fermacell
Handy guide

The installation guide for
fermacell walls, floors and ceilings


Education


Healthcare


Sport and Concert Stadiums


Sports Halls


Leisure Facilities


Residential


Flooring

Environmentally Certified
Manufactured from recycled materials.

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

Fire Resistant
60 mins fire resistance from single layer partitions up to10 m high. Class '0' certification. European class A2.

Moisture Resistant
Suitable for humid areas. May be installed before building envelope complete. See relevant datasheet for this application.

Impact Resistant
Reduces double layering or the use of sheathing ply.

Sound Insulating
Simple party wall constructions.

Unique Jointing System
Glued square edge boards produce continuous membrane.

Rigid Structure
Category 1 racking resistance provided by 12.5 mm fermacell.

Rapid Finishing
FST (Fine Surface Treatment) eliminates plastering trades prior to painting.

Table of contents

Board Properties

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.

Quality Control
The quality control information and production data is printed on the back of the fermacell building board.

The quality characteristics of all fermacell products are continually monitored in our DIN ISO 9001 certified production facilities through self-monitoring and they undergo constant quality controls with our official external materials testing institutes.

Performance Behaviour

Acoustic Resistance
Independent testing by various institutes confirms the excellent acoustic properties of **fermacell** Gypsum Fibreboard.

Approved wall constructions with **fermacell** Gypsum Fibreboards reach high Airborne sound insulation and impact sound reduction values.

Fire Protection
fermacell Gypsum Fibreboards are approved to ETA-03/0050 as non-combustible, class A2-s1 d0.

Impact Resistance
All fermacell systems achieve a severe duty rating and have been tested to BS5234-2.

Moisture Resistance
fermacell Gypsum Fibreboard is moisture resistant and can be used in semi exposed applications. fermacell also offers a good degree of mould resistance.

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Handling

Please note that special handling and storage equipment is required for non standard large format boards as they are not delivered on pallets.

- Boards should be carried on edge
- Boards are heavy
- Take care when lifting
- For ceiling use, we recommend the use of mechanical board lifters
- For full size boards we recommend the use of board lifters/clamps.

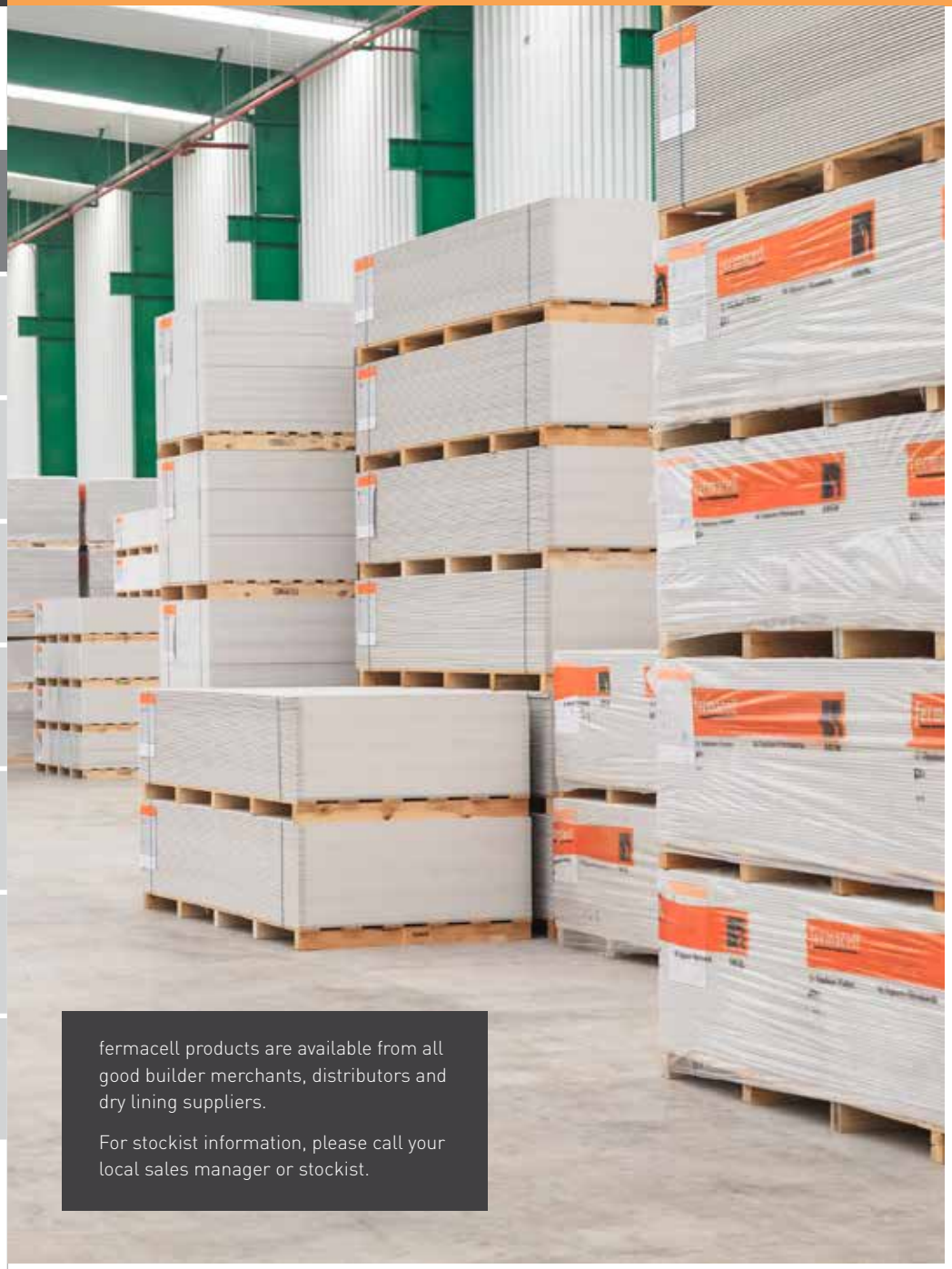
Health and safety

- Ensure good ventilation when cutting fermacell
- Use dust extractors where possible to minimise airborne dust when cutting with power tools
- Appropriate personal protective equipment should be worn e.g. gloves, eye protection
- Avoid contact of the dry products with the skin.

Storage

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.

For Health and Safety Datasheets, please visit the "download" section on www.fermacell.co.uk



fermacell products are available from all good builder merchants, distributors and dry lining suppliers.

For stockist information, please call your local sales manager or stockist.

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Cutting

Once the timber or metal framework is in place, the fermacell boards can be scored or snapped using a **fermacell** knife or cut using a circular saw or jigsaw. When using a circular saw, use vacuum attachments, select a blade with fewer teeth (a maximum of 16 is advisable) and reduce the cutting speed.

Scoring and snapping
Score using a **fermacell** knife along a straight edge. Then break off the scored section as shown in figure 2.

Scored and snapped edge can be smoothed off using a surform or a pane, as required.

Hand or electric saw boards
Boards can also be cut using a hand or electric saw (blades should be tempered or tungsten carbide steel).

When using electrical cutting tools, we recommend using a vacuum attachment to collect dust. Wear appropriate PPE.

Saw blades should have fewer teeth and a slower saw speed.


Figure 1.


Figure 2.


Figure 3.

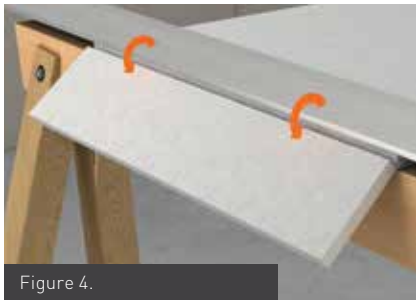


Figure 4.

Joining square edge boards for glued butt joints

fermacell Gypsum Fibreboards must be dry when installed. Only **fermacell** greenline Jointstik or **fermacell** Jointstik can be used for glue jointing.

When forming the adhesive joint, care must be taken to ensure that the board edges are dust-free and the adhesive is applied to the middle of the board edge and not the stud frame. Factory-cut board edges are recommended for adhesive joints. fermacell board cuts on site should be cut with a circular saw with a guide to give an absolutely straight edge.

The first fermacell board is fixed to the substructure. The **fermacell** Jointstik is then applied to the board edge with the fermacell nozzle. The second fermacell board is then pressed firmly against the first board.

It is important that the adhesive completely fills the joint (i.e. the adhesive is visible at the joint) when the two board edges are pushed together. The maximum width of the joint must not exceed 1 mm. To prevent faults in the adhesive film during the subsequent installation and hardening, the joint should not be compressed to zero.

Depending on the room temperature and humidity, the adhesive will be set after approx. 18 to 36 hours and the excess adhesive is then scraped off. This can be done with, for example, the **fermacell** Glue scraper, a paint scraper or a wide chisel. The joint area and the fixing heads are then finished with **fermacell** Joint Filler or **fermacell** Fine Surface Treatment.

Figure 5. Guide the 310 ml cartridge along the edge of the board. The special nozzle releases the exact amount of adhesive for 10 and 12.5 mm thick boards. The nozzle must be cut for 15 and 18 mm thick boards.

Filled Joints or off-cuts

In order to achieve a proper, stable joint connection for the joints of square-edged, cut or broken board edges, **fermacell** Gypsum Fibreboards must be filled with **fermacell** Joint Filler.

Regardless of whether the **fermacell** Gypsum Fibreboards are screwed or stapled to the substructure, the joints must have adequate gaps.

These depend on the board thickness:

- 5- 8 mm for 10 mm
- 6-9 mm for 12.5 mm
- 7-10 mm for 15 and 18 mm

Joint tapered edge boards with fermacell Joint Filler

Filling

Filling is carried out with an initial first fill and then a fine fill. The first fill should be completely dry before any fine filling/finishing takes place. **fermacell** Joint Filler should be pressed into the joints to the full depth of the boards.

In order to ensure adhesion to both board edges, the filler is pressed against the board edge and scraped to the opposite edge (herringbone pattern). The countersunk heads of the fixings and any damage is also filled at the same time.

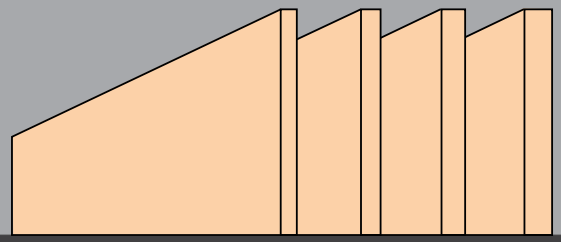
Any unevenness can be sanded down once the first fill has dried (mesh or sand paper, min. 60 grain/grit). Once the sanded dust has been swept away, fine finishing can take place.

Figure 6. Clean containers, clean tools, clean water

Figure 7. Add **fermacell** joint Filler to water

Figure 8. Fill joints and fixing heads

fermacell board dimensions in standard sizes

Thickness	10 mm	12.5 mm	15 mm	18 mm
Weight per m²	**11.5 kg**	**15 kg**	**18 kg**	**21 kg**
				
Square edge boards				
1500 x 1000 mm	●			●
1200 x 1200 mm		●		
2400 x 1200 mm	●	●	●	●
2700 x 1200 mm		●	●	
3000 x 1200 mm		●	●	
Tapered edge boards				
1200 x 800 mm (4 s.)		●		
2400 x 1200 mm (4 s.)	●	●	●	
2400 x 1200 mm (2 s.)	●	●	●	
Special cut sizes on request				

fermacell
Fine Surface Treatment (FST)

fermacell
greenline Joinstik

fermacell
Joint Filler

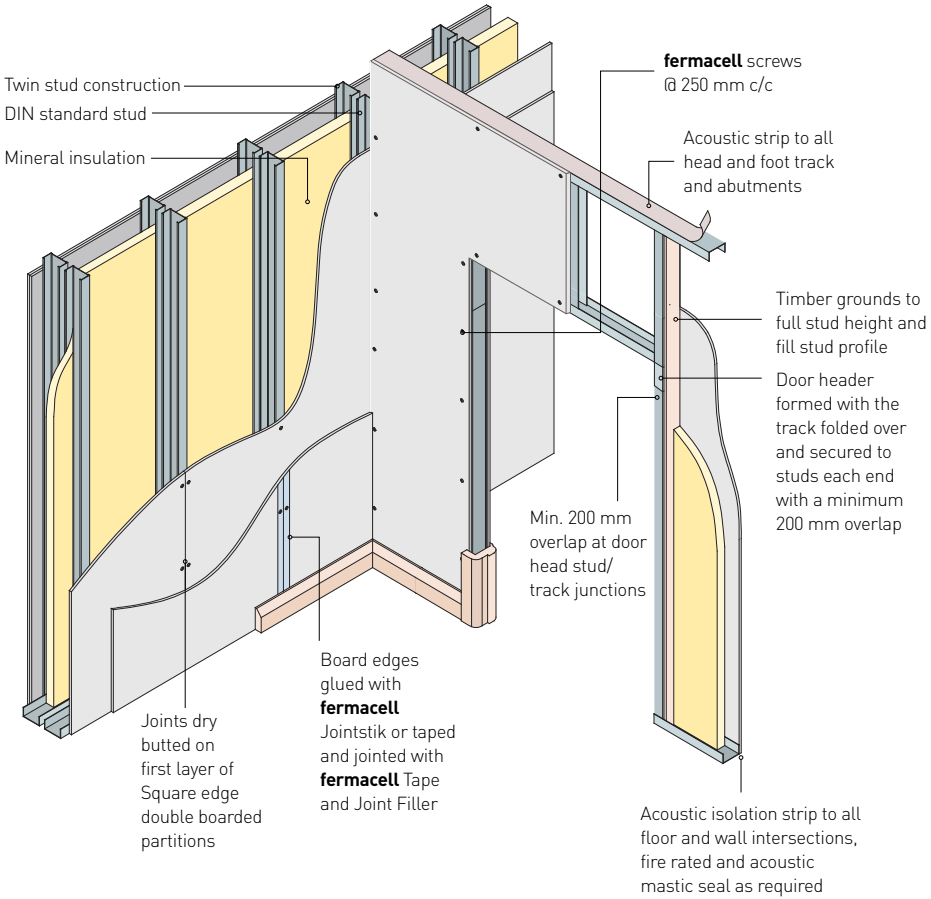
Do you have your accessories?

	Part Number	EAN 40 0 7548 ...	Size	Usage
Joint Filler – For bedding tapes on tapered edge boards, filling 5-7 gap between boards and stopping screwheads				
	79001	... 00153 3	5 kg bag. 144 bags / pallet	5 m² per kg - filling tapered edges 10 m² per kg - finishing glue joints
	79003	... 00544 9	20 kg bag. 48 bags / pallet	5 m² per kg - filling tapered edges 10 m² per kg - finishing glue joints
Fine Surface Treatment – For giving standard fermacell boards a skim type finish				
	79007	... 00593 7	3 ltr tub / 3.6 kg	4-5 m² per litre
	79002	... 00215 8	10 ltr tub / 12 kg 44 tubs / pallet	4-5 m² per litre
Spatula 250mm – For applying Fine Surface Treatment				
	79030	... 00216 5	0.25 kg	–
greenline Jointstik – Quicker and more simple than traditional dry lining methods of jointing / A stronger joint without the need for further reinforcement / Tested by the ECO Institute				
	79224	... 01438 1	310 ml / 25 per carton	approx. 20 ml / linear meter joint

	Part Number	EAN 40 0 7548 ...	Screw size mm	Box qty	Usage
3.9 x 30 / 40 / 55 / 45 / 63mm Screws – For fixing standard fermacell boards to timber or DIN standard metal frame systems					
	79021	... 00166 3	3.9 x 30 mm	250 - 0.65 kg	13 screws per m² for walls (for each side) 30 screws per m² for ceilings
	79011	... 00160 1	3.9 x 30 mm	1000 - 2.1 kg	13 screws per m² for walls (for each side) 30 screws per m² for ceilings
	79047	... 01402 1	3.9 x 40 mm	1000 - 2.6 kg	13 screws per m² for walls (for each side) 30 screws per m² for ceilings
	79053	... 01401 4	3.9 x 55 mm	1000 - 3.4 kg	13 screws per m² for walls (for each side) 30 screws per m² for ceilings
	79221	... 01401 4	3.9 x 45 mm	7500 - 26 kg	13 screws per m² for walls (for each side) 30 screws per m² for ceilings
	79220	... 01402 1	3.9 x 63 mm	4500 - 26 kg	13 screws per m² for walls (for each side) 30 screws per m² for ceilings

Metal stud construction

fermacell is installed on DIN standard metal stud sections – minimum 0.6 gauge steel with a 50 mm fixing face, as well as timber stud partitions in the traditional manner.



Installation overview

Figure 9.

Figure 10.

Figure 11.

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

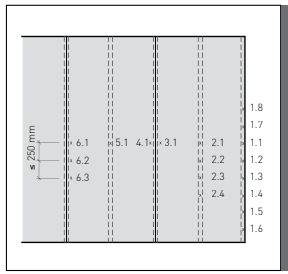
Fix the base track to the floor at 600 mm centres using suitable fixings. Isolating strips must be used to ensure the correct acoustic performance.

Once the bottom track is fixed, plumb the top track in to position and fix with proprietary fixings typically 40 mm. Fix end studs ensuring adequate acoustic isolation to the substrate at 600 mm centres.

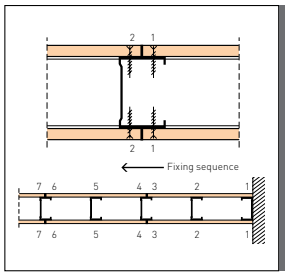
The intermediate studs should be cut no more than 10 mm shorter than the floor to ceiling height and not mechanically fixed. They should be installed facing the same direction. Door opening studs should be marked out either side of the door opening and fixed.

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 10 mm less than the room height and install leaving a minimum 5 mm gap at the top and bottom of the board. Allow a 3–5 mm expansion gap between the partition and other substrates at either end.

Screw fix the boards as per the fixing sequence (7 & 8) at 250 maximum centres using **fermacell** Screws. The vertical joints can be "mirrored" through the partition when using **fermacell** Jointstik. When using metal stud do not fix the boards to the top and bottom tracks.



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



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

Doors & windows

For door or window openings which are not ceiling height, fermacell boards should be cut so joints never lie on the same vertical studs (timber or steel) as diagram below.

The joint between the boards around the opening should always be placed above the head of the door.

This joint should be at least 200 mm from the edge of the frame.

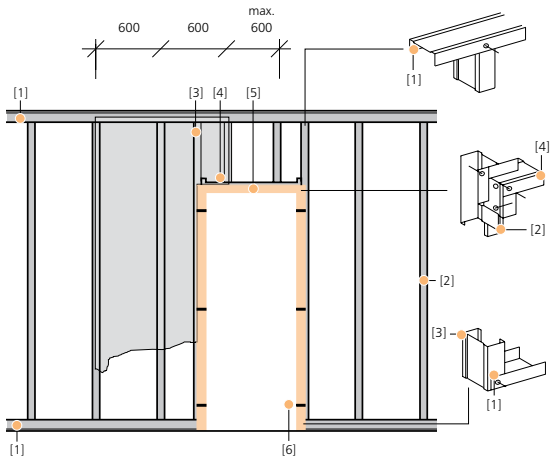
Horizontal joints between boards should be avoided around door and window frame corners.
If a horizontal joint cannot be avoided, the boards must be jointed using the **fermacell** Jointstik method. (See Fixing & Jointing section on page 59 and the Fixing Sequence on pages 72–73).

Joints in fermacell boards above a door or window head should not be on the same stud.

Additional door reinforcement kits for reinforcement may be necessary depending on door weights, or other factors.

Please refer to the door manufacturer for door weights and loading in all instances.

Timber grounds must extend to the full height of the partition around door frames.



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) Door Head profile
(5) Frames
(6) Fixing strap

Sealants

To fulfil fire protection and sound insulation requirements, junctions should be finished using the appropriate materials, e.g. neoprene/felt strips.

Mineral wool isolation strips or similar should be incorporated in the connection.

Fire resistant sealants should be used for partitions where specific elements of fire protection are required.

When sealants are used, they should be suitable for use with gypsum based boards, and the fermacell Board should be primed before the sealant is applied as per manufacturers guidelines.

Please refer to mastic/ sealant manufacturer for installation details.

Electrical & other services

In acoustically sensitive partitions (and ceilings) such as party walls or floor/ceiling constructions, service penetrations should be avoided where possible

- In some areas (kitchens or high acoustic partitions) this may be difficult and the use of a sacrificial lining should be considered.
- Please refer to the guidelines in building regulations part E for socket penetrations.
- Timber battens or metal furrings are fitted to the original fermacell wall and services laid in the new cavity.

Once complete the cavity is closed with a final layer of board.

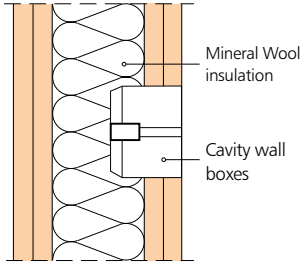
Pattressing and fire protection details should be installed as required.

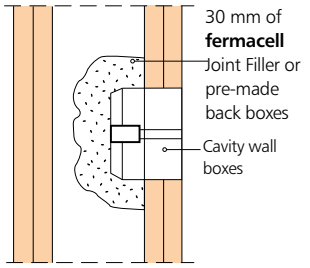
Do not put sockets directly opposite each other in a partition.

Avoid more than one socket per stud spacing.

The diagrams show options for acoustic and fire protection to sockets. Mineral wool should extend 100 mm each side of the socket.

Pre-made back boxes or putty pads are commercially available.





Installing stone wool insulation

Stone wool insulation can be installed in fermacell partitions.

The thickness and density of the insulation will depend on sound insulation and fire protection requirements. Refer to our Orange Book for more details.

Typical constructions showing the fire performance and sound insulation values details are available from www.fermacell.co.uk.

Insulation should be a sufficiently tight fit between the studs to prevent the material slipping or slumping. Ensure there is no connection between faces of the boards.

Ensure that there are no gaps or holes within the insulating material as this reduces the sound insulation and fire protection, as well as the thermal performance.

Double layers of insulation should be fitted staggered.

Fixing fermacell to the subframe

On single steel stud partitions fermacell Boards are fixed symmetrically on the vertical studs i.e. the boards are mounted on the same studs on either side of the partition (mirrored).

When installing on timber studwork, boards must be fixed to both vertical studs and horizontal head and floor plates, however the joints do not need to be mirrored.

Ideally the length of the boards should correspond to the height of the room, minus 10 mm for the junction at the top and bottom of the boards to the floor and ceiling.

Fire or acoustic mastic should be used where required to seal off the partition where fermacell meets other backgrounds.

Where curved partitions are being installed, use standard size boards laid horizontally.

Stud centres should be reduced to reduce faceting of the curve. We recommend using 10 mm boards as they are more flexible.

fermacell can be dry bent to a radius of 4 m.

When fixing fermacell to steel subframes, the boards must only be fixed to the vertical C studs.

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Timber studs

The sole and head plate must be fixed to the floor and ceiling in the positions already marked (use isolation strips as required).

The two end vertical studs can now be fixed in position (use isolation strips as required).

The maximum distance between fixings should be 700 mm horizontally and 1000 mm vertically.

The distance between fixings must be reduced when connecting to uneven surfaces. Ideally the surface should be made good prior to frame fixing.

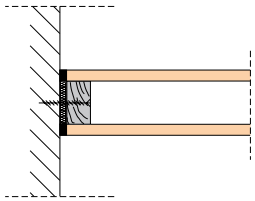
If the partition is a double stud system, two separate parallel subframes are installed in the same way as a single stud system, with a small gap (minimum 10 mm) separating the frames.

The vertical studs are fitted to the head and sole plates at the appropriate centres.

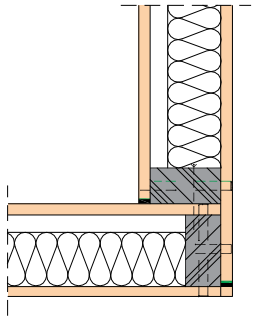
Horizontal studs (noggings or dwangs) are not required when using the Jointstik method of jointing (square edge) boards, but should be used when installing any joint using a 5-7 mm gap joint method.

Fixing centres and details are given in the tables on pages 74–75.

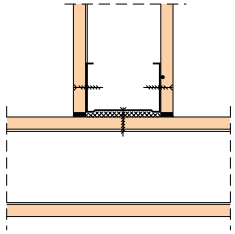
When using the 5-7 mm gap method of jointing square edge boards the gap should be taken into account when setting out the studs.



Internal junction between fermacell partition and other building elements.



External junction on timber stud work.



Internal junction between two fermacell partitions.

Fixing sequence

Square edge boards are mounted in sequence and if using the glue method each board is jointed as it is installed.

Once boards have been fixed they cannot be jointed afterwards using **fermacell** Jointstik adhesive.

If boards have been installed incorrectly without Jointstik adhesive they can be removed immediately as page 67 and refitted.

Tapered edge boards are dry butt-jointed and filled using **fermacell** Joint Filler and **fermacell** Joint Tape.

When fixing boards in a double height partition, cross joints must be avoided by installing boards as shown in Diagram A & Diagram C on pages 19, 72–73.

When fixing boards, work the fixings from one side of the board to the other or from the centre outwards.

Don't fix the four corners first as this can overstress the board.

Ensure that there is a gap at junctions with other adjoining surfaces (normally 5 mm).

This is filled later with a flexible sealant. Turn to pages 58–59.

All joints should be staggered by at least 200 mm, both horizontally and vertically.

This applies to both layers of a double layer partition system. See Diagram B on page 19.

Stud spacing for partition walls

Stud Spacing*	Stud spacing for board thickness		
Maximum stud spacing 50 x board thickness (maximum)	10 mm	12.5 mm	15 mm
	400 mm	600 mm	750 mm

Maximum allowable stud spacing equal to 50 x board thickness.

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.

When using **fermacell** square edge one-man boards (1500 mm x 1000 mm), you should alternate the orientation of the boards as shown in Diagram B. This sequence prevents cross joints. A similar system for using 1200 mm x 1200 mm taper edge boards (Tapered on 4 sides) is shown in Diagram C.

All joints should be staggered by a minimum of 200 mm Diagram D.

Typically at the interface with other materials isolating strips 50 mm to 75 mm wide installed, these should be sized to suit the wall thickness. These can be either purchased as a roll. These strips are placed between the head and floor track and the end studs, and adjoining surfaces to prevent flanking sound transmission. The materials used must be suitable for the performance of the partition in regard to fire and acoustics.

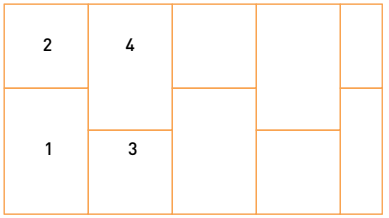


Diagram A

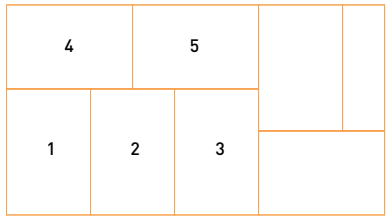


Diagram B

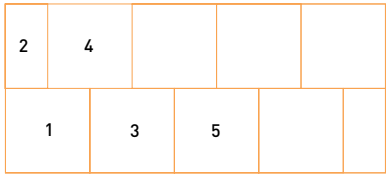


Diagram C

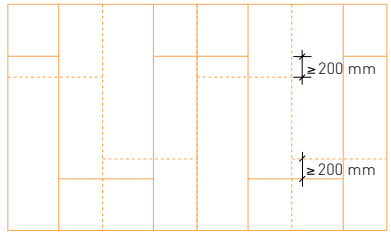


Diagram D

Adding a second layer of fermacell

Second and subsequent layers of fermacell can be added to the first layer by direct fixing to the boards themselves.

The joints in the second layer should be staggered from the first layer by at least 200 mm in both directions.

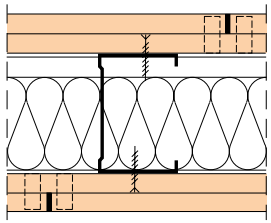
Where two layers are to be fixed, the first layer can be tightly dry-butted. Any gaps must be filled.

Where tapered edge boards are being used, the joint area of the lower layer must be filled to maintain fire and acoustic integrity.

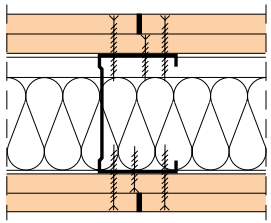
When fixing fermacell to itself, use either 30 mm **fermacell** screws or galvanised diverging staples, (see table on pages 74–75).

Where a second layer of fermacell is to be fixed directly to the subframe, joints should be staggered by the spacing of one stud and for the second layer. 40 / 50 mm **fermacell** screws should be used or staples on timber frames (see table on pages 74–75).

The fixing centres for fixing the second layer are the same as for a single layer application.



Second layer of fermacell fixed to itself.



Second layer of fermacell fixed to subframe.

Resilient bars or counter battening for increased acoustic performance

Before mounting boards, fix resilient bars at right angles to the subframe (vertical studs or floor joists) at the appropriate centres (see table on page 18).

With timber counterbattens use at least a 50 mm x 25 mm finished size wooden lath.

Before installing the battens, stone wool insulation or an isolation material may be sandwiched between the subframe and the battens to provide an isolation layer.

Subsequent layers of **fermacell** may be fixed direct to the first layer, dependant on partition performance.

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Junctions

Right angled partitions can be started at any point along a fermacell wall by fixing the end vertical stud (metal or timber with fixings at 600 mm centres) directly to the fermacell board. An isolation material is required to the back of the abutting stud on acoustic partitions.

fermacell Joint Filler should be used to finish the joints between boards, because it can be difficult to remove excess Jointstik adhesive from an internal corner. Alternatively a flexible sealant can be used.

When fermacell partitions are connected to different building materials, the materials should always be separated by a 3–5 mm gap and a flexible sealant used because of their different expansion and contraction rates.

Where any building movement is expected, the internal junctions may be jointed with a flexible sealant capable of absorbing variations of up to 20% of the joint width.

If fire performance is required, a fire rated sealant must be used.

An external angle bead is not required and any damage to the edge of the boards can be touched up with **fermacell** Joint Filler before painting or other decoration. A metal reinforced flexible paper tape can be fitted using **fermacell** Joint Filler, then finished with **fermacell** Fine Surface Treatment.

Steel profiles to be min 0.6 gauge and to have a 50 mm fixing face.

Corner & T-junctions with steel profiles

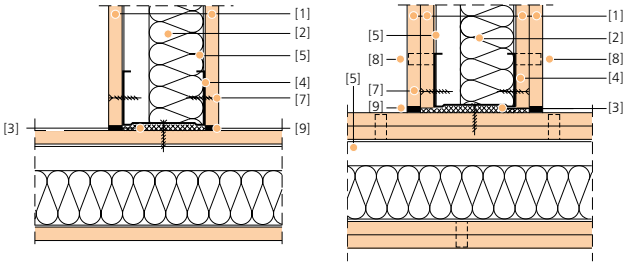
For partitions with enhanced sound performance requirements, the fermacell boarding of the flanking partition should not be continuous i.e. a break in the boards.

fermacell boards are then fastened at the corner or T-junction using inner and/ or outer corner profiles.

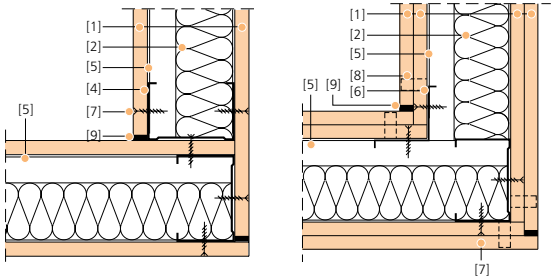
The corner joints of the fermacell boards should be formed using either the glue or the 5 to 7 mm joint filler method as described in 'Fixing and Jointing' on pages 58–59.

The corner and T-junctions of single or double-layer boarded fermacell walls on a timber substructure should be constructed

T-junctions with single or double-layer boarding, with steel C stud fixed to fermacell board.

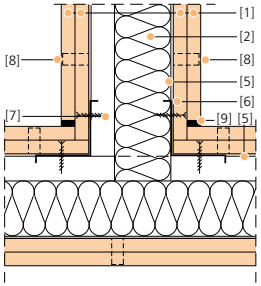


Corner connections with single or double-layer boarding.



When constructing fermacell corner and 'T' junctions, use the steel profiles and construction details as shown here.

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



(1) fermacell Boards 12.5 or 10 mm
(2) Insulating material
(3) Edge insulating strips
(4) Steel Stud profile
(5) Steel Header or footer track
(6) Inner corner profile
(7) **fermacell** Screws 3.9 x 30
(8) Staples for fixing fermacell
(9) **fermacell** Joint Filler or Jointstik.

Deflection heads

Deflection Heads should be incorporated if any deflection of the structural ceiling is expected after the installation of the partitions.

Where a fire rated Deflection Head is required, the joint may be constructed using fermacell strips which are cut to fit the width of the adjoining U channel.

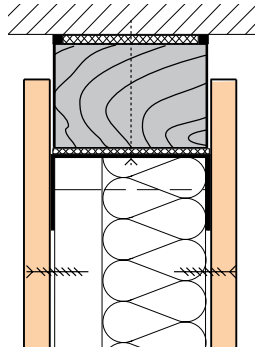
The total thickness of the combined layers of **fermacell** strips should be enough to cater for any deflection from the structure plus the required overlapping from the fermacell boards – refer to our Technical Department for guidance.

Alternatively, a 50 mm deep timber ground may be used.

For a 30 minute fire rated partition, the timber ground should be 50 mm wide, and for an 60 minute fire rated partition min 70 mm wide.

The same principle applies to vertical and horizontal loadings on the building structure.

For more information please refer to the latest version of our Orange Book.



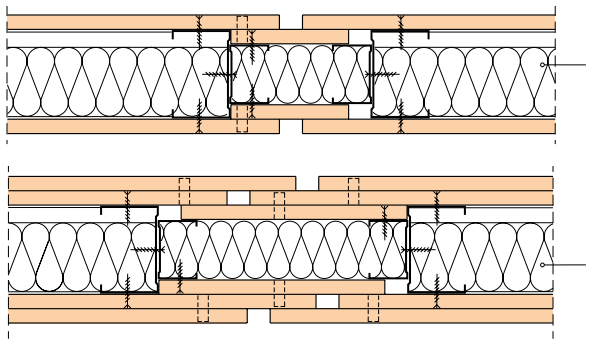
Fire rated deflection head detail.

Expansion/Movement joints

Expansion joints are needed in fermacell partitions where there are expansion joints in the building structure.

Movement joints in fermacell partitions should be used as these can be subject to changes in length owing to differing climatic conditions.

We recommend a maximum spacing of 8 m between movement joints in fermacell partitions. This can be extended to max. 10 m with the glue joint.



Expansion joint, single layer.

Movement joint are required at maximum 8 m spacings.

Expansion joint, double layer.

With the ability to hang weights and the superior impact performance, fermacell is the perfect choice for wall lining.

fermacell Gypsum Fibre boards can be installed on steel and timber lining systems as well as traditional dabbing method. We recommend tapered edge fermacell for the traditional dot and dab (direct bond) technique. Powerpanel H_2O boards must be fixed to a framed lining system.

Dot & dab with tapered edge fermacell

For dot and dab installation, use tapered edge boards.

The surface to which the boards are to be bonded MUST be clean, dry and mechanically stable.

***fermacell** Bonding Compound must be applied to the board in dabs of 50–75 mm wide and approx 250 mm long a maximum gap of 50 mm between the vertical dabs at 400 mm centres for 10 mm board. 600 mm centres should be used for 12.5 mm boards or over. Leave a maximum gap of 50 mm between the vertical dabs. For dab pattern illustration please refer to page 28.

For external walls apply a continuous ribbon of bonding compound to the boards for around the perimeter of wall, door, window frames and electrical sockets, restricting air movement behind the boards.

The boards are offered up to the wall and pressed firmly until they adhere, then levelled vertically, horizontally and diagonally. Bonding compound must not be allowed to seep into the board joint.

Once the bonding compound has set (minimum 8 hours), all other procedures for the finishing of tapered edge boards can be followed. Please refer to the finishing section for further guidance.

Ensure that you leave a gap between the boards and other building elements of around 5 mm.

Allow for at least two mechanical fixings (frame anchor or similar) on each board. These should be located 300 mm from the top and a minimum of 50 mm – maximum 100 mm from the edge. Ensure fixings are in a dry dab.

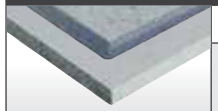
After installation boards can be jointed using **fermacell** Joint Filler.

Amount of fermacell Bonding Compound required for different wall applications

Type of application	kg/m² of wall surface
Very smooth surface	1.5–2
Blockwork	3–4

*Apply fermacell Bonding Compound to the boards, and not to the substrate.

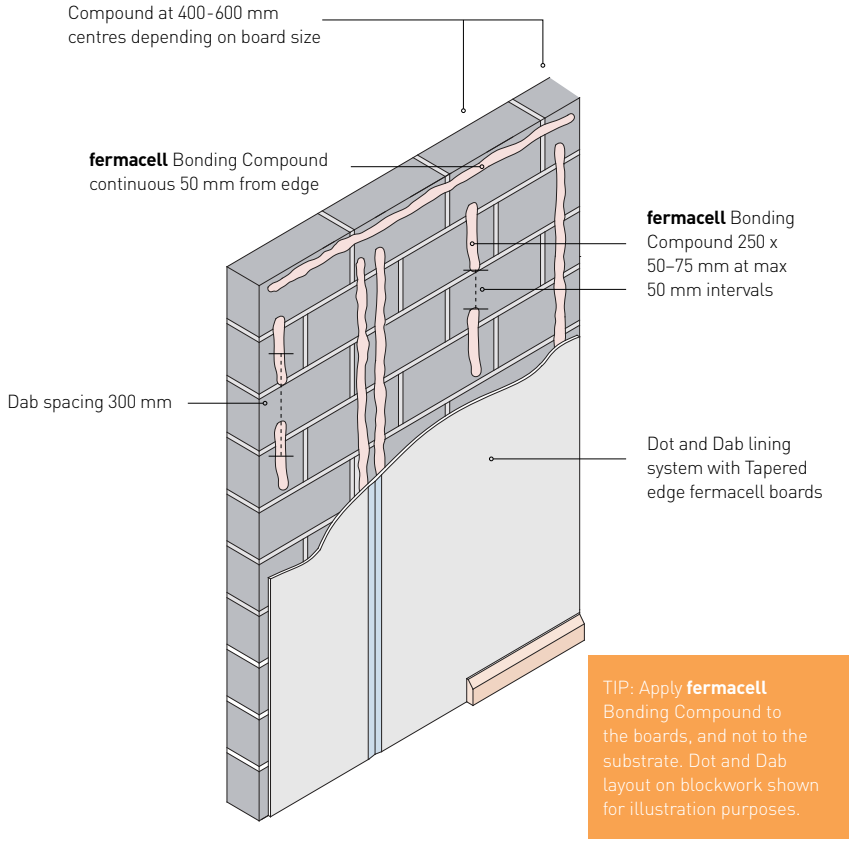
Components

fermacell Board - fermacell Square edge or Tapered edge (for Direct Bond we advise using Tapered edge boards)		
	Thickness	10 mm, 12.5 mm, 15 mm and 18 mm
	Sizes	1200 x 1000 mm to 1200 x 3000 mm
fermacell Fine Surface Treatment - For giving **fermacell** Boards a smoother finish if required		
	Coverage	5 m^2 per ltr at typically 0.5 mm thickness
	Pack Size	3 ltr or 10 ltr
fermacell joint filler - For taping/filling between boards and stopping screw heads.		
	Coverage	5 m^2 per kg for filling Tapered edge joints 7 m^2 per kg for filling between Square edge boards 10 m^2 per kg for finishing glue joints and screw heads
	Pack Size	5 kg or 20 kg
fermacell Jointstik / Greenline Jointstik - For gluing square edge fermacell Boards		
	Coverage	20 lm / 310 ml tube
	Pack Size	310 ml tubes
30/40/55 mm fermacell Screws - For fixing **fermacell** Boards to steel subframes (min 0.6 gauge) Drill tip screws are available for greater gauge steel studs		
	Coverage	20 m^2 for walls / 30 m^2 for ceilings 1200 x 2400 x 10
	Pack Size	Box of 250 screws or box of 1000 screws
fermacell bonding compound - For dot and dabbing tapered edge fermacell boards		
	Coverage	3-4 kg/m^2
	Pack Size	20 kg bag
fermacell Paper Jointing Tape - Paper tape or mesh tape can be used to reinforce Tapered edge joints		
	Pack Size	75 mtr roll
fermacell Mesh Jointing Tape - Mesh tape or paper tape can be used to reinforce Tapered edge joints.		
	Pack Size	45 mtr roll

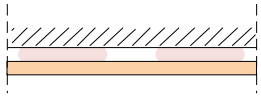
Components

fermacell Board Knife - For scoring and snapping **fermacell** Boards		
	Pack Size	0.05 kg
fermacell Spatula - For applying Fine Surface Treatment		
	Size	250 mm
DIN standard Metal sections are available from: fermacell metal		
	Size	Nominal 0.6 gauge 50 mm fixing face

Direct bond system constructions



TIP: Apply **fermacell** Bonding Compound to the boards, and not to the substrate. Dot and Dab layout on blockwork shown for illustration purposes.



Dot and dab (direct bond)

Not recommended for unsound or moisture effected walls. Minimum dab thickness not less than 10 mm, no greater than 25 mm.

Note: The dabs should be 50 to 70 mm wide 250 mm long spaced 300 mm apart from the centre of each dab. The final thickness of the dab should be between 10 and 25 mm.

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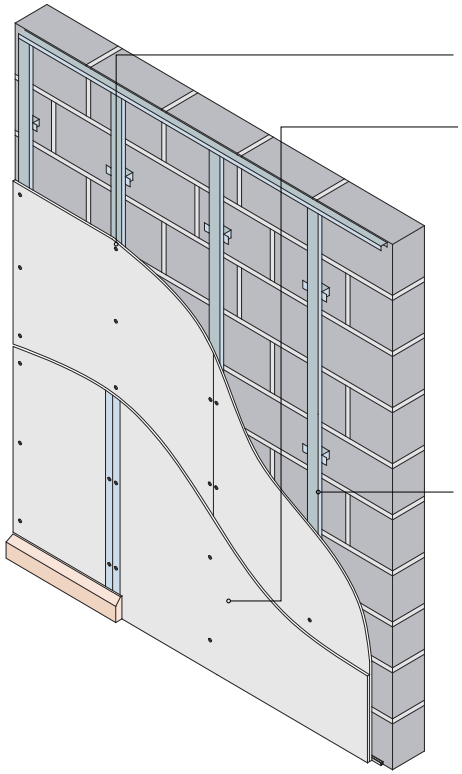
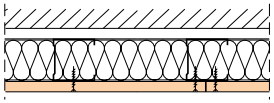
Ceilings
Wet Areas
Finishing
Fixing

Notes

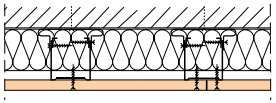
Wall lining system construction





Independent lining

Ideal for backgrounds that do not allow a direct fixing. Constructed either with standard metal studs or timber sections with a minimum 50 mm fixing face. Minimum 10 mm cavity.



Adjustable cavity lining systems

Variable cavity from 30–125 mm. Ideal for out of plumb backgrounds and providing a services cavity.

Wall lining system construction

Mark out the line of the base track and fix at 600 mm centres to the floor using suitable fixings. Allow for required cavity width.

Transfer the base track line to the ceiling and fix the ceiling track with a suitable fixings.

For 12.5 mm fermacell mark horizontal lines at 800 mm centres and vertical lines at 600 mm centres for 1200 mm wide board.

Then position the brackets directly to wall at maximum 800 mm vertical centres on the marked lines. Secure each bracket to wall with a suitable fixing.

Cut each channel 5 mm shorter than the floor to ceiling height. Locate into the head and base track at floor and ceiling.

Ensure channel is plumb, and secure to each bracket leg using Pan Head Self Tapping screws. Bend back the legs of the bracket so they do not protrude past the face of the channel.

Install the fermacell boards, centre the edges over the channels and fix with **fermacell** screws at 250 mm centres.

Joint and finish the fermacell boards appropriately for the jointing method selected.

Variable lining systems are a quick way to create linings to backgrounds that maybe out of plumb.

Figure 12.

Figure 13.

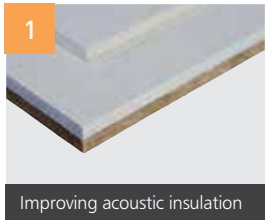
The dry screed flooring systems from fermacell provide simple to install and faster drying solutions for levelling, sound proofing and underfloor heating overlays.

fermacell 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 gives 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.

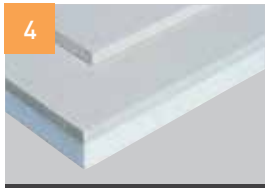
1. Improving acoustic insulation: Type 2E31 & 2E32.
2. Over under floor heating: Types 2E22.
3. Levelling uneven floors: A range of solutions from 0–2000 mm are available.
4. Improving thermal insulation: Types 2E13 & 2E14.
5. Wet-room floors: TE Powerpanel H2O Flooring element.



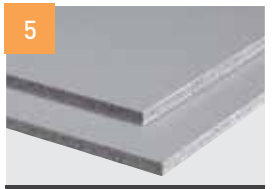
Improving acoustic insulation

Over under floor heating

Levelling uneven floors



Improving thermal insulation



Wet-room floors

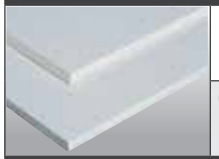
Components

fermacell 2E11 flooring overlay 20 mm - the high performance dry speed overlay		
	Board size	1500 x 500 x 20 mm
	Coverage	0.75 m^2 per board
fermacell 3.9 x 19 mm floor screws - For fixing 20 mm fermacell flooring together		
	Box qty	250 – 0.29 kg / 1000 – 1.18 kg
	Coverage	15 screws per m^2
fermacell self levelling compound - For levelling from 0–20 mm / Dies in 24 hours and is simple to lay		
	Bag size	50 ltr bag = 18.5 kg
	Coverage	10 ltr / m^2 per 10 mm thickness of coverage
fermacell dry levelling compound - For levelling from 10–100 mm / The ideal product for levelling uneven floors		
	Bag size	50 ltr bag = 18.5 kg
	Coverage	5 m^2 bag per 10 mm thickness of coverage
fermacell bonded levelling compound - For levelling from 40–2000 mm / A lightweight cement base levelling compound		
	Bag size	80 lt bag
	Coverage	10 l/m^2 per 10 mm thickness of coverage

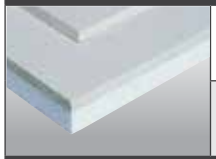
Accessories

greenline floor glue - For gluing fermacell flooring elements together		
	Bottle size	1 kg bottle
	Coverage	25–28 m^2 per bottle
fermacell joint filler - For filling gaps between boards and stopping screwheads		
	Bag size	5 kg bag / 20 kg bag
	Coverage	10 m^2 per kg – finishing glue joints
fermacell perimeter strip - mineral wool - For acoustic isolation between fermacell flooring / Strips are 10 mm thick		
	Roll size	30 mm depth / 50 mm depth / 100 mm depth
fermacell trickle protection sheet - For use under **fermacell** Dry Levelling Compound		
	Roll size	1.5 m X 50 m / 75 m^2 per roll 5 kg
fermacell levelling set - For use with **fermacell** Dry Self levelling Compound		
	Pack size	Set of 6 elements / 15 kg each

A range of under floor heating overlay products

fermacell 2E22 UFH flooring 25 mm - A high performance flooring overlay for warm water Underfloor Heating Systems		
	Bottle size	1500 x 500 x 25 mm
	Coverage	0.75 m² per board
fermacell 3.9 x 22 mm floor screws - For fixing fermacell flooring 25 mm thick or above		
	Box qty	250 – 0.29 kg / 1000 – 1.18 kg
	Coverage	15 screws per m²
greenline floor glue - For gluing fermacell flooring elements together		
	Bottle size	1 kg bottle
	Coverage	25–28 m² per bottle
fermacell perimeter strip - mineral wool - For acoustic isolation between fermacell flooring / Strips are 10 mm thick		
	Roll size	30 mm depth / 50 mm depth / 100 mm depth

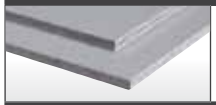
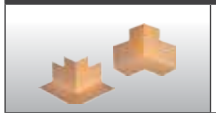
Products for fermacell thermal flooring
An Ideal upgrade for the thermal performance of concrete floors

fermacell 2E13 / 2E14 thermal flooring - High performance flooring with EPS DEO 100 expanded polystyrene insulation		
	Bottle size	1500 x 500 x 40 mm / 1500 x 500 x 45 mm / 1500 x 500 x 50 mm
	Coverage	0.75 m² per board
fermacell 3.9 x 22 mm floor screws - For fixing fermacell flooring 25 mm thick or above		
	Box qty	250 – 0.29 kg / 1000 – 1.18 kg
	Coverage	15 screws per m²
greenline floor glue - For gluing fermacell flooring elements together		
	Bottle size	1 kg bottle
	Coverage	25–28 m² per bottle
fermacell perimeter strip - mineral wool - For acoustic isolation between fermacell flooring / Strips are 10 mm thick		
	Pack size	30 mm depth / 50 mm depth / 100 mm depth

Products for acoustic flooring

fermacell 2E32 mineral wool acoustic flooring - Laid over the existing floor or fermacell levelling compounds		
	Board size	1500 x 500 x 30 mm / 1500 x 500 x 35 mm
	Coverage	0.75 m² per board
fermacell 2E31 wood fibre acoustic flooring - To be used in lieu of 2E32 where a greater point loading is required		
	Board size	1500 x 500 x 30 mm / 1500 x 500 x 35 mm
	Coverage	0.75 m² per board
fermacell honeycomb - A honeycomb layer filled with acoustic infill for improved acoustic insulation		
	Board size	1500 x 100 x 30 mm / 1500 x 1000 x 60 mm
	Coverage	1.5 m² per board
Honeycomb infill - Infill for honeycomb system		
	Pack size	22.5 kg bag / 48 bags per pallet
	Coverage	2 bags per m² for a 30 mm infill
fermacell 3.9 x 22 mm floor screws - For fixing fermacell flooring 25 mm thick or above		
	Box qty	250 – 0.29 kg / 1000 – 1.18 kg
	Coverage	15 screws per m²
greenline floor glue - For gluing fermacell flooring elements together		
	Bottle size	1 kg bottle
	Coverage	25–28 m² per bottle
fermacell perimeter strip - mineral wool - For acoustic isolation between fermacell flooring / Strips are 10 mm thick		
	Pack size	30 mm depth / 50 mm depth / 100 mm depth

Products for Powerpanel H20 flooring - a high performance water resistant system

fermacell Powerpanel H_20 25 mm flooring - Powerpanel H_2O water resistant flooring system		
	Board size / Coverage	500 x 1250 x 25 mm / 37.50 m² per pallet (60 boards per pallet)
greenline floor glue - For gluing fermacell flooring elements together		
	Bottle size / Coverage	1 kg bottle / 18 bottles / carton. 25–28 m² per bottle
fermacell Powerpanel H_20 3.5 x 23 mm floor screws - For fixing Powerpanel H_2O flooring systems together		
	Box quantity / Coverage	500 – 0.97 kg / 20 screws per m²
fermacell internal / external sealing tape & corners - For use with Sealing Tape and the fermacell Waterproofing application		
	Internal / External	Prefabricated – 2 pcs / pack
fermacell primer / sealer - For priming standard fermacell prior to Waterproofing application		
	Bucket size / Coverage	5 kg container / 33–40 m² per bottle
fermacell flexible sealing tape - A flexible waterproof tape for internal corners and junctions areas		
	Roll size	5 m long / 12 cm wide / 0.5 kg. 50 m long / 12 cm wide / 1 kg
fermacell waterproofing application - Waterproofing application for waterproofing standard fermacell boards		
	Tub size / Coverage	5 kg tub / 4–6 m² per 5 kg tub

Acoustic flooring

Place the perimeter strip along the walls to avoid flanking acoustic transmission and to allow for differential movement

For the first row remove the overlap on the leading end and edge on the first and last sheet in the row, remove just the leading edge of the intermediate boards to ensure a tight fit against the perimeter strip.

Apply **fermacell** floor glue to the edges of the boards.

Lay the boards with the edges overlapping. Ensure there is a minimum overlap of 250 mm at joints avoiding cross joints.

Secure the boards with **fermacell** Flooring screws at 200 mm centres (19 mm screws for 20 mm flooring).

Allow 12 hours for the Floor Glue to dry, remove the excess with a scraper.

Acoustic honeycomb flooring

Lay the honeycomb flooring element using the overlaps on each sheet to overlap them.

Pour the granules that go in the honeycomb.

Sweep the granules using a leveller to ensure the honeycomb is filled and repeat steps 2-3 as above

Dry levelling flooring

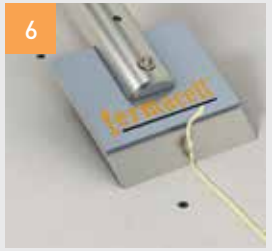
Place the perimeter strip along the walls to avoid flanking acoustic transmission and to allow for differential movement.

Lay approx 200 mm wide haunches/dams of **fermacell** levelling compound to each side of the area.

The edge rails are then levelled out, and then the **fermacell** levelling compound is poured out and scraped flush to the required level.

Place fermacell flooring element on top of the levelling compound.

Secure the boards with **fermacell** flooring screws at 200 mm centres and **fermacell** Floor Glue on the overlay.



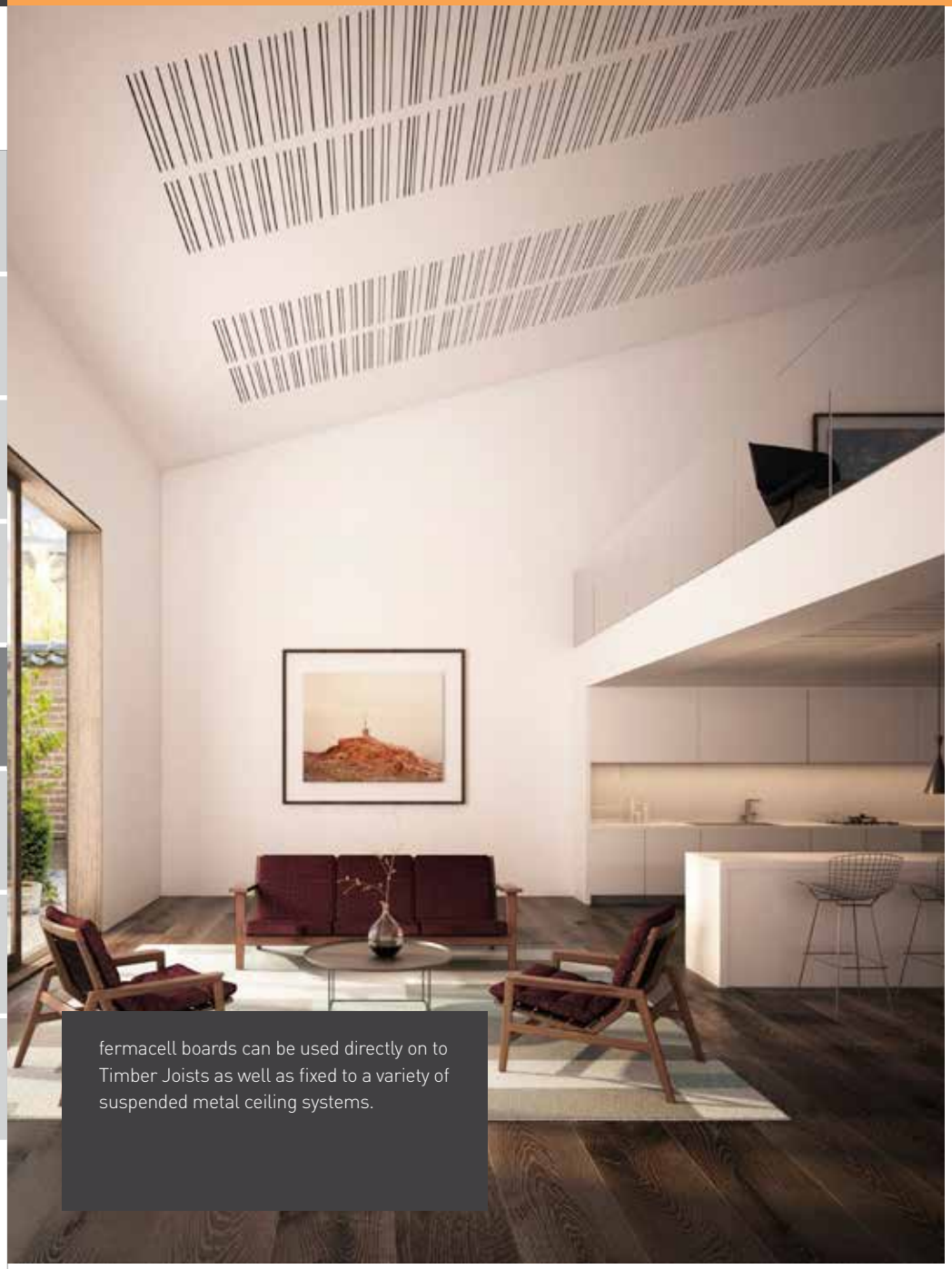
Allow 12 hours for the floor glue to dry and remove the excess with a scraper

One of three **fermacell** levelling compounds can be used dependant on the depth of the fall.

- Self levelling compound from 0–20 mm.
- Dry levelling compound from 10–60 mm, commercial applications.
- Bonded levelling compound 40–2000 mm, (domestic applications 10–100 mm).

For a step by step tutorial, visit www.fermacell.co.uk/installation_videos.php

Note: **fermacell** flooring systems are not designed to span joists and carry a loading. They must be installed on to a solid supporting substrate.



fermacell boards can be used directly on to Timber Joists as well as fixed to a variety of suspended metal ceiling systems.

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Ceilings
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Finishing
Fixing

fermacell ceiling systems give simple solutions to timber, steel and concrete floors by providing acoustic, fire, thermal mass and fixing performance. Due to the nature of fermacell, robust details can be easily achieved with 2 layers of 10 mm board to the ceiling, giving the minimum mass requirement. This mass is also 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 Fig 14 (overleaf).
When installing a ceiling using fermacell, fixing centres and the spacings of the supporting members should be in accordance with the table Fig15 (overleaf).

Take into account the additional weight of fermacell compared to standard plasterboard.

The ability of fermacell to be fixed to timber substructures using pneumatically applied nails or staples is a particular benefit. Please see the fixing centre table on page 75.

The table on page 46 gives full details of the bearing members of the supporting structure for ceilings.

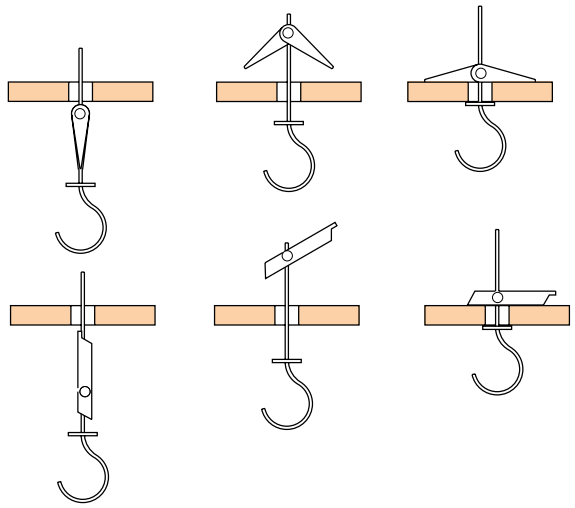
Where these details are not used, the deflection of the supporting construction must not exceed L/360 of the effective span, or as per Part A of the Building Regulations.

In ceilings where acoustic considerations are important (such as party floor constructions), penetrations should be kept to a minimum, preferably omitted. Where penetrations are unavoidable (e.g. using recessed downlighters), we strongly recommend the use of a sacrificial ceiling or acoustic/fire hoods.

For sacrificial ceilings, adjust any fixing centres to take into account the different requirements of walls and ceilings.

Feel free to contact your local **fermacell** Technical Sales Manager if you have any questions during installation.

Lightweight light fittings can be fixed directly to the board. Please see the illustrations on the right and loading table for the fixing guide for other loads.



Maximum allowable load in kg [1] per fermacell Board thickness in mm [2]	
fermacell Board thickness (mm)	kg [3]
10 mm	20
12.5 mm	22
15 mm	23
10 + 10 mm	24
12.5 + 12.5 mm	25
12.5 mm H_2O	20

Figure 14 – Ceiling loading table

(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.

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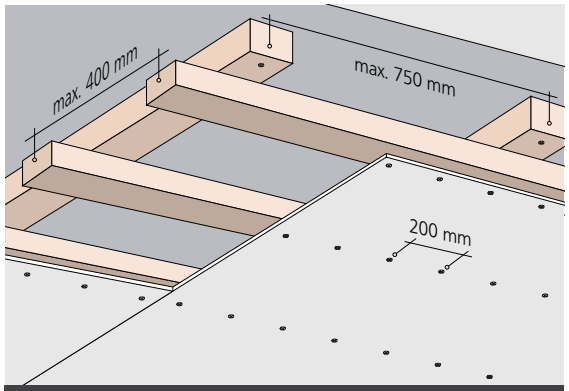
	Maximum support spacing		
	10 mm	12.5 mm	15 mm
40 x spacing	400 mm	500 mm	500 mm

Figure 15 – Ceilings – Support spacings

Figures are based on constant atmospheric conditions with relative humidity levels of up to 80%.

Primary bearers fixed direct to ceiling



Ceiling lining with direct fix timber sub-structure with screws (150 mm centres for staple fixing)

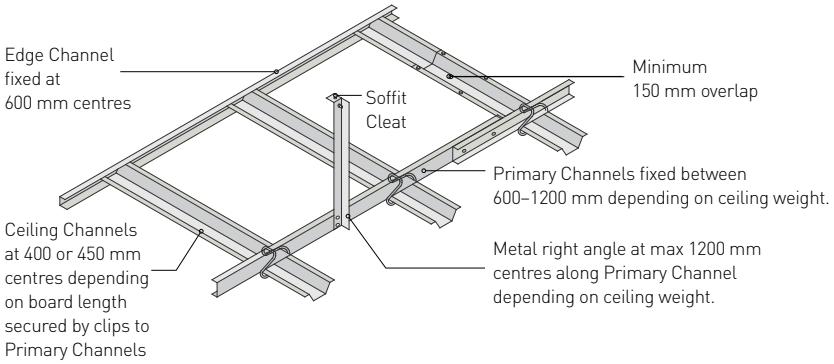
Supporting structure in mm			
Timber battens (width x height) Typical rough sawn sizes		Single layer	Double layer
Primary bearers, fixed direct to ceiling	48 x 24 50 x 30 60 x 40	750 850 1000	650 750 850
Primary bearers, suspended	30 x 50 40 x 60	1000 1200	850 1000
Secondary bearers (battens)	48 x 24 50 x 30 60 x 40	700 850 1100	600 750 1000

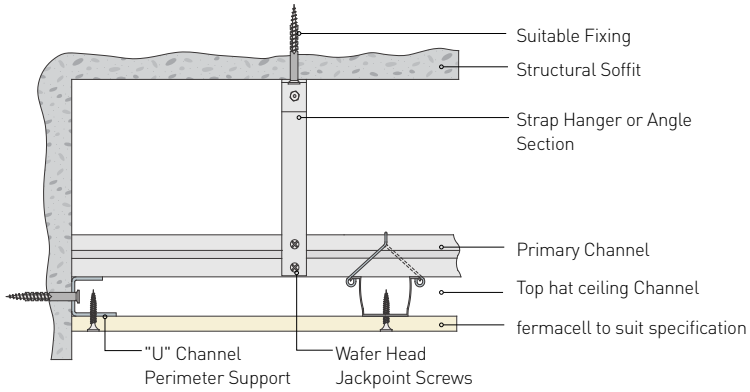
Cross-sections of supporting members for suspended ceilings

The spacings between the supporting sections or battens for horizontal surfaces and linings and undersides of pitched roofs up to 50° angle is 400 mm for 10 mm board or 500 mm for 12.5 mm board. For other thickness of board the spacing is 40 times the board thickness.

Recommended Maximum Ceiling Loadings		
Metal angle suspension centres	Primary Channel Centres	Maximum loading inc board kg/m²
1200	600	74
1200	900	50
1200	1200	35

Where ceiling weight exceeds 20 kg/m² (including double board systems) use Wafer Head Self Drilling Screws in lieu of Connecting Clips.





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There are three options for constructing the junction between the roof section and the sloping part of the roof.

Note: Alternatively a paper jointing tape can be bedded over the pre filled gap using **fermacell** Joint Filler prior to the application of **fermacell** FST.

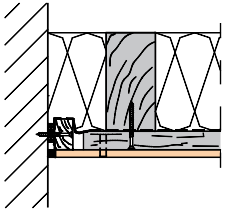


Figure 16. Roof to wall junction. Leave a 5 mm gap between the fermacell ceiling and other building substrates. This can be filled using a flexible decorators filler prior to the application of fermacell FST.

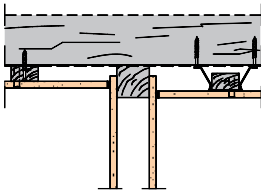


Figure 17. Ceiling to Partition junction leave a 5 mm gap between the fermacell ceiling and other building substrates. This can be filled using a flexible decorators filler.

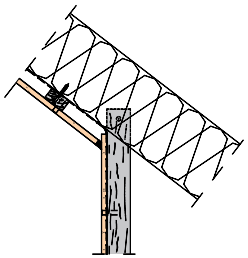


Figure 18. Junction of a sloping roof with wall under the sloping roof. Ensure any battens on the ceiling or the wall are a maximum of 100 mm from the board edge

Tightly butt the fermacell boards at the junction to finish the joint. It can be filled using a flexible decorators filler.

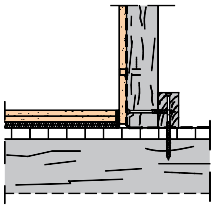
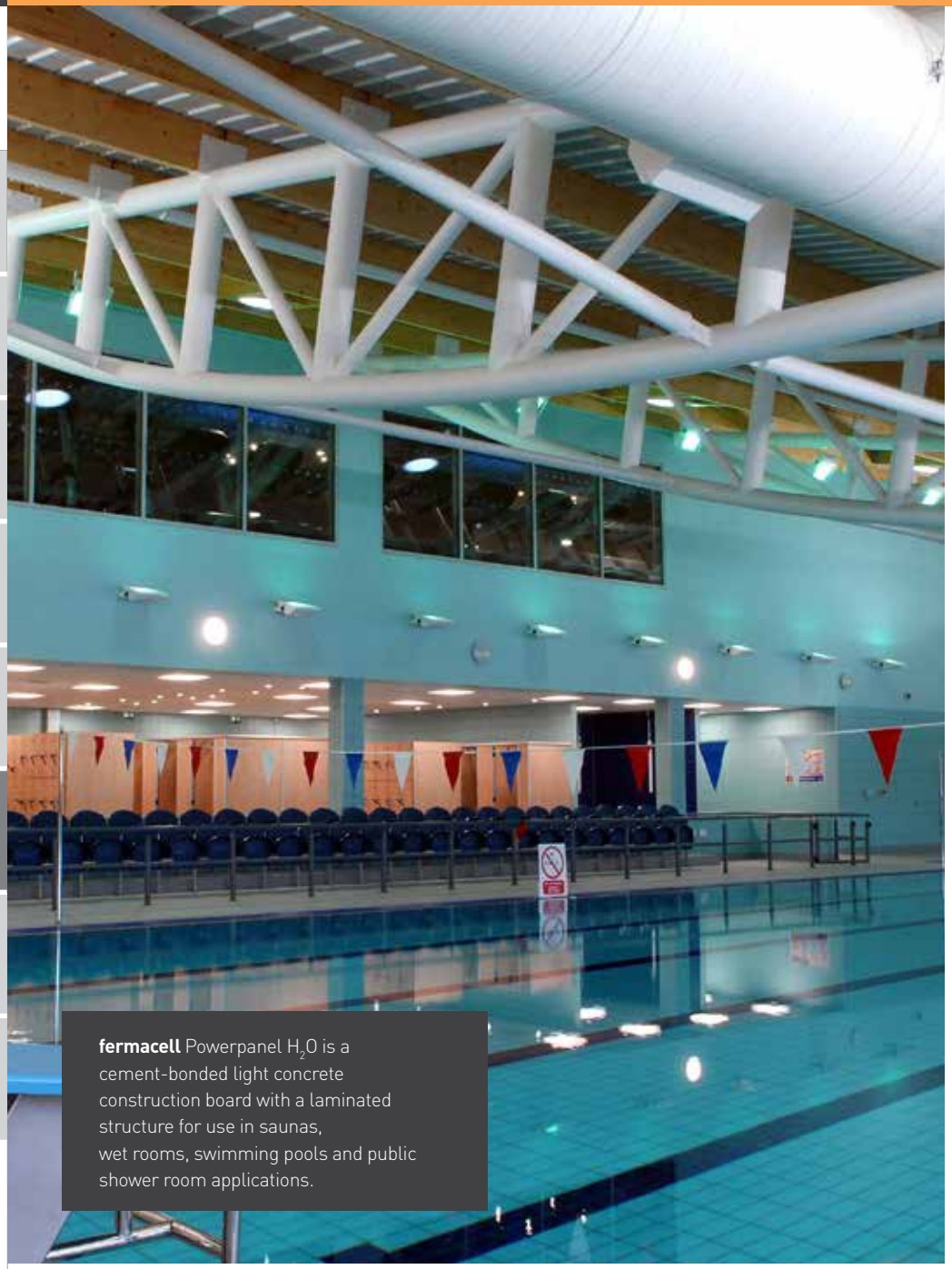


Figure 19. Wall to floor junction. A 5–10 mm gap must be left at the junction of fermacell to either the existing floor or between a fermacell flooring system, if using a fermacell flooring system and expansion strip must be installed.



fermacell Powerpanel H_2O is a cement-bonded light concrete construction board with a laminated structure for use in saunas, wet rooms, swimming pools and public shower room applications.

Powerpanel H_2O

Powerpanel H_2O is a water resistant construction board for walls, floors and ceilings. It has been specifically developed for use in rooms where there are damp conditions. Domestically, this includes wet rooms, bathrooms, showers. Commercially this includes hospitals, hotels, laundries, leisure and sports centres, swimming pools and catering facilities.

- Reinforced on both sides beneath the surface with an alkali-resistant glass fibre mesh (5 mm x 5 mm).
- Powerpanel H_2O is non-combustible and conforms to construction material class A1.
- Designed to be used for interior walls, ceilings and floors.
- The panels can be fitted using standard hand held tools.
- For cutting, tungsten bladed tools should be used.

Powerpanel H_2O is cement-bonded with a laminated structure, reinforced with glass fibre making it strong and impervious to water.

Heat proofing

Powerpanel H2O boards can also be used to back log burning / solid fuel stoves. Powerpanel H2O will perform with temperatures up to 200°C.

Note: Powerpanel H_2O will not degrade in temperatures up to 200°C, however, additional insulating material may be required behind the board to protect services.

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A high performance water resistant system

fermacell Powerpanel H_2O - Water resistant building board		
	Board size	1200 x 1000 x 12.5 mm / 1200 x 2600 x 12.5 / 1200 x 3010 x 12.5
	Coverage	36 m^2 per pallet / 93.6 m^2 per pallet / 108 m^2 per pallet
fermacell Powerpanel H_2O 3.9 X 35 / 50 mm screws - For fixing to DIN standard metal frame systems or timber studs		
	Quantity	35 mm – 500 – 0.97 kg
	Coverage	20 screws per m^2 walls / 22 screws per m^2 ceilings
	Quantity	50 mm – 500 – 1.41 kg
	Coverage	20 screws per m^2 walls / 22 screws per m^2 ceilings
fermacell Jointstik / Greenline Jointstik - For edge gluing square edged Powerpanel H_2O Boards		
	Coverage	20 lm / 310 ml tube
	Pack size	310 ml tubes
Powerpanel surface finish - For giving Powerpanel H_2O Boards a smoother finish if required		
	Coverage	Approximately 1 ltr per m^2 – typically at 0.5 mm thickness
	Pack size	10 ltr

Powerpanel H_2O benefits

- Impervious to water.
- Range of board sizes up to 3 m.
- Easy to fix and cut.
- Fixed to metal or timber stud.
- Tough and hard wearing.
- Edges bonded with Jointstik adhesive.
- No pre-drilling needed.
- Ideal surface for tiling.
- Heat resistant up to 200°C.

Installation overview

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 with a hand saw.

Install insulation (if required) making sure that there is a cavity between the insulation and one face of the Powerpanel H_2O boards. Cut the boards 10 mm less than the room height and install tight to the ceiling line. (In certain areas, a vapour barrier may be required).

Screw fix the boards using Powerpanel H_2O Screws at ≤ 250 mm centres or staple at ≤ 200 mm centres. For screw spacing and usage for walls and ceilings please refer to pages 74–75. All Horizontal Joints must also be supported.

Apply **fermacell** Jointstik to the edge of the board and position the next board and fix. Once the Jointstik has dried (approx 12–24 hours), remove the excess with a scraping knife. The final gap between boards, with Jointstick, should be greater than 1 mm.

Prior to tiling in wet rooms and watertight applications our recommendation is to seal with **fermacell** Primer and tape internal corners with Flexible Sealing Tape and the **fermacell** waterproofing application. If you're not tiling, the surface can be finished with **fermacell** Powerpanel H_2O Surface Finish.

Ensure all joints are dry and screw heads are filled with Powerpanel H_2O surface finish.
Then apply the finish to the boards with a trowel/ spatula prior to painting to give a skim type finish. It can be applied in 2 mm coats up to a maximum of 10 mm with working time 30–60 minutes.*

*All joints should be reinforced with an alkaline resistant glass mesh tape, bedded in with Powerpanel H_2O Surface Finish. Powerpanel surface finish dries at a rate of 24 hrs per 1mm thickness.

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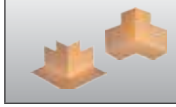
A high performance water resistant system

fermacell primer / sealer - For priming standard fermacell prior to Waterproofing application		
	Bucket size / coverage	5 kg container / 33–40 m² per bottle
fermacell flexible sealing tape - A flexible waterproof tape for internal corners and junctions		
	Roll size	5 m long / 12 cm wide / 0.5 kg. 50 m long / 12 cm wide / 1 kg
fermacell waterproofing application - Waterproofing application for waterproofing standard fermacell boards		
	Tub size / coverage	5 kg tub / 4–6 m² per 5 kg tub
fermacell pipe penetration patches - Elastic sealing patches		
	Coverage	2 patches per pack / 1 piece per pipe penetration
fermacell internal / external sealing tape & corners - For use with Sealing Tape and the **fermacell** Waterproofing application		
	Internal / external	Prefabricated – 2 pcs / pack

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Tiling & waterproofing

Tiles can be directly applied to the boards where protection against constant moisture is not required – typically domestic bathrooms and kitchens without the use of the waterproofing system.

Where constant protection against moisture is required, typically swimming pools and wet rooms, the **fermacell** waterproofing system should be applied to junctions prior to tiling to seal the joints - and it can be used where additional tanking is required.

Note: The fermacell waterproofing system may be used with Powerpanel H20 where a complete tanked waterproofing system is required (Wet rooms and swimming pools) typically when tiled.

Application of water resistant system to Powerpanel H20 for wet rooms and swimming pools.

Once the **fermacell** Jointstik has been removed, apply the **fermacell** Primer sealer to the Powerpanel H20 board using a smooth roller.

After the primer has dried, apply the **fermacell** waterproofing applications to each side of the internal corner at least 100 mm from the corner.

Immediately apply the **fermacell** Flexible Sealing Tape to internal corners and junctions with other materials (previously primed and sealed) as shown in Figure 20.

Then apply two coats of the waterproofing application over the flexible sealing tape, as shown in Figure 21.

The sealed powerpanel H20 board is now ready to accept a tile finish.

Tiles can be directly applied to the board where protection against constant moisture is not required (domestic bathrooms).

For a paint finish, powerpanel surface finish may be applied directly to the board prior to painting.

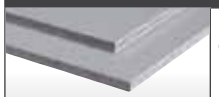
Figure 20.

Figure 21.

Waterproofing Benefits

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

A high performance water resistant system

Powerpanel H_2O 25 mm flooring - Powerpanel H_2O water resistant flooring system		
	Board size / coverage	500 x 1250 x 25 mm / 37.50 m^2 per pallet (60 boards per pallet)
greenline floor glue - For gluing Powerpanel H_2O flooring elements together		
	Bottle size / coverage	1 kg bottle / 18 bottles / carton. 25–28 m^2 per bottle
fermacell Powerpanel H_2O 3.5 x 23 mm floor screws - For fixing Powerpanel H_2O flooring systems together		
	Box quantity / coverage	500 – 0.97 kg / 20 screws per m^2
fermacell bonded levelling compound - For levelling from 40–2000 mm / A lightweight cement base levelling compound		
	Bag size	80 lt bag
	Coverage	10 l/m^2 per 10 mm thickness of coverage
fermacell pipe penetration patches - Elastic sealing patches		
	Coverage	2 patches per pack / 1 piece per pipe penetration
fermacell perimeter strip - mineral wool - For acoustic isolation between fermacell flooring / Strips are 10 mm thick		
	Pack size	30 mm depth / 50 mm depth / 100 mm depth

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Installation overview

Remove the overlap from the long edge of the first row, and the end of the first board adjacent to the wall, and position into place. The use of a waterproof perimeter strip is required. Typically 5–10 mm thick.

Apply **fermacell** Flooring Glue to the overlap that is to receive the next board, one joint at a time. Taking care not to spill glue onto the surface of the floor and the Powerpanel H_2O Flooring System.

Position the next board, placing the overlap of the previous board, and repeat using the offcut of the last board to start the next row (minimum size 200 mm).

Secure the joints with powerpanel flooring screws immediately. Once the flooring glue has dried (approx 12 hours), remove the excess with a scraper and fill the screw heads with powerpanel surface finish prior to applying the floor covering.

H_2O Flooring is ready to accept the final floor covering within 24 hours of installation. Powerpanel H_2O Flooring can also be waterproofed with the **fermacell** Waterproofing System to provide a fully sealed wet room with Powerpanel H_2O wall boards.

Flooring benefits

- Dry screed flooring system
- No specialist trades required
- Provides full waterproof solution when used with Powerpanel H_2O boards
- Ready to use in less than 23 hours.

Figure 22.

fermacell can be jointed in 3 different ways and finished with our Fine Surface Treatment speeding up installation.

Components

fermacell Fine Surface Treatment - For giving fermacell Boards a smoother finish if required		
	Coverage	5 m² per ltr at typically 0.5 mm thickness
	Pack Size	3 ltr or 10 ltr
fermacell Jointstik / Greenline Jointstik - For gluing square edge fermacell boards		
	Coverage	20 lm / 310 ml tube
	Pack Size	310 ml tubes
fermacell joint filler - For taping/filling between boards and stopping screw heads.		
	Coverage	5 m² per kg for filling Tapered edge joints 7 m² per kg for filling between Square edge boards 10 m² per kg for finishing glue joints and screw heads
	Pack Size	5 kg or 20 kg
fermacell Paper Jointing Tape - Paper tape or mesh tape can be used to reinforce Tapered edge joints		
	Pack Size	75 mtr roll
fermacell Mesh Jointing Tape - Mesh tape or paper tape can be used to reinforce Tapered edge joints.		
	Pack Size	45 mtr roll
fermacell Spatula - For applying Fine Surface Treatment		
	Size	250 mm

Waterproofing system components can be found on page 52.

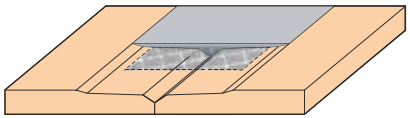
Fixing and jointing tapered edge boards

Tapered edge boards are fitted to the subframe with the boards dry butted. Once installation is complete, the boards can be jointed using **fermacell** Joint Filler. Apply filler to the joint, ensuring that the central 'V' is fully filled, then bed paper tape into the joint and apply a fill flush with the taper.

Self adhesive fibre tape may be used instead of paper tape and the filler must be pushed through the holes to the back of the joint, the central 'V' must be fully filled.

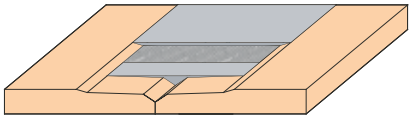
We recommend the use of paper tape as this is the stronger of the two methods.

Once the joint is dry, a feather fill may be necessary to take up any slump. This can be done with either **fermacell** Joint Filler or Fine Surface Treatment.



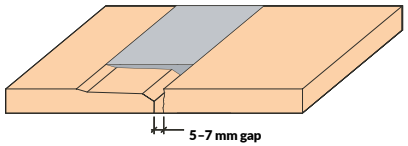
Joint option 1:

Two factory Tapered Edge boards with **fermacell** Fibre Jointing Tape and **fermacell** Joint Filler.



Joint option 2:

Two factory Tapered Edge boards with paper tape and **fermacell** Joint Filler.

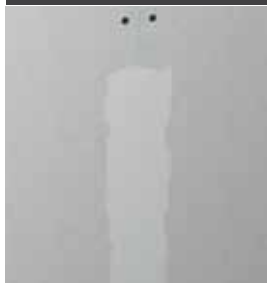


Joint option 3:

One factory tapered board and one square edge board or off-cut with **fermacell** Joint Filler.

fermacell Joint 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.

TIP: Bed the tape in a similar way to dry lining. Filling the tapered area.



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Fixing and jointing square edge boards

Jointstik or Greenline Jointstik adhesive is applied to the edge of the board in a continuous 3 mm bead prior to fixing the next board. The bead must be applied to the centre of the board edge.

The next board is then offered up to the subframe, 10 mm away from the joint, then pushed firmly against the first board spreading the adhesive across the board edge and ensuring that the joint gap is less than 1 mm. Fix the board in place as before.

Allow the adhesive to harden fully (typically 12–24 hours) before attempting to remove any excess, using a decorator's scraper or any similar tool.

If Jointstik has been left longer than 24 hours it may require a Surform or similar tool to remove.

The joint can be dressed if required and screw heads should then be filled with **fermacell** Joint Filler prior to the application of Fine Surface Treatment.

fermacell Jointstik is applied to the edge of square edge boards in a 3 mm bead bonding the boards together.

Square edge boards and offcuts can be jointed using a **fermacell** Joint Filler by leaving a 5–7 mm gap.

Jointing square edge boards & off cuts with fermacell Joint Filler

Square edge boards and off cuts can be jointed using **fermacell** Joint Filler.

Install the boards leaving a 5–7 mm gap between them.

Horizontal joints require backing with a piece of fermacell fixed with fermacell Screws through the face layer.

The gap between the boards and the screw heads is then filled with **fermacell** Joint filler, striking it off flush with the board surface.

Once the fermacell Joint Filler is fully dry, feather fill with either **fermacell** Joint Filler or Fine Surface Treatment prior to the application of the finishing coat of Fine Surface treatment (FST).

Offcut joints require backing with a piece of fermacell, minimum 100 mm wide.

Internal Corners

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

Leave a 3–5 mm gap between the femacell and other building back-grounds, the gap can then be filled with a flexible decorators' filler or accoustic/fire rated sealant as required.

Where a neat finish is required between fermacell and other materials. Leave a 5–7 mm gap and then place a separating tape over the other material at the joint. Then fill the gap with **fermacell** joint filler. allow to dry and feather fill as required. Once the filler is dry, strike off the tape with a sharp knife. This will leave one edge of the joint decoupled, thus allowing for any differential movement. This can then be filled over with a flexible caulking as required.

Leave a 5–7 mm gap between the fermacell to fermacell, the gap can then be filled with a **fermacell** Joint Filler and over coated with paper jointing tape, once the tape is dry and set over coat with **fermacell** Fine Surface Treatment (FST) at the same time as the boards.

There are a number of ways to construct an internal corner.

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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 leaving a 1 mm finished joint. Alternatively a 5–7 mm gap can be left between the boards at the junction and filled with **fermacell** joint filler.

Once the Jointstik or joint filler 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 to the corner at the same time as the rest of the board.

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.

Surface preparation

The surface should be dry and free of stains and dirt.

Any damage or indentations must be filled with **fermacell** Joint Filler or Powerpanel Surface Finish if using Powerpanel H_2O.

Before any decoration, the moisture content of the boards must be less than 1.3%. This moisture content level 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.

TIP: The surface should be dry and free of stains and dirt.

Fine Surface Treatment (FST)

Any shrinkage of the **fermacell** Joint Filler may be taken up with a feather coat of Fine Surface Treatment Prior to the final full surface application of Fine Surface Treatment.

Apply FST to the board surface direct from the tub using a trowel or a 250 mm fermacell Spatula applicator.

Work on 1–2 m^2 at a time and ensure that the surface is fully covered.

Then remove all excess FST in a smoothing out motion. Use the same tool for this.

The final finish should be between 0.5–1 mm thick.

The FST will dry within 45 minutes. Subsequent layers can be applied as required. If necessary, smooth the surface with 'a fine 180-240 grit' sandpaper.

You may find it easier if you work from the bottom of the board to the centre, followed by the top of the board to the centre.

fermacell Fine Surface treatment will cover approx 5m^2 per litre applied at 0.5 mm thickness.

FST – The easy way to give a plaster smooth finish ready to paint. Drys in just 45 minutes.

Plaster & textured plasters

A smooth plaster finish is not normally recommended as the same finish can be achieved using Fine Surface Treatment much faster and at a fraction of the cost.

Where plasters are being applied, all joints must be reinforced with a fibre tape fixed with PVA adhesive and PVA or **fermacell** primer or high suction primer as recommended by the plaster manufacture is applied to the surface of the board.

We recommend that a test area is tried first as some plaster formulations will crack under certain climatic conditions. However we cannot warrant the adhesion or finish.

TIP: We recommend a test area is tried first.

Painting

fermacell boards are ready to paint once Fine Surface Treatment (FST) has been applied to the surface to provide a smooth finish. Where vinyl or oil based paints are to be used without a prior application of **fermacell** FST, we recommend that the boards are sealed before painting.

Eggshell paints or high sheen paints are not recommended for use on fermacell. However, where eggshell paints are used, a minimum of two coats of**f fermacell** FST should be applied first, followed by a sealant. In all cases refer to the relevant British Standard BS8212.

In all cases, the paint manufacturers recommendations should be followed.

Wallpapering

Fill screw heads and dress or fill joints prior to wall papering.

Most types of paper can be applied to fermacell using standard trade pastes, without priming the surface.

When using vinyl or non-breathable wallpapers, it is recommended that the board is primed and a suitable paste is used.

Most types of wall paper can be applied to **fermacell** boards.

TIP: **fermacell** recommend a maximum tile size of 300 x 300 mm.

Tiling

Standard fermacell boards are moisture resistant and therefore suitable for use in domestic bathrooms and kitchens. For more harsh environments Powerpanel H_2O should be used. Before tiling, all areas should be clean, dry and free from dust.

Tile adhesives with a low water content should be used and tiles fixed using a thin bed 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.

We recommend splashback areas are treated with the **fermacell** Waterproofing System as opposite. Wall surfaces that require sealing must be protected against the penetration of water to a height of 2000 mm above the floor with adequate spacing at the side above the actual shower and bath area.

For showers, waterproofing must extend to at least 300 mm above the shower head.

In all cases refer to the manufacturers instructions.

Maximum recommended weight of tiles is:
– fermacell – 35 kg/m^2
– Powerpanel H_2O
– 50kg/m^2

Reduce stud centres to 400 mm as required.

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Waterproofing fermacell boards for splash back areas

Priming

Once the jointing process is complete, apply the fermacell Primer Sealer to the board using a smooth roller.

Corners

After the primer sealer has dried, apply the fermacell waterproofing application to each side of the internal corner and junctions at least 100 mm from the corner.

Taping

Apply the fermacell Flexible Sealing Tape to internal corners and junctions with other materials, Figure 23 (previously primed and sealed). Apply two coats of the fermacell waterproofing application over the flexible sealing tape as shown in Figure 24 below. The seal is now ready to accept a tiled finish.

Sealing

In splash back areas, apply the waterproofing application to the entire surface of the board covering all flexible sealing tape and primer sealer where used, prior to tiling.

Finishing

Once the waterproofing application is dry, tiles can be applied to the sealed system.

Figure 23.

Figure 24.

Waterproofing Benefits

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

Repairs to boards

If a board is dented, the localised damage can be made good using **fermacell** Joint Filler.

If the board has cracked, or the damage penetrates through the board, it is not necessary to remove the whole board as the damaged area can be cut out and a new piece inserted. Also use this method where horizontal joints have not been constructed correctly.

Offcuts of fermacell or timber fillets (min 100 mm wide) are placed around the back of the edge of the cut out section and fixed to the existing board using **fermacell** Screws.

A new piece of fermacell is cut to size (allow for a 5–7 mm gap around each side), fitted in place and screwed to the offcuts using **fermacell** Screws.

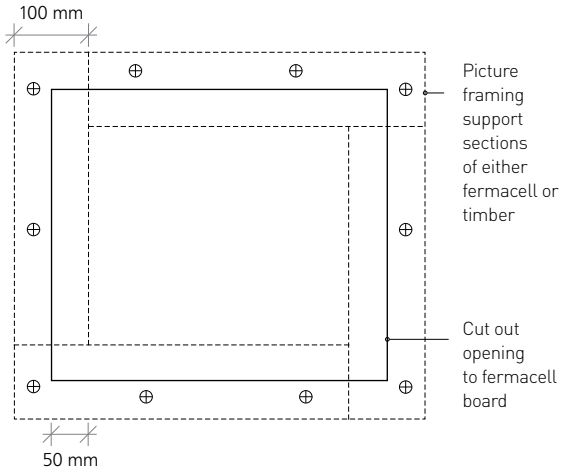
The gap is then filled with **fermacell** Joint Filler in accordance with the instruction given in the 'jointing square edge boards and offcuts section' on page 59.

If a board is dented, the localised damage can be made good using **fermacell** Joint Filler.

Repairs to corners

fermacell does not require corner beads, any minor damage can be made good using **fermacell** Joint Filler.

Picture Framing Supports
to repaired section of fermacell Board



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Cracked joints – possible reasons

Before repairing a cracked joint, go through the following checklist to establish the cause of the failure.

- Is there movement or subsidence in the building?
- Is the partition loaded from above without a deflection head being installed?
- Are there any rigid junctions between the fermacell board and other building materials?
- If using a steel subframe, has the board been fastened to either the head track or the sole plate (footer track)?
- Is the frame sufficiently rigid?
- Have the doors or wall openings been correctly braced/reinforced?
- Is the supporting frame at the correct centres for the thickness of board?
- Is the frame profile (either thickness or depth) correct, particularly for tall partitions?
- Are the fixing centres correct?
- Are the boards correctly jointed around any openings?
- Have cross joints been formed?
- Is an impervious surface coating trapping moisture, resulting in high humidity levels?
- Has the Joint Filler been used correctly: Is the joint gap correct for offcuts? Has the filler been pushed to the rear of the joint? Was the filler mixed in accordance with the instructions?
- Has the Jointstik adhesive been used correctly: Is the joint width greater than 1 mm?

Cracked joints – remedial works

Once the root cause has been addressed, the following remedial action should be taken:

- Open the joint and remove any Jointstik or filler. The joint must be opened up to a minimum of 5 mm. This may be done using a router or a circular saw.
- The joint is then cleaned, removing any dust particles using either a vacuum cleaner or a moist brush.
- Joint with **fermacell** Joint Filler. Follow the instructions given on the packet. (N.B. Filler joints must be backed.
- Finish off the joint with a fine fill. When this has dried, apply a PVA coat around 100 mm wide
- Tape over the joint using **fermacell** Fibre Joint Repair Tape and allow to dry.
- Once the PVA has dried, apply a second layer of PVA over the tape and allow to dry. For finishing see the relevant section.

fermacell wall boards can be fixed to a variety of backgrounds and systems making them suitable for commercial and domestic applications alike

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 load bearing capability of a wide range of fittings.

- The load bearing capability refers to static (dead) loads only. For live loads which are subject to increase (e.g. washbasins or stair-rails), the maximum load should be calculated and pattresses of plywood or reinforcing pads of fermacell added behind the wall.
- Fixing back to the existing studs will provide additional support where required.

Fitting	Load carrying (kg) Thickness of fermacell boards in mm				
	10	12.5	15	18	10+12.5
Picture hooks fixed with nails					
	15	17	18	20	20
	25	27	28	30	30
	35	37	38	40	40
Screw with continuous thread 5 mm dia					
	20	30	30	35	35
Cavity fixing 8 mm dia with 4 mm woodscrew					
	40	50	55	55	60

Conditions

Safety factor: 2 (permanent loading, with relative humidity of up to 80 %).

Depth of cupboard or shelves: in tests 350 mm.

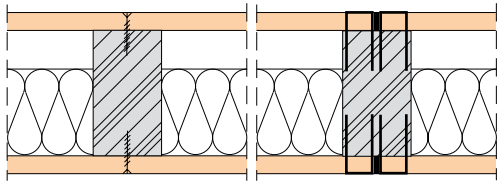
Toggle bolt with 4 mm diameter screw. (The toggle bolt manufacturer's instructions should be followed).

Maximum stud centres: 50 x board thickness.

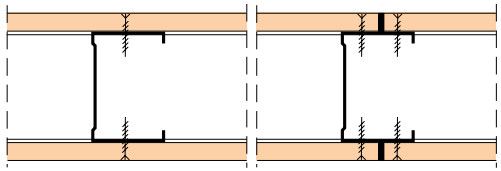
With fixing less than 500 mm, the load bearing of each fixing should be reduced by 50%.

- Boards are fixed using **fermacell** Screws. Keep a minimum of 10 mm of the edge of the board, and 50 mm from corners.
- Boards can be fixed to timber subframes using pneumatically fired staples or nails. Please see pages 74–75 for the specification.
- When double boarding the second layer can be screwed or stapled directly to the first layer, where fire rating is 60 minutes or less.
- Square edge boards are mounted in sequence and if using the glue method each board is jointed as it is installed.
- If boards have been installed incorrectly without Jointstik adhesive, turn to page 67.
- When fixing boards in a double height partition, cross joints must be avoided by installing boards as shown in Diagram A & Diagram C on page 72–73.
- When fixing boards, work the fixings from one side of the board to the other or from the centre outwards.
- Don't fix the four corners first as this can overstress the board.
- Ensure that there is a gap at junctions with other adjoining substrate (normally 3–5 mm). This is filled later with a flexible sealant.
- All joints should be staggered by at least 200 mm, both horizontally and vertically (refer to page 72–73).
- This applies to both layers of a double layer partition system. See Diagram B on page 72–73.
- In double layered systems the first layer is tightly butt jointed, and the outer layer is jointed as per fermacell guidelines. Any tapered edges in a covered lower layer, must be filled with **fermacell** Filler.

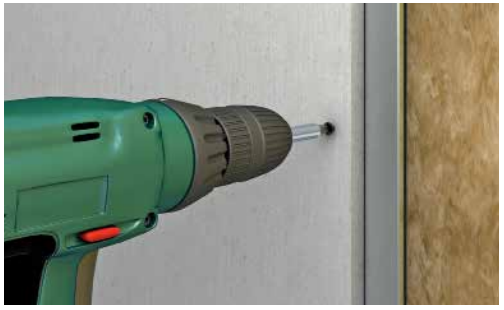
Note: Joints on either side of a steel stud partition must be mirrored on the same stud.



Layout of fermacell on a timber subframe.
Screws or staples may be used.



Layout of fermacell on a steel subframe.



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Note: Offset all joints by a minimum of 200 mm.

The following diagrams show the alternative fixing sequences for single and double layer fermacell partitions.

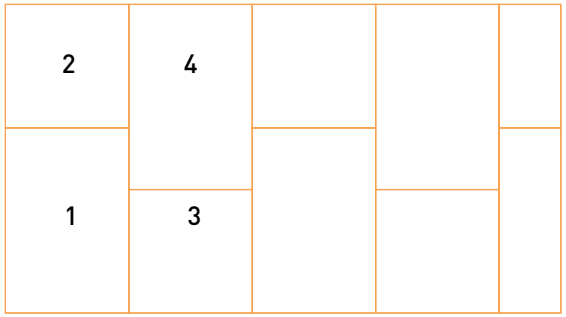

Diagram A:

Recommended fixing sequence for double board height partitions.

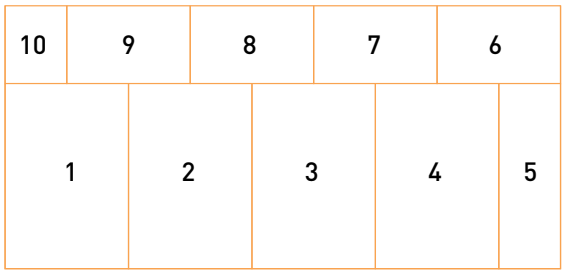

Diagram A1:

Optional fixing sequence for double height boards.

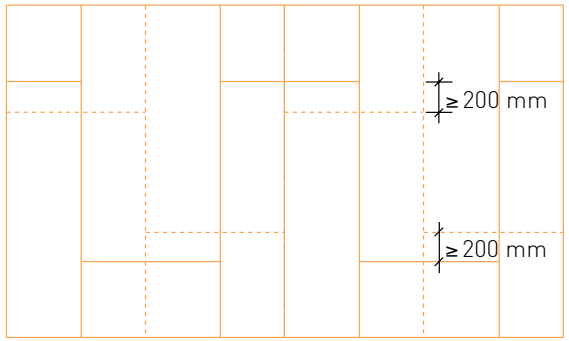

Diagram B:

Recommended fixing sequence for boards in a double layer partition.

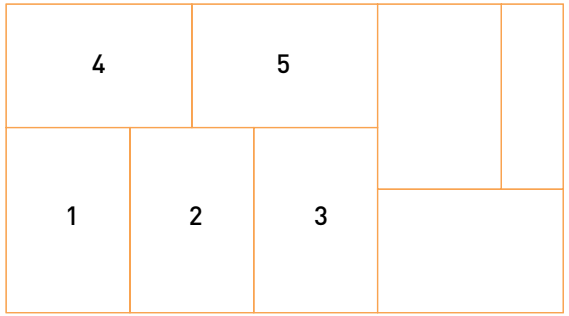

Diagram C:

Alternative fixing sequence.

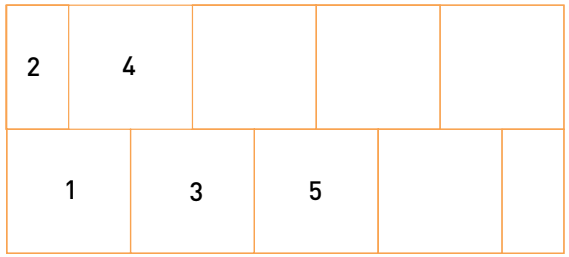

Diagram D:

Fixing sequence one man boards.

Type, spacings and usage of fixing materials when fixing first and second layers back to steel or timber studwork for non-load-bearing partitions (per m² partition).

Board thickness	Staples (galvanised and resinated) Gauge ↗ 1.5 mm, Head Width ↗ 10 mm			fermacell screws Gauge = 3.9 mm		
	Length (mm)	Spacing (mm)	Use (no./m²)	Length (mm)	Spacing (mm)	Use (no./m²)
Metal – single-layer						
10 mm	–	–	–	30	250	26
12.5 mm	–	–	–	30	250	20
15 mm	–	–	–	30	250	20
18 mm	–	–	–	40	250	20
Metal – 2 layered / 2nd. layer into the stud						
1st Layer: 12.5 mm	–	–	–	30	400	12
2nd Layer: 10 mm or 12.5 mm	–	–	–	40	250	20
1st Layer: 15 mm	–	–	–	30	400	12
2nd Layer: 12.5 mm or 15 mm	–	–	–	40	250	20
Wood – single layer						
10 mm	≥30	200	32	30	250	26
12.5 mm	≥35	200	24	30	250	20
15 mm	≥50	200	24	40	250	20
Wood – 2 layered / 2nd. layer into the stud						
1st Layer: 12.5 mm	≥35	400	12	30	400	12
2nd Layer: 10 mm or 12.5 mm	≥50	200	24	40	250	20

Type, spacing and usage of fixing materials when fixing second and subsequent layers to the lower layer of board for non-load-bearing partitions (per m² partition).

Board thickness	Diverging staples (galvanised and resinated) Gauge ↗ 1.5 mm, Row spacing ← 10 mm			fermacell screws Gauge = 3.9 mm, Row spacing ↖ 400 mm		
Ceiling zone per m² ceiling surface	Length (mm)	Spacing (mm)	Use (no./m²)	Length (mm)	Spacing (mm)	Use (no./m²)
10 mm **fermacell** on 10 mm **fermacell**	18–19	150	43	30	250	26
12.5 mm **fermacell** on 12.5 or 15 mm **fermacell**	21–22	150	43	30	250	26
15 mm **fermacell** on 15 mm **fermacell**	25–28	150	43	30	250	26
18 mm **fermacell** to 18 mm **fermacell**	31–34	150	43	40	250	26

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Type, spacings and usage of fixing materials when fixing first and second layers back to steel or timber celing frames (per m²).

Board thickness	Staples (galvanised and resinated) Gauge ↗ 1.5 mm, Head Width ↗ 10 mm			fermacell screws Gauge = 3.9 mm		
	Length (mm)	Spacing (mm)	Use (no./m²)	Length (mm)	Spacing (mm)	Use (no./m²)
Metal – single-layer						
10 mm	–	–	–	30	200	22
12.5 mm	–	–	–	30	200	19
15 mm	–	–	–	30	200	16
Metal – double-layer / 2nd layer into the sub-structure						
1st Layer: 10 mm	–	–	–	30	300	16
2nd Layer: 10 mm	–	–	–	40	200	22
1st Layer: 12.5 mm	–	–	–	30	300	14
2nd Layer: 12.5 mm	–	–	–	40	200	19
1st Layer: 15 mm	–	–	–	30	300	12
2nd Layer: 12.5 mm or 15 mm	–	–	–	40	200	16
Timber – single layer						
10 mm	≥30	150	30	30	200	22
12.5 mm	≥35	150	25	30	200	19
15 mm	≥44	150	20	40	200	16
Timber – double-layer / 2nd layer into the sub-structure						
1st Layer: 10 mm	≥30	300	16	30	300	16
2nd Layer: 10 mm	≥44	150	30	40	200	22
1st Layer: 12.5 mm	≥35	300	14	30	300	14
2nd Layer: 12.5 mm	≥50	150	25	40	200	19
1st Layer: 15 mm	≥44	300	12	40	300	12
2nd Layer: 12.5 mm or 15 mm	≥60	150	22	40	200	16

Type, spacing and use of fixing materials when fixing board to board for ceiling construction (per m² ceiling).

Board thickness	Diverging staples (galvanised and resinated) d. ↗ 1.5 mm, Row spacing ↖ 300 mm			fermacell screws d = 3.9 mm, Row spacing ↖ 300 mm		
	Length (mm)	Spacing (mm)	Use (no./m²)	Length (mm)	Spacing (mm)	Use (no./m²)
10 mm **fermacell** to 10 and/or 12.5 mm **fermacell**	18–19	120	35	30	150	30
12.5 mm **fermacell** to 12.5 and/or 15 mm **fermacell**	21–22	120	35	30	150	30
15 mm **fermacell** to 15 mm **fermacell**	25–28	120	35	30	150	30

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