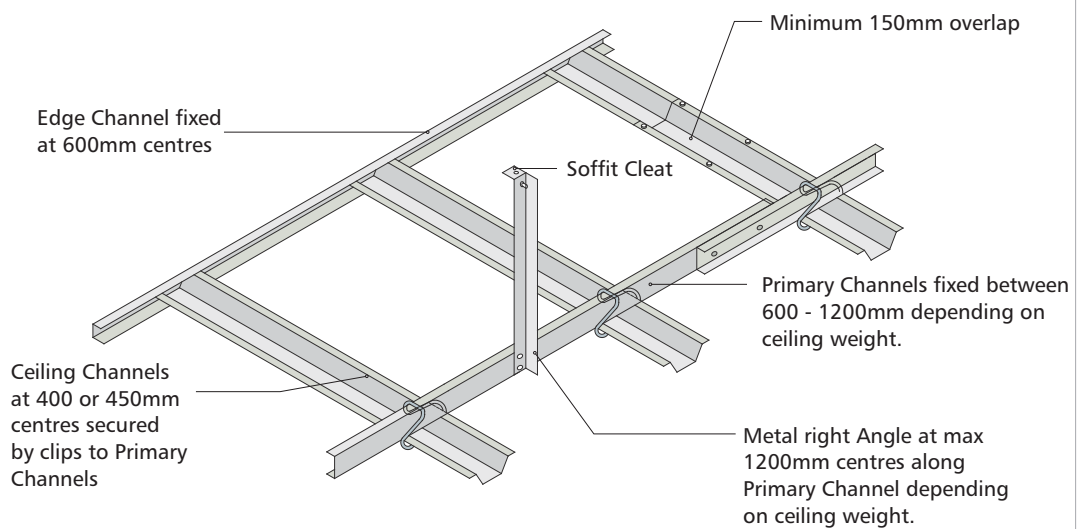
(3) Observe the manufacturers operating and installation instructions.

Where additional loads are to be applied then the loading capability of the sub-structure should be checked.

MF CEILING CONSTRUCTION

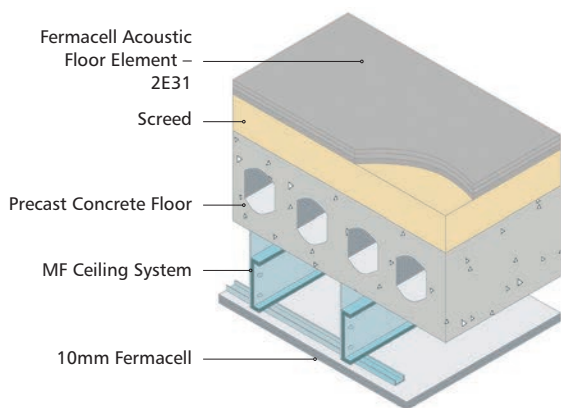
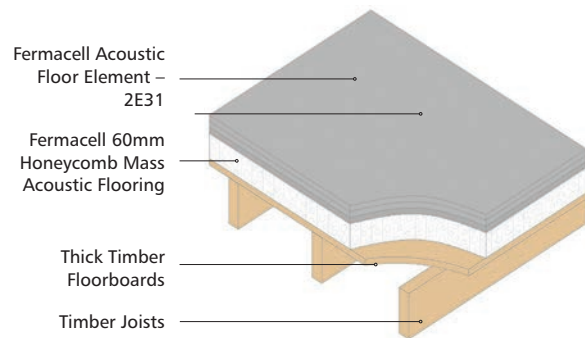
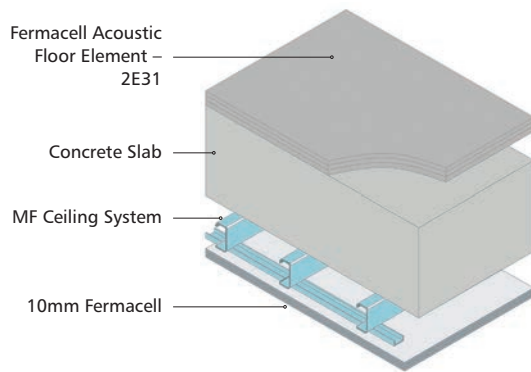
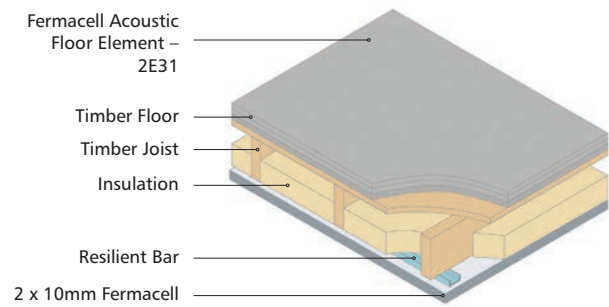
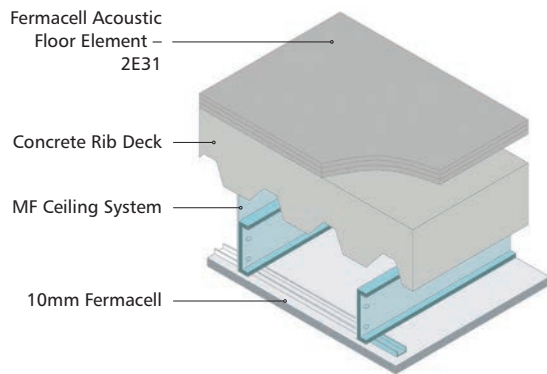
Recommended Maximum Ceiling Loadings

Metal angle suspension centres	Primary Channel Centres	Maximum loading inc board kg/m ²
1200	600	74
1200	900	50
1200	1200	35



Note: Where ceiling weight exceeds 20kg/m² use Wafer Head Self Drilling Screws in lieu of Connecting Clips. It is recommended that all double board systems are screw fixed. 25mm flat strap may be used on ceiling drops up to 1 metre deep.

FLOORING & CEILING CONSTRUCTIONS



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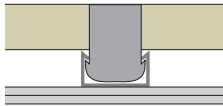

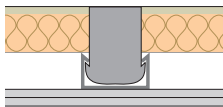

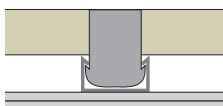
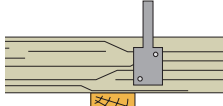
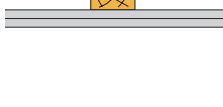
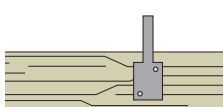
Fix & Finish

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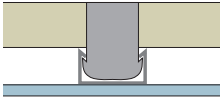
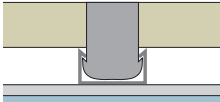
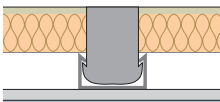
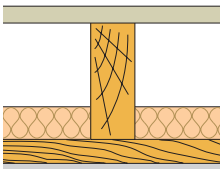
Fermacell CEILINGS IN STEEL AND TIMBER SUBSTRUCTURES

Ceiling performance irrespective of structure above.

				Ceiling Weight	Construction Height	Fire Rating		
				kg/m ²	mm	mins		
SYSTEM SPECIFICATIONS								
2S11↑U								
	Channels	60mm x 0.6 @ max 350mm centres				27	75	30
	Facings	2 layers 10mm Fermacell Board one side						
	Type	Suspended steel ceiling system with fire protection from below. Min 0.6 gauge. Confirm hanging and layout first						
	Channels	60mm x 0.6 @ max 350mm centres				33	80	30
	Facings	2 layers 12.5mm Fermacell Board one side						
	Type	Suspended steel ceiling system with fire protection from below. Min 0.6 gauge. Confirm hanging and layout first						
2S11↑U↓O								
	Channels	60mm x 0.6 @ max 350mm centres				28	130	30
	Facings	2 layers 10mm Fermacell Board one side						
	Insulation	40mm mineral stone wool density 30kg/m ³						
	Type	Suspended steel ceiling system with fire protection from above and below. Min 0.6 gauge. Confirm hanging and layout first						
	Channels	60mm x 0.6 @ max 350mm centres				35	135	30
	Facings	2 layers 12.5mm Fermacell Board one side						
	Insulation	40mm mineral stone wool density 30kg/m ³						
	Type	Suspended steel ceiling system with fire protection from above and below. Min 0.6 gauge. Confirm hanging and layout first						
2S21↑U								
	Channels	60mm x 0.6 @ max 350mm centres				39	85	60*
	Facings	1 x 18mm + 1 x 15mm Fermacell Board to one side						
	Insulation	None						
	Type	Suspended steel ceiling system with fire protection from below. Min 0.6 gauge. Confirm hanging and layout first						
2H13↑U								
	Battens	Min primary timber size 60mm x 40mm and min batten size 24mm x 48mm at max 350mm centres. Confirm support layout as required				28	85	30*
	Facings	2 layers 10mm Fermacell Board one side						
	Insulation	None						
	Type	Suspended timber ceiling system with fire protection from below						
	Battens	Min primary timber size 60mm x 40mm and min batten size 24mm x 48mm at max 350mm centres. Confirm support layout as required				37	90	30*
	Facings	2 layers 12.5mm Fermacell Board one side						
	Insulation	None						
	Type	Suspended timber ceiling system with fire protection from below						
2H23↑U								
	Battens	Min primary timber size 60mm x 40mm and min batten size 24mm x 48mm at max 350mm centres. Confirm support layout as required				46	95	60*
	Facings	1 x 18mm + 1 x 15mm Fermacell Board to one side only						
	Insulation	None						
	Type	Suspended timber ceiling system with fire protection from below						

*To DIN Assessment GA 3368/618/14 MPA BS. N.B. This is a German assessment, for a BS solution please contact the Technical Department.

Fermacell CEILINGS IN STEEL AND TIMBER SUBSTRUCTURES

SYSTEM SPECIFICATIONS				Ceiling Weight	Construction Depth	Fire Rating
				kg/m ²	mm	mins
2S01 H₂O						
	Channels	60mm x 0.6 @ max 500mm centres		16	70	N/A
	Facings	1 layer 12.5mm Powerpanel H ₂ O one side				
	Insulation	None				
	Type	Suspended steel ceiling system with fire protection from below. Min 0.6 gauge. Confirm hanging and layout first				
2S11 H₂O↑U						
	Channels	60mm x 0.6 @ max 500mm centres		32	80	30
	Facings	1 layer 12.5mm Fermacell Board plus 1 layer 12.5mm Powerpanel H ₂ O one side				
	Insulation	None				
	Type	Suspended steel ceiling system with fire protection from below. Min 0.6 gauge. Confirm hanging and layout first				
2S11 H₂O↑U↓O						
	Channels	60mm x 0.6 @ max 500mm centres		34	135	30
	Facings	1 layer 12.5mm Fermacell Board plus 1 layer 12.5mm Powerpanel H ₂ O one side				
	Insulation	40mm mineral stone wool density 30kg/m ³				
	Type	Suspended steel ceiling system with fire protection from above and below. Min 0.6 gauge. Confirm hanging and layout first				
2H12						
	Battens	Timber battens min 48mm x 24mm, steel resilient bar or MF suspended ceiling at max 330mm centres		16	>40	30
	Facings	1 layer 10mm Fermacell Board one side				
	Insulation	160mm x 30kg/m ³				
	Type	Timber joisted ceiling systems with a layer of structural overlay board				
	Battens	Timber battens min 48mm x 24mm, steel resilient bar or MF suspended Ceiling at max 500mm centres		19	40	30
	Facings	1 layer 12.5mm Fermacell Board one side				
	Insulation	160mm x 30kg/m ³				
	Type	Timber joisted ceiling systems with a layer of structural overlay board				

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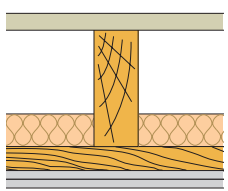
Fermacell CEILINGS WITH STEEL AND TIMBER SUBSTRUCTURES

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	Ceiling Weight	Sound Insulation	Fire Rating from below
	kg/m ²	R _w	mins

SYSTEM SPECIFICATIONS

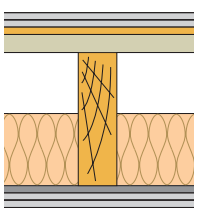
2H23



Battens	Timber battens min 48mm x 24mm, steel resilient bar or MF suspended ceiling at max 400mm centres	29	45	60
Facings	2 layers 10mm Fermacell Board one side			
Insulation	100mm mineral stone wool density 30kg/m ³			
Type	Timber joisted ceiling systems with a layer of structural overlay board			
Battens	Timber battens min 48mm x 24mm, steel resilient bar or MF suspended ceiling at max 400mm centres	35	50	60
Facings	2 layers 12.5mm Fermacell Board one side			
Insulation	100mm mineral stone wool density 30kg/m ³			
Type	Timber joisted ceiling systems with a layer of structural overlay board			

2FCH21

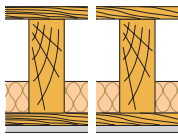
PARTY FLOOR DETAIL



Facings	2 layers 10mm Fermacell Board one side	≥305	60	*≥45	≤62
Insulation	100mm mineral wool density 30kg/m ³				
Main Floor	Min 235mm x 50mm solid timber joists at 400mm centres with 22mm chipboard overlay				
Flooring Solution	2E31 or 2E32 Fermacell acoustic flooring element				
Ceiling Solution	MF or resilient bar system set at max 400mm centres at 90° to joist				

* Sound Rating "D_{n,tf} + C_{tr}"

Fermacell TIMBER CEILINGS

SYSTEM SPECIFICATIONS				Ceiling Weight	Construction Height	Fire Rating from below
				kg/m ²	mm	mins
2HD11						
	Battens	Timber battens min 48mm x 24mm, steel resilient bar or MF suspended ceiling at max 330mm centres				
	Facings	1 layer 12.5mm Fermacell Board one side	20	45	30	
	Insulation	60mm mineral stone wool density 32kg/m ³				
	Type	Timber joisted ceiling systems without a layer of structural overlay board				

* Roofing Battens

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SYSTEM SPECIFICATIONS

		Element Weight kN/m ²	Admissible Point Loading kN	Thickness mm	Fire Rating from above mins	Thermal Performance [1/Δ] m ² K/W
2E11						
	Type	20mm dry flooring element				
	Areas of Application	1 + 2				
		0.23	2*	20	30	0.06
2E22						
	Type	25mm dry flooring element				
	Areas of Application	1 + 2 + 3				
		0.29	3*	25	60	0.075
2E13						
	Type	20mm dry flooring element + 20mm rigid foamed polystyrene				
	Areas of Application	1 + 2				
		0.23	2	40	30	0.56
2E14						
	Type	20mm dry flooring element + 30mm rigid foamed polystyrene				
	Areas of Application	1 + 2				
		0.23	2	50	30	0.81
2E31						
	Type	20mm element dry flooring elements + 10mm wood fibre insulating slab				
	Areas of Application	1 + 2 + 3				
		0.25	3	30	90	0.26
OPTION						
	Type	Include 35mm element - using 25mm dry flooring 2 layers 12.5mm Fermacell Board				
	Areas of Application	1 + 2 + 3				
		0.25	3	35	90	0.26

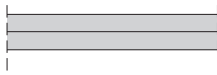
* Where the flooring elements are laid directly onto a concrete or fully supporting stable base, then the point loading increases as follows:

2E11 - 3.0kN

2E22 - 4.0kN

Refer to Fermacell Flooring Brochure for additional Information.

Fermacell POWERPANEL FLOORING

SYSTEM SPECIFICATIONS		Element Weight	Admissible Point Loading	Thickness	Fire Rating from above	Thermal Performance
		kN/m ²	kN	mm	mins	[1/Δ] m ² K/W
H₂O TE Flooring 	Type	25mm Powerpanel dry flooring element for wet areas				
	Areas of Application	1 + 2 + 3 (see table below)				

RANGES OF USE AND APPLICATION*

1	Premises and corridors in buildings for habitation, hotel bedrooms with bathrooms.
2	Offices and corridors, surgeries including wards and waiting rooms and corridors ≤ 50m ² adjacent to an apartment, office or similar buildings.
3	Corridors in hotels, retirement homes and boarding schools or similar buildings. Treatment and operating rooms not containing any heavy equipment.
3	Areas containing tables such as classrooms, cafés, restaurants, dining rooms, lecture halls and reception lounges.
4	Corridors in hospital buildings, retirement homes, treatment rooms and operating rooms containing heavy equipment.
4	Areas intended for large gatherings of people, for example: classrooms, auditoria, churches, theatres, cinemas, conference rooms, waiting rooms, concert halls.
4	Large open areas, for example: museums, exhibition halls, entrances to public buildings and hotels.
4	Sports and leisure halls, for example: dance halls, gymnasias, fitness rooms, stages, specialist shops and superstores.

The addition of extra layers does not restrict the range of use and does not change the resistance to concentrated loads. If the flooring elements are laid on top of a concrete slab, the allowable concentrated load rating increases to 2.5 kN for the 2E11 flooring elements and to 3.5 kN for the 2E22 flooring elements. The scope of use extends to field 3 for 2E11 and to field 4 for 2E22.

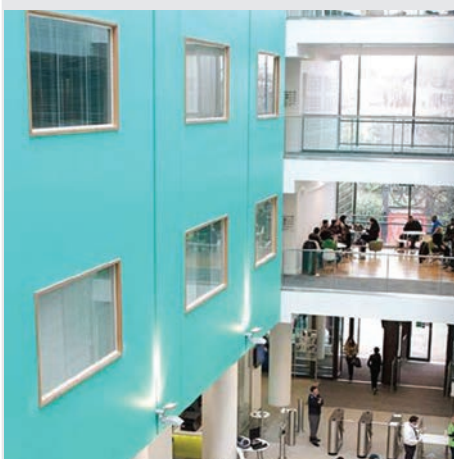
* Areas of application according to DIN EN 1991-1-1/ NA: 2010-12

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Flix & Finitish

Fermacell boards are fitted and finished slightly differently to traditional plasterboard; thus speeding up the installation time by reducing drying out times and providing a more user friendly finishing system with our FST (Fine Surface Treatment).



The use of Fermacell Gypsum Fibreboards alleviates the majority of the fitting and finishing problems associated with traditional Dry Lining methods.

The screw retention capabilities of Fermacell allows most fixtures to be fitted directly to the board (see table below).

BOARD FITTING

Fermacell tapered edge boards are cut and fitted in a similar way to plasterboard eliminating the need for specialist tools and skills.

BOARD JOINT REINFORCEMENT

Fermacell's Joint filler or Jointstik provides quicker and more simple application versus traditional Dry Lining methods; with Jointstik a stronger joint can be achieved without the need for further reinforcement.

SURFACE FINISH

With Fermacell's FST (Fine Surface Treatment) a skim plaster type finish can be achieved in a fraction of the time without the need of specialist skills; allowing the experienced tradesman, self builder or DIY enthusiast to achieve a flawless finish.

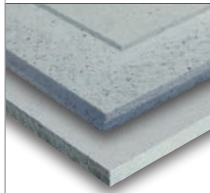
LOAD-CARRYING CAPACITY OF Fermacell WALLS					
Fermacell Gypsum Fibreboards (thickness) ⁽¹⁾	Loadbearing strength in kg ⁽²⁾ NB: Factor of safety 2				
	Picture hooks fixed by nails			Screw with cont. thread 5mm dia. ⁽³⁾	Toggle Bolt/ Cavity Fixing ⁽⁴⁾
10mm	15	25	35	20	40
12.5mm	17	27	37	30	50
12.5 + 10mm	20	30	40	35	60
15mm	18	28	38	30	55
18mm	20	30	40	35	60

(1) Maximum stud centres = 50 x board thickness. N.B. Where fixings are less than 500mm apart, reduce the load per fixing by 50%. If a stud support separates the fixings, then use the full loadbearing strength shown above.
 (2) Safety factor: 2 (Static load with relative humidity of up to 85%).
 (3) Depth of cupboard or shelves: max. 350mm.
 (4) Standard toggle bolt with > 4mm dia. screw. (The toggle bolt manufacturer's instruction should be followed.)

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FOR ALL FERMACELL SYSTEMS

COMPONENTS



Fermacell Board
Fermacell Square edge or Tapered edge.

Thickness	10mm, 12.5mm, 15mm and 18mm
Sizes	1200 x 1000mm to 1200 x 3000mm



Fermacell Fine Surface Treatment
For giving Fermacell boards a smooth finish prior to painting.

Coverage	4-5m ² per ltr
Pack Size	3ltr or 10ltr



Fermacell Joint Filler
For filling 5-7mm gaps between boards & stopping screw heads.

Coverage	5m ² per kg for filling Tapered edge joints. 10m ² for finishing glue joints and screw heads.
Pack Size	5kg or 20kg



Fermacell Jointstik
For edge glueing square edged Fermacell boards.

Coverage	20 lm / 310ml tube
Pack Size	310ml tubes



30/40/55mm Fermacell Screws
For fixing Fermacell boards to steel and timber subframes.

Coverage	13 screws per m ² for walls (for each side) 30 screws per m ² for ceilings
Pack Size	Box of 250 screws or box of 1000 screws

ACCESSORIES



Fermacell Board Knife
For scoring and snapping Fermacell boards.



Fermacell Spatula
For applying Fine Surface Treatment.

Size	250mm
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Metal Framing Systems or Timber by others

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TOOLS YOU WILL NEED



Electric Screwdriver

Electric screwdriver with a minimum speed of 3500 rpm. A cordless screwdriver may be used, but check the speed first. Slower speed tools may cause lipping when installing boards on steel studwork.



Pneumatic Gun

If using staples or nails, a pneumatic gun and compressor operating at 7 bar will be needed. (This equipment is available from many hire centers).



Plumb Line

Plumb line or long spirit level.



Mastic Gun

Mastic gun for Jointstik tubes.



Decorator's Scraper

Decorator's scraper or similar for removing excess Fermacell Jointstik (after curing).



Taping knife

Taping knife or plastering trowel for applying Fermacell Joint filler to the joint.



Rigid Bladed Scoring Knife

Rigid bladed scoring knife, such as a Fermacell knife, for scoring and snapping the boards.



A Circular or Jig Saw

A circular or jig saw may also be used. If using a hand-held electric circular saw, we recommend using a vacuum attachment to collect dust.



Steel Trowel

A steel trowel for applying Fermacell FST (Fine Surface Treatment). Special Fermacell applicators are available from selected distributors.

Fermacell Gypsum Fibreboards can be installed on to a variety of backgrounds; typically Metal studs, Timber studs, directly bonded, or mounted on a SFS frame to exterior walls.

GENERAL SITE GUIDELINES.

Fermacell components should not be installed when the mean relative humidity is $\geq 80\%$.

Fermacell boards should be fixed at a mean relative humidity of $\leq 80\%$ and a room temperature of $+5^\circ\text{C}$. The temperature of the adhesive should be $+10^\circ\text{C}$.

The boards must be acclimatised to the installation area, and in the 12 hours after jointing the relative room climate should not change significantly. Lower temperatures prolong curing times.

Filling joints with Joint filler and the application of FST should only be carried out at a mean relative humidity of $\geq 70\%$ (corresponding to a board moisture content of $\leq 1.3\%$), and the room temperature should be $+5^\circ\text{C}$.

Wet trades or wet screeding, or asphaltting should be completed prior to joint filling. The adhesive method of jointing can be used prior to these applications, however, check with our Technical Department first on **+44 (0) 121 311 3480**.

Gas burner heating can damage the boards due to the risk condensation and thermal shock. This applies particularly to cold interiors with poor ventilation. Rapid heating, which can result in thermal shock, must be avoided.

FINISHING



SKIM, PLASTERS AND TEXTURED PLASTERS

A plaster finish is not normally recommended as the same finish can be achieved using FST, which is much faster and a fraction of the cost. Where a skim is to be used, for whatever reason, our recommendation is that the boards should be sealed with a Board Sealer or High Suction Plaster Primer, as recommended by the skim manufacturer. Fibre tape must be applied to all joints, and a test area of at least 1m² should be completed first, to confirm compatibility / suitability.

PAINTING

Fermacell boards can be painted directly. Refer to our instruction manual for recommendations for joint treatment in this case. Fermacell FST gives a smooth surface ready to accept a paint finish. Typically a mist coat and two undiluted top coats are required. Where vinyl or oil based paints are to be used without the prior application of FST, we recommend the boards are sealed first.

We do not recommend the use of eggshell paint finishes. However, where eggshell paints are used, a minimum of two coats of FST must be applied first, followed by a sealant. In all cases, refer to the relevant British standards. In all cases, the paint manufacturers recommendations should be followed.

FINISHING



TILING

Before tiling, all areas should be clean and free from dust. If a priming coat is required, this should be allowed to dry for 24 hours before tiling work starts.

Wet areas like showers and bathrooms, which are subject to frequent splashing, should be treated with a waterproofing solution such as the Fermacell Waterproofing Application. This is a paintable system suitable for use with cement based adhesives. Tile adhesives with a low water content should be used and tiles fixed with a thin bead adhesive method, without pre-wetting.

Generally tiles should not be grouted for a 24 hour period after fixing. Follow the adhesive and tile manufacturer's recommendations. Wall surfaces that require sealing must be protected against

the penetration of water to a height of 2000mm above the bath floor, with adequate spacing above the actual shower and bath areas. For showers, waterproofing must extend to at least 300mm above the shower head.

Corners and penetration should be sealed with recommended sealing tapes or collars. It is recommended that all walls in any shower or bathroom are sealed against rising moisture to a height of 150mm. In all cases refer to manufacturers instructions. Fermacell recommends a maximum tile size of 300mm x 300mm. For larger tiles please contact our Technical Department on **+44 (0) 121 311 3480**.

FITTING FERMACELL BOARDS

1. STUDWORK



If you are using a steel subframe, a minimum 50mm fixing face and a 0.6mm gauge stud must be used, with associated head and floor track to suit - e.g. fermacell steel product range.

If you are using timber for the subframe, you will need (75mm x 50mm) P.S.E. well seasoned timber for both the vertical studwork and the head and floor track. An 89mm x 38mm studs may be used, but only with the adhesive or Tapered edge jointing system.

Allow for full height stud every 500mm of wall length when using 1500mm x 1000mm one-man boards, or every 600mm of wall length when using other sizes in 12.5mm thickness or every 400mm of wall length when using 10mm thickness, plus one extra stud for the final wall fix. Allow two times the wall length for the head and floor tracks. In all cases ensure that studwork spacing is suitable for the size of board to be used.

2. FIXING



For the steel frame use ≥ 40 mm screws with wall plugs (if appropriate) for fixing head and floor tracks, and end studs to the existing structure. Allow for fixing frame anchors at max 600mm centres. Intermediate studs are not fixed to the head and floor track.

For timber frame use ≥ 80 mm screws with wall plugs (if appropriate) for fixing head and floor tracks and end studs to the existing structure. Allow for fixing frame anchors at max 600mm centres. Use 100mm round headed nails for screw fixing the studs to the head and sole plate (3 per fixing, 6 per stud).

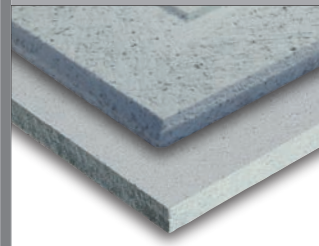
3. MINERAL FIBRE INSULATION



For most general applications we recommend 40mm thick, 48kg/m³ mineral fibre insulation in batt or roll form. The width of the insulation should match the stud spacing (see note 1).

This grade of insulation gives excellent all round thermal and acoustic properties and when used in conjunction with 12.5mm board provides F60 partitions (see Fermacell systems 1S21 and 1H22).

4. FERMACELL BOARDS



Fermacell boards available in both Square and Tapered edge (2 sides and 4). For board sizes please refer to board size table on page 8. Square edge boards can be easily fitted and finished using Fermacell Jointstik and Fine Surface Treatment.

*For double layers systems the base layer should be square edged Fermacell. If Tapered edge Fermacell is used as a base layer then all joints must be filled with Fermacell filler, prior to fitting the outer layer of board.

Our Tapered edge boards are designed to accommodate a joint reinforcement tape as with traditional Dry Lining. Once the tape has been bedded into place and the Tapered area filled and the Fermacell Filler is set the entire surface is then coated with Fine Surface Treatment.

5. FERMACELL SCREWS



The boards should be screwed to the studs or frame using Fermacell screws (3.9 x 30mm) at 250mm centres along the studs. Staples should be 38mm long, have a head width of 10mm and be a minimum of 1.4mm gauge.

Nails should be galvanised, 45mm long and a minimum of 2.2mm gauge. Staples and nails should be fixed at 200mm centres. Refer to the fixings tables for specific fixings information dependant on Fermacell thickness and application. Fixings should be 10mm from the edge of the board, and 50mm from corners. Please fixing sequence in table 5b.

NB: For screw spacing and usage for wall and ceilings please refer to our Dry Lining Wall & Ceilings Guide. Fermacell boards are fixed at the following maximum screw centres:-

- (1) Wall 250mm
- (2) Ceiling 200mm

FITTING FERMACELL BOARDS

6 FERMACELL JOINTSTIK



Jointstik is used for gluing square edge boards together. Each cartridge will cover 20 linear meters of joint using a 3mm bead. This equates to approximately 8 boards.

Fermacell Jointstik adhesive is applied to the edge of the board in a continuous 3mm bead prior to fixing the next board.

Because the adhesive expands on contact with air, the bead should be applied to the edge of square edge boards and not the 'V' between the tapers of Tapered edge boards.

If the bead is applied incorrectly, excess Jointstik may be trapped between board and subframe causing subsequent lipping.

7 FERMACELL JOINTSTIK



Once Jointstik is applied the next board is then fitted to the subframe, spreading the adhesive across the face of the board edge and ensuring a tight fit of less than 1mm. Allow the adhesive to harden fully before attempting to remove any excess (typically 24 hours). Once hardened, the excess can be struck off with a decorator's scraper. There is no requirement for noggings behind these joints. The final gap between boards with Jointstik should be less than 1mm.

Any greater than this may result in weaker joints. If Jointstik has been for a long period it may be hard to remove, a Surform or any similar tool may be used to remove it. The joint and screw heads should then be filled with Fermacell Joint Filler. All joints above 2500mm partition height must be jointed using Jointstik or reinforced with noggings. Horizontal joints are jointed in the same manner as vertical joints.

8 FERMACELL JOINT FILLER



A hard filler used for jointing Tapered edge boards, jointing the gaps between cut edges and for filling screw heads. As well as an alternative to Jointstik when using square edge boards.

*For double layer systems the base layer should be square edged Fermacell. If Tapered edge Fermacell is used as a base layer then all joints must be filled with Fermacell filler, prior to fitting the outer layer of board.

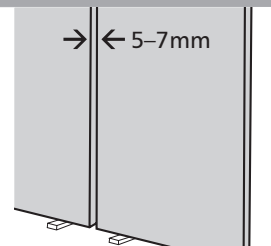
If using Tapered edge boards, jointing tape will be required. We recommend a paper tape rather than a self adhesive fibre tape as this gives a stronger joint. When using Fermacell Joint Filler for Tapered edge boards, allow 1kg per 4 meters of joint length, and 1kg per 7-8 meters of joint length for jointing off cuts.

9 FERMACELL JOINT FILLER



Offcuts and Square edge boards

Fermacell Joint Filler may be used to joint square Edge boards and off cuts. Where square edge boards or offcuts are installed prior to jointing, a 5 – 7mm gap is left between boards, which is then filled with Fermacell Joint Filler ensuring that the joint filler is pushed fully through the gap. (Fermacell Jointstik adhesive is not a gap filler). The filler can then be rubbed down prior to final decoration. Ensure filled joints are backed/supported.



10 FLEXIBLE SEALANT



For use in sealing the gap between boards and other material surfaces such as walls, floors and ceilings. Typically, this should be where any building movement is expected on internal corners or abutments. Typically a 3 – 5mm gap should be left.

The edges of the boards must be primed prior to application, and the sealant should be fire or acoustic rated as required.

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5b. FIXING SEQUENCE

When fixing boards in a double height partition, cross joints must be avoided by installing boards as shown in *Diagram A*. When fixing boards, work from one side of the board to the other (e.g. from left to right) or from the centre outwards. Don't fix the four corners first as this can set up stresses in the board. Ensure that there is a gap at junctions with other adjoining surfaces. This applies to both layers of a double layer partition system. See *Diagram B*.

When using Fermacell square edge one-man boards (1500mm x 1000mm), you should alternate the orientation of the boards as shown in *Diagram C*. This sequence prevents cross joints. A similar system for using 1200mm x 1200mm taper edge boards (Tapered on 4 sides) is shown in *Diagram D*. All joints should be staggered by a minimum of 200mm both horizontally and vertically.

Isolation Strips

Typically strips 50mm to 75mm wide and 10mm thick, these should be sized to suit the wall thickness. These can be either purchased as a roll or may be offcuts from the insulation material from the wall.

These strips are placed between the head and floor track and the end studs, and adjoining surfaces to prevent flanking sound transmission. Alternative materials may be used, but these must be suitable for the performance of the partition in regard to fire and acoustics.

Fixing and jointing Tapered edge boards

Tapered edge boards are fitted to the subframe with the board edges touching. The boards are jointed using Fermacell Joint Filler and is applied to the joint, ensuring that the central 'V' of the joint is fully filled, paper tape is bedded into the joint and the filler is struck off flush with the taper.

Self adhesive fibre tape may be used instead of paper tape and the filler pushed through the mesh to the back of the joint. Please note that the joint strength when using fibre tape is less than paper tapes and cracking may occur in certain circumstances. Once the filler is dry, a second fill may be necessary to take up any shrinkage, fill the screw heads and apply Fine Surface Treatment to the entire surface.

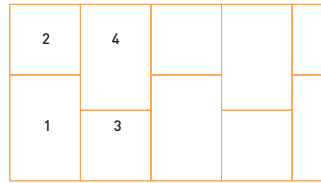


Diagram A

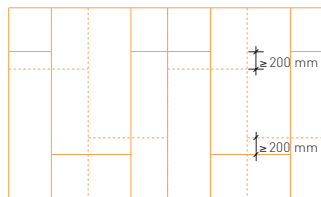


Diagram B

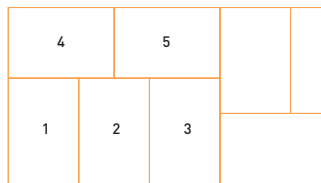


Diagram C

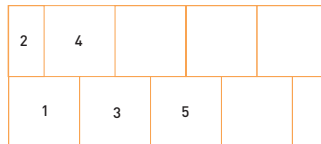
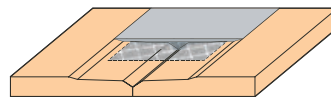
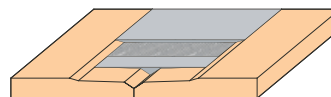


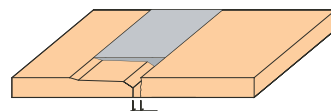
Diagram D



Joint variation 1: Two factory Tapered edge boards with Fermacell Jointing Tape and Fermacell Joint Filler



Joint variation 2: Two factory Tapered edge boards with paper tape and Fermacell Joint Filler



Joint variation 3: One factory Tapered edge board and one edge cut on-site, bevelled and chamfered, with Fermacell Jointing Tape and Fermacell Joint Filler

FIXING CENTRES AND USAGE ON WALLS AND CEILINGS

Typical guidance for fixing usage - per side and m²

BOARD THICKNESS	Staples (galvanised and resinated) Gauge ≥ 1.5mm, Head Width ≥ 10mm			Fermacell screws Gauge = 3.9mm		
Fixing Fermacell to Walls	Length (mm)	Spacing (mm)	Use (no./m²)	Length (mm)	Spacing (mm)	Use (no./m²)
Metal – single-layer						
10mm	–	–	–	30	250	13
12.5mm	–	–	–	30	250	10
15mm	–	–	–	30	250	10
18mm	–	–	–	40	250	10
Metal – 2 layered / 2nd. layer into the stud						
1st Layer: 12.5mm	–	–	–	30	400	6
2nd Layer: 10mm or 12.5mm	–	–	–	40	250	10
1st Layer: 15mm	–	–	–	30	400	6
2nd Layer: 12.5mm or 15mm	–	–	–	40	250	10
Wood – single layer						
10mm	≥30	200	16	30	250	13
12.5mm	≥35	200	12	30	250	10
15mm	≥44	200	12	40	250	10
Wood – 2 layered / 2nd. layer into the stud						
1st Layer: 12.5mm	≥35	400	6	30	400	6
2nd Layer: 10mm or 12.5mm	≥50	200	12	40	250	13
BOARD TO BOARD FIXING	Diverging Staples. Maximum Row spacing 400mm Gauge ≥ 1.5mm, Head Width ≥ 10mm			Fermacell screws. Gauge = 3.9mm Maximum Row spacing 400mm		
Wall zone per m² wall surface	Length (mm)	Spacing (mm)	Use (no./m²)	Length (mm)	Spacing (mm)	Use (no./m²)
10mm Fermacell on 10mm Fermacell	18 – 19	150	32	30	150	26
12.5mm Fermacell on 12.5 or 15mm Fermacell	21 – 22	150	32	30	150	26
15mm Fermacell on 15mm Fermacell	25 – 28	150	32	30	150	26
18mm Fermacell on 18mm Fermacell	31 – 34	150	32	40	150	26
BOARD THICKNESS	Staples (galvanised and resinated) Gauge ≥ 1.5mm, Head Width ≥ 10mm			Fermacell screws Gauge = 3.9mm		
Fixing Fermacell to Ceilings	Length (mm)	Spacing (mm)	Use (no./m²)	Length (mm)	Spacing (mm)	Use (no./m²)
Metal – single-layer						
10mm	–	–	–	30	200	22
12.5mm	–	–	–	30	200	19
15mm	–	–	–	30	200	16
Metal – double-layer / 2nd layer into the sub-structure						
1st Layer: 10mm	–	–	–	30	300	16
2nd Layer: 10mm	–	–	–	40	200	22
1st Layer: 12.5mm	–	–	–	30	300	14
2nd Layer: 12.5mm	–	–	–	40	200	19
1st Layer: 15mm	–	–	–	30	300	12
2nd Layer: 12.5mm or 15mm	–	–	–	40	200	16
Timber – single layer						
10mm	≥30	150	30	30	200	22
12.5mm	≥35	150	25	30	200	19
15mm	≥44	150	20	40	200	16
Timber – double-layer / 2nd layer into the sub-structure						
1st Layer: 10mm	≥30	300	16	30	300	16
2nd Layer: 10mm	≥44	150	30	40	200	22
1st Layer: 12.5mm	≥35	300	14	30	300	14
2nd Layer: 12.5mm	≥50	150	25	40	200	19
1st Layer: 15mm	≥44	300	12	40	300	12
2nd Layer: 12.5mm or 15mm	≥60	150	22	40	200	16
BOARD TO BOARD FIXING	Diverging Staples. Maximum Row spacing 300mm Gauge ≥ 1.5mm, Head Width ≥ 10mm			Fermacell screws. Gauge = 3.9mm Maximum Row spacing 300mm		
Ceiling zone per m² ceiling surface	Length (mm)	Spacing (mm)	Use (no./m²)	Length (mm)	Spacing (mm)	Use (no./m²)
10mm Fermacell on 10mm Fermacell	18 – 19	120	35	30	150	30
12.5mm Fermacell on 12.5 or 15mm Fermacell	21 – 22	120	35	30	150	30
15mm Fermacell on 15mm Fermacell	25 – 28	120	35	30	150	30

FINISHING

An alternative to skim plaster finish, our simple FST system gives a fast and easy equivalent that is dry in 45 minutes, ready to accept a paint finish.

SURFACE PREPARATION

The surface should be dry and free of stains and dirt. Any damage or indentations must be filled with Fermacell Joint filler and allowed to dry. Before any decoration, the moisture content of the boards must be less than 1.3%. This moisture content will be achieved automatically within 48 hours if the relative humidity of the air is kept below 70%, the air temperature is over 15°C and the boards are stored off the ground in well ventilated conditions.

FERMACELL FST (FINE SURFACE TREATMENT)

FST is a ready-mixed face filler used for smoothing the surface of the boards. A 10 litre tub will cover approximately 40-50m² of wallboard. FST is used where an equivalent of skim-coat smoothness is required. FST can also be used for a feather fill over Tapered edge board joints, prior to the final finish coat as described above.



USE OF FST

Apply straight from the tub using a trowel or a Fermacell FST applicator. Work on 1-2m² at a time and ensure that the surface is fully covered. Then remove the excess FST in a smoothing out motion using a trowel or a FST applicator. Do not scrape off too hard or too much will be removed. The FST will dry within 45 minutes and subsequent layers can be applied as required. If necessary, smooth the surface with 'fine 240 grit' sandpaper, prior to final decoration.

WALLPAPERING

With the exception of vinyl wallpapers, all types of paper can be applied to Fermacell using standard trade pastes, without priming the surface. When using vinyl papers, it is recommended that the board is primed and a suitable paste is used.

CREATING CORNERS

INTERNAL CORNERS

There are a number of ways to construct an internal corner depending on the installers preference.

FERMACELL TO EXISTING SUBSTRATES

Leave a 3-5mm gap between the Fermacell and other building backgrounds, the gap can then be filled with a flexible decorators' filler. The boards then can be over coated with Fermacell Fine Surface Treatment (FST) at the same time as finishing coat is applied to the boards.

FERMACELL TO FERMACELL USING FERMACELL JOINT FILLER

Leave a 5-7mm gap at the junction between the boards, the gap is filled using Fermacell Joint Filler

A paper jointing tape, if desired, can be bedded over the filled gap using an additional coat of Fermacell Joint Filler.

Once the filling material and tape (if used) had dried the corner is then over coated with Fermacell Fine Surface Treatment (FST) at the same time as the rest of the boards.

FERMACELL TO FERMACELL USING A FLEXIBLE FILLER

Leave a 3-5mm gap the gap at the junction between the boards the gap is filled using a flexible filler.

A paper jointing tape, if desired, can be bedded over the filled gap using a coat of Fermacell Joint Filler.

Once the filling material and tape (if used) had dried the corner is then over coated with Fermacell Fine Surface Treatment (FST) at the same time as the rest of the boards.

EXTERNAL CORNERS

Fermacell boards are strong enough to withstand day to day impacts on external corners with out the requirement of additional corner protection.

To create an external corner the boards should be aligned flush and fixed to the stud using Fermacell screws or staples with timber studs and secured with Fermacell Jointstik.

Once the Jointstik is dry it can then be struck off and any deviation dressed with Fermacell Joint Filler. A final coat of Fermacell Fine Surface Treatment is then applied the corner at the same time as the rest of the board.

Alternatively the boards are fixed to the studs leaving a 5-7mm gap, which is then filled with Fermacell Joint Filler. And then finished as above.

The installer may elect to use protection in areas of extreme activity or when they are looking for uniformity of the angle. This can be provided by bedding a steel reinforced paper bead or suitable skim bead to the corner using Fermacell Joint filler and over coating with Fermacell Fine Surface Treatment.

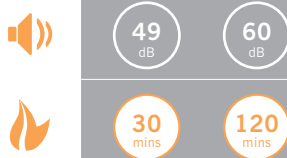
Mvet Areas







MARKET SECTORS

-  Self build
-  New build
-  Factory built
-  Recreation

PERFORMANCE RATINGS



Fermacell PERFORMANCE

-  Impact – Severe duty, able to withstand impact from people as well as objects (door handles etc).
-  Acoustics – Greater acoustic performance often with less layers than plasterboard constructions providing slimmer partitions.
-  Loadbearing – Fermacell gives a category 1 racking strength. Fermacell also provides structural solutions to Euro Code 5.
-  Speed of construction – Due to the unique finishing system (FST) the overall installation of Fermacell is faster and easier.

From shower areas to swimming pools and wet areas water-proofing has always provided a challenge for the developer.

Fermacell has three options for exposure to water and moisture.

FERMACELL GYPSUM FIBREBOARDS

In general domestic applications and where the relative humidity does not exceed 80% or where protection from water is provided by tiles, regular Fermacell Gypsum Fibreboards can be used in partitions and linings.

FERMACELL POWERPANEL H₂O BOARDS AND FLOORING ELEMENTS

For shower and wet areas in commercial and domestic applications, Fermacell Powerpanel H₂O board provides an impervious to water solution. H₂O boards can also be used for semi exposed external applications such as soffits.

FERMACELL GYPSUM FIBREBOARDS WITH FERMACELL WATERPROOFING SYSTEM

The Fermacell Waterproofing system is for surface sealing Fermacell boards against moisture providing an impervious coating. This allows the installer/ developer to utilise the benefits of Fermacell and sealing the boards against water in wet areas (splashback areas) at the same time.

FERMACELL PARTITION WALLS ON STEEL SUBFRAMES

Fermacell's Powerpanel H₂O board at the heart of new Evesham Leisure Centre.

More than 20,000 square metres of Powerpanel H₂O board has been used in three different types of application within a superb new £11m Leisure Centre complex built for Wychavon District Council in Worcestershire.



Evesham Leisure Centre's facilities include a 25 metre swimming pool and a 12 metre studio pool. Both pools partition walls are lined with Fermacell Powerpanel H₂O boards, which provide an ideal base for tiling and other wall finishes. In addition, 12.5mm Fermacell Gypsum Fibreboard has also been utilised as an external backing board for the building's cladding, as well as on many of the interior walls.

The aesthetically pleasing building - designed by project architects Roberts Limbrick - features a dramatic green, copper clad curved entrance and climbing wall enclosure providing a unique, recognisable focus to the 4,500m² Centre, which has been developed to replace an outdated facility developed more than 30 years ago.

FERMACELL PARTITION WALLS ON STEEL SUBFRAMES



FACILITIES

The main entrance to the Centre leads directly to the main foyer space which contains a dramatic climbing wall, reception and a café with views directly into the pool area and up to the fitness suite above. The reception area leads to a multi purpose room providing facilities for dance, exercise classes, soft play and functions. There is also a pool, sports hall and changing facilities on this floor.

A large changing area leads to a 25m x 5-lane level deck Community Pool, a separate 13m x 7m level deck Studio Pool, with movable floor for flexibility of use and the Spa Suite which includes two Pools, a Steam Room and a Sauna. Spectator access to the main pool is provided direct from the café area.

Brian Dukes, Site Manager for main contractors Galliford Try, commented: "We specified the use of Fermacell's H₂O board for this project due to its high water resistance and acoustic performance.

Internally Fermacell Gypsum Fibreboards (with glued joints) were used by the sub contractor for Galliford Try, providing lightweight partitions, achieving all the requirements for fire, acoustics and severe duty rating using a single board rather than using many different combination of boards. This enabled partition walls to be constructed both rapidly and to the required standard providing a very high quality, robust finish throughout the first floor. A high standard of finish to the pool side Powerpanel partitions was achieved with the Powerpanel H₂O ready mixed surface finish.

WET AREAS

COMPONENTS & ACCESSORIES

GENERAL DOMESTIC USE

STANDARD FERMACELL BOARDS

Standard Fermacell Gypsum Fibreboards have a high moisture resistance capability and can perform up to relative humidity up to 80%.

Standard fermacell Gypsum Fibreboards are ready to accept tiles with no need for special primers.

This makes standard Fermacell Gypsum Fibreboards a cost effective and simple solution for domestic bathroom and kitchen walls and ceilings.

For wet rooms and in areas where painted finish will be applied, standard fermacell Gypsum Fibreboards can be waterproofed with fermacell waterproofing solution. Contact our technical department for more details.

PRIMER SEALER



For sealing the Fermacell boards and Powerpanel H₂O

The Fermacell Waterproofing system is:

- Impermeable to water
- Free of solvents and softening agents
- Quick drying time of 2 to 3 hours
- Superior adhesive strength and excellent crack resistance
- Compatible with tile adhesives, solvent free coatings and sealants

FLEXIBLE SEALING TAPES



For watertight corner and joint protection

30/50MM FERMACELL POWERPANEL SCREWS



For fixing Powerpanel H₂O boards to steel or timber studs.

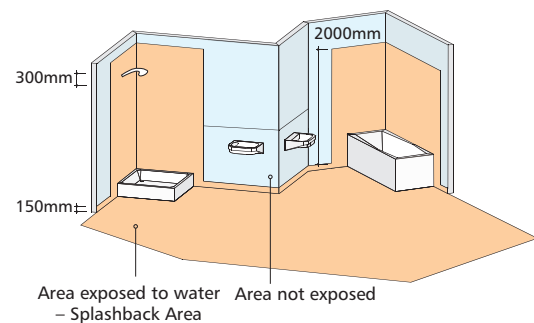
Coverage
20m² walls
22m² ceilings
Pack size
500 (35mm)
500 (50mm)

WATERPROOFING APPLICATION



For waterproofing Fermacell boards in splashback areas, and for sealing internal corners with Powerpanel H₂O

TILING



Partitions

Introduction

Linings

Components & Accessories

Floorings & Ceilings

Detailed Overview

Fire Protection

Timber Frames

Component Details

Rainscreens

Installation Overview

Fix & Finish

Wet Areas

COMMERCIAL, WET AREAS AND EXTERNAL APPLICATIONS

FERMACELL POWERPANEL H₂O BOARDS



Fermacell Powerpanel H₂O is a cement-bonded light concrete construction board with a laminated structure, reinforced on both sides with an alkali-resistant glass fibre mesh (5mm x 5mm), Fermacell Powerpanel H₂O is a non-combustible Class A1 material for internal and external applications.

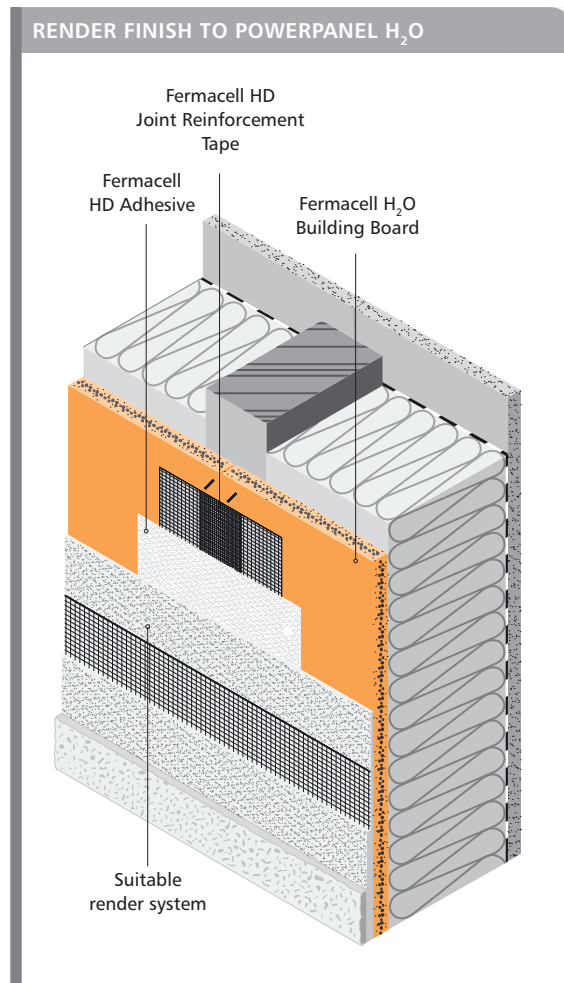
Powerpanel H₂O is a water resistant board for bathrooms, kitchens and wet rooms in domestic and commercial projects.

The properties of Powerpanel H₂O make it suitable for use in swimming pools, in this instance special treatment to the steel profiles is required.

The Fermacell Waterproofing system can be used to further enhance the performance of the Powerpanel H₂O system.

POWERPANEL H₂O FLOORING

Fermacell Powerpanel H₂O flooring is an addition to our flooring range enabling the complete waterproof construction of wet areas including preformed drainage and shower tray outlets.



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Fire Protection

Component Details

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Fix & Finish

Wet Areas

Partitions

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Floorings & Ceilings

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Timber Frames

Rainscreens

WET AREAS

INSTALLATION OVERVIEW

POWERPANEL H₂O INSTALLATION

Partitions

Linings

Floorings
& Ceilings

Fire Protection

Timber Frames

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Installation Overview

CUTTING



Powerpanel H₂O boards can be cut in a similar way to regular Fermacell boards either using a standard rail guided hand held circular saw with a tungsten tipped blade or cut by hand saw.

BOARDING



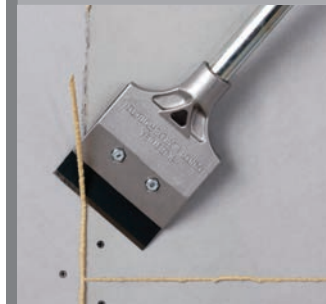
Install insulation (if required) making sure that there is a cavity between the insulation and one face of the Powerpanel H₂O boards. Cut the boards 10mm less than the room height and install tight to the ceiling line.

FIXING



Screw fix the boards using Fermacell H₂O screws at ≤ 250 mm centres or staple at ≤ 200 mm centres.

JOINTING



Apply Fermacell Jointstik to the edge of the board and position the next board once the Jointstik has dried (approx 8 hours) remove the excess with a scraping knife.

FINISHING



Where the Powerpanel H₂O boards are not being tiled the whole surface can be finished with Fermacell Powerpanel H₂O. Surface Finish which is available ready mixed. The joints can be further reinforced with a self adhesive fibre tape.

Prior to tiling in permanently wet areas Powerpanel H₂O boards must be sealed with Fermacell Primer and taped at internal corners with Flexible Sealing Tape.

For Powerpanel H₂O Movement Joints must be placed at maximum 8m intervals

Do not Tile over Powerpanel Surface Finish. Tiles must be fixed directly to Powerpanel H₂O Boards.

Absorption

The use of a porous material to convert sound energy into heat.

Absorption Material

Sound energy absorbing material.

Airborne Sound

Noise sources such as speech and television transmitted through the air.

Airborne Sound Insulation

Sound insulation that reduces the transmission of airborne sound.

Angle Bead

Metal or plastic angle used to reinforce external corners.

Board Knife

Fermacell knife for scoring and snapping Fermacell boards.

Bonding Agent

Liquid preparation applied to walls or ceilings prior to finishing.

Bonding Compound

A gypsum based compound which provides an adhesive for Fermacell boards.

Bonded Levelling Compound

Cement levelling compound for levelling uneven floors.

Caulk

Flexible sealing material.

Composite Resilient Batten

A timber batten with a pre-bonded resilient material isolating the flooring surface layers and floor base.

Control joint

A joint that caters for lateral expansion or contraction allowing relatively small movements without damage to the internal surface.

Ctr

Spectrum adaptation term (no. 2) from BS EN ISO 717-1: 1997 taking account of a specific sound spectrum, predominately low frequency based, representing 'A' weighted urban noise.

Cut End

End of a Fermacell board.

Decibel (dB)

A unit of magnitude for sound pressure, sound intensity, sound power and sound insulation through the measurement of sound reduction brought about by the insulation.

Deflection Head

A feature that ensures integrity at the head of a partition allowing floor slab or beam deflection.

Density (kg/m³)

Mass per unit volume expressed in kilograms per cubic metre.

DIN standard metal

Metal stud ceiling channel or Lining framework at least .6mm gauge thick metal with a 50mm fixing face.

Direct Transmission

Sound transmitted only through the main separating element involving no other flanking element.

Dry Lining

The use of plasterboard or Gypsum Fibreboard rather than solid plaster to create a wall or ceiling lining.

Dry Levelling Compound

For levelling uneven floors.

Dwang

See nogging.

Edge Profile

Square or tapered edge of Fermacell board.

Expansion Joints

A permanent joint between different parts of a structure allowing small movement without damage to the surface.

Field of Board

The surface of the Fermacell board.

Fine Surface Treatment (FST)

A Dolomite marble latex emulsion for finishing Fermacell boards, applied to the whole surface.

Flanking Sound

The structure-borne transmission of sound between adjacent rooms or spaces that by pass the obvious barriers.

Flexible Sealing Tape

Corner and joint protection for the Fermacell waterproofing system.

Flooring Element

Fermacell dry flooring element for screeding, levelling and insulating floors.

Floor Glue

Adhesive for bonding Fermacell flooring elements.

Floating Floor

Fermacell flooring system with a resilient layer to provide acoustic isolation.

Furring

Metal channels to even the surface and provide a true surface for the fixing of Fermacell boards.

Glass Mineral Wool

Glassed based product for improved thermal or acoustic insulation.

Gypsum

Calcium sulphate dihydrate (CaSO₄.2H₂O).

Honeycomb Sheets

Retaining sheet for Fermacell Honeycomb infill.

Honeycomb Infill

Mass providing infill for Honeycomb sheets.

H₂O & HD Boards

Cement bonded board for moisture affected areas.

H₂O Surface Finish

For finishing H₂O boards.

Impact Sound

The impact directly onto a structure of short duration sound such as foot steps or slamming doors.

Independent Wall Lining

A lining erected independently of the external walling.

Internal Wall

Wall or partition dividing dwelling space into different functions but not separation between dwellings.

Joint Tape

Tape within the bedding compound to reinforce a joint.

Jointstik

Adhesive for bonding the edges of square edged Fermacell boards.

Jointing

The use of joint filler to tapered edge Fermacell, or Jointstik to achieve a flush seamless surface on walls and ceilings.

Masonry Partition

A brick or block partition.

Mass Per Unit Area

Mass per unit area, or surface density, is expressed in kilograms per square metre (kg/m²).

Metal Stud Partition (DIN standard)

A stud and sheet partition comprising a metal stud with channel framework lined both sides with sheet materials such as Fermacell. Metal studs to be at least .6mm gauge thick metal with a 50mm fixing face.

Metal Stud Party Wall

A metal stud partition that separates multi occupancy dwellings.

Mineral Wool

Rock based mineral material manufactured in a quilt or batt form.

Nogging

Cross member between main members of a framed construction.

Noise

Unwanted sound leading to distraction and disturbance, interference with speech and stress or damage to hearing.

Nominal Density

The density in the robust detail with a tolerance of up to -0.3kg/m² per layer.

Partition

A non-loadbearing vertical construction dividing space.

Perimeter Strip

Fibre mineral strip to reduce flanking transmission between Fermacell flooring elements and walls.

Primer Sealer

For priming and sealing Fermacell boards prior to Fermacell waterproofing system.

Reverberation

Presence of sound in an enclosure through its continual reflection or scattering from surfaces or objects after the sound source has ceased.

RW

A (weighted) single-number quantity characterising airborne sound insulation of a building element derived from laboratory measurements (excluding flanking elements). BS EN ISO 717-1:1997 applies.

RW + CTR

Weighted airborne sound insulation of a building using spectrum adaptation term (No 2) from BS EN ISO 717-1: 1997 representing "A" weighted urban noise.

Robust Detail

Following a minimum of 30 field tests resulting in a recorded mean performance 5dB better than the sound insulation requirements as described in Approved Document E for new build separating walls and floors, a robust detail for Part E of the Building Regulations is given the status RD.

Shrinkage

Caused by the evaporation of water from Joint Filler.

Self-drilling, Self-tapping

Shank and point design of metal screws that give penetration and grip into light gauge metal section.

Self Levelling Compound

For levelling uneven floors.

Separating Floor

A floor that separates adjoining dwellings.

Separating Wall

A wall that separates adjoining dwellings.

Shaftwall

Partitions or linings that form fire protective enclosures to lift shafts and service cores.

Sheathing Board

Sheath material fixed to external wall frameworks to assist with weather protection and to a degree of racking resistance.

Skin

A single thickness of panelling or cladding or one leaf of a cavity wall.

Soffit

Any semi exposed under surface.

Sound Absorption

The loss of sound when striking or transmitting into a boundary surface material or obstacle, or when a volume of air resonates.

Sound Leakage

Airborne sound transmission via gaps or cracks that allows sound to escape from one area to another so lowering potential sound reduction properties.

Spatular

Blade to apply Fine Surface Treatment.

Square Edge Boards

Fermacell boards with a square edge profile.

Standard Level Different

The different in sound level for a stated frequency between source and receiving rooms corrected for the reverberation time in the receiving room. Expressed in Dnt. BS EN ISO 140-4: 1998 applies.

Stud

Vertical member in a framed wall or partition.

Suspended Ceilings

Ceilings formed of boards or tiles attached to a grid below the structural soffits joists or trusses.

Tapered Edge

Fermacell board with edges for jointing using Joint Filler and tape available two sided and four sided.

Timber Stud Partition

Partitions comprising timber frames lined with Fermacell.

Trickle Protection Sheet

For use under Fermacell flooring systems.

Vapour Control Layer

A membrane that substantially reduces the transfer of water vapour through a building element in which it is incorporated.

Waterproofing Application

For sealing Fermacell boards in wet areas.

Weighted Standardised Level Difference (1)

A single number weighted quantity characterising the airborne sound insulation between two rooms. Expressed in Dntw. BS EN ISO 717-1: 1997 applies.

Weighted Standardised Level Difference (2)

The airborne sound insulation characteristics between two rooms using spectrum adaptation term (2) from BS EN ISO 717-1: 1997 representing 'A' urban noise.

Working Time

The amount of time during which Joint filler is workable.

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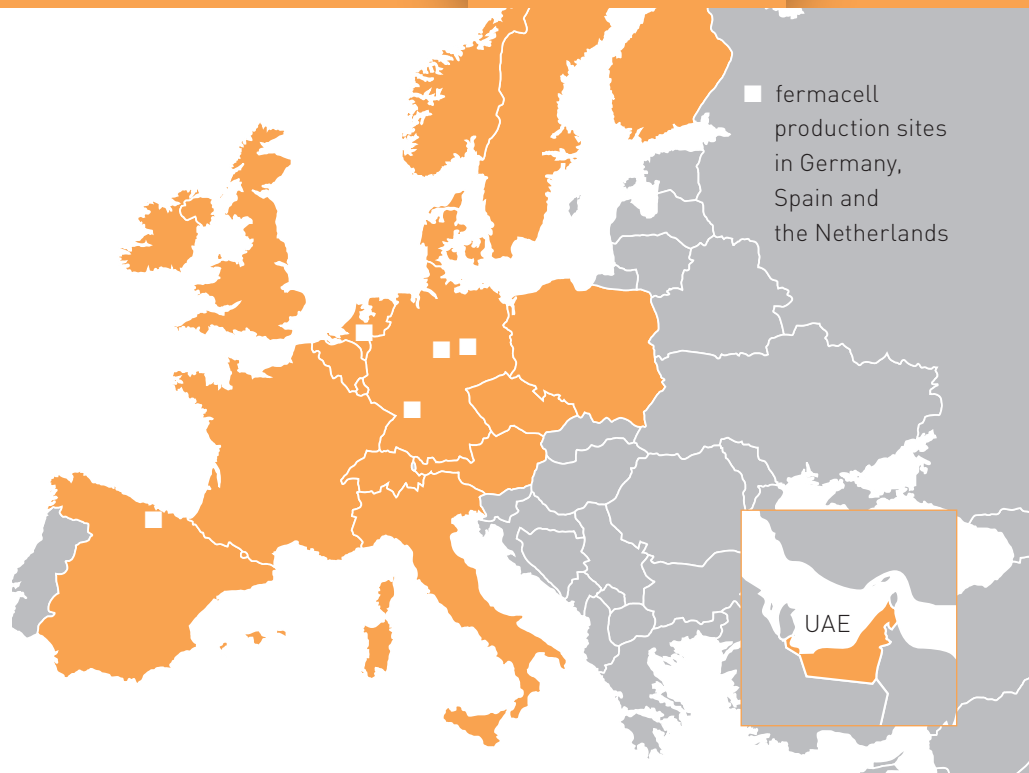
www.fermacell.co.uk

fermacell[®]

A European business

The fermacell product range is today manufactured in 5 factories across Germany, the Netherlands and Spain.

With sales operations across Europe and one in the Middle East, fermacell products are used in construction projects from Aberdeen to Sicily and from Madrid to Warsaw. UK and international case studies demonstrate that construction industry professionals across Europe understand and value fermacell as the "ultimate building board".



Orejo Factory, Spain



Calbe Factory, Germany



Wijchen Factory, the Netherlands