fermacell® fibre gypsum boards in drywall construction

fermacell®

Installation guide V1.5.4

fermacell®

JamesHardie™

IT'S POSSIBLE

Contents

IT'S POSSIBLE™

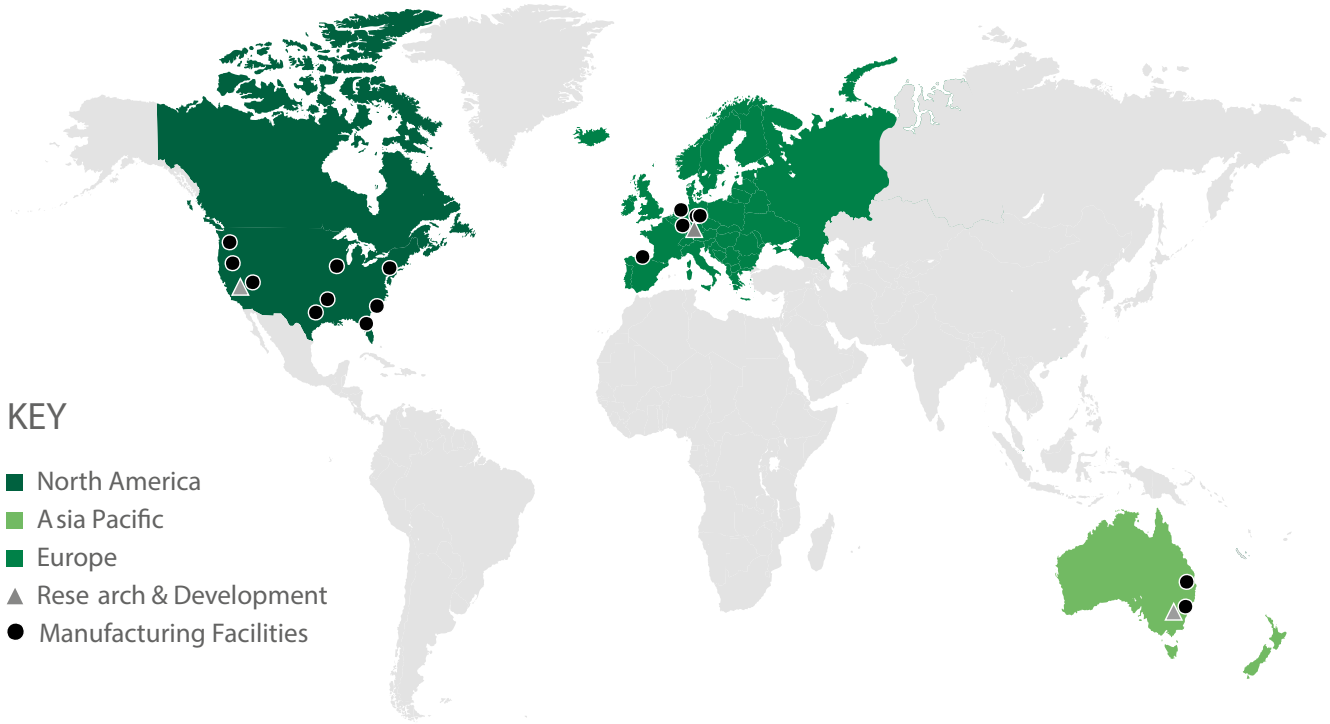
James Hardie

James Hardie, leading the manufacture of high-performance fibre cement and fibre gypsum building solutions. As a trusted innovator and industry leader, we empower homeowners and building professionals alike to achieve their dreams with premium quality solutions.

Our products enable endless possibilities for designing forever homes and exceptional buildings, whilst also delivering trusted protection and long-lasting beauty.

We are a fast-paced company dedicated to our customers. We strive to deliver market driven innovation, an inclusive and empowering culture, and an unwavering commitment to our Zero Harm safety initiative. Whilst operating with a global mindset, we put great care into how our business can support the local communities in which we operate, live and work in.

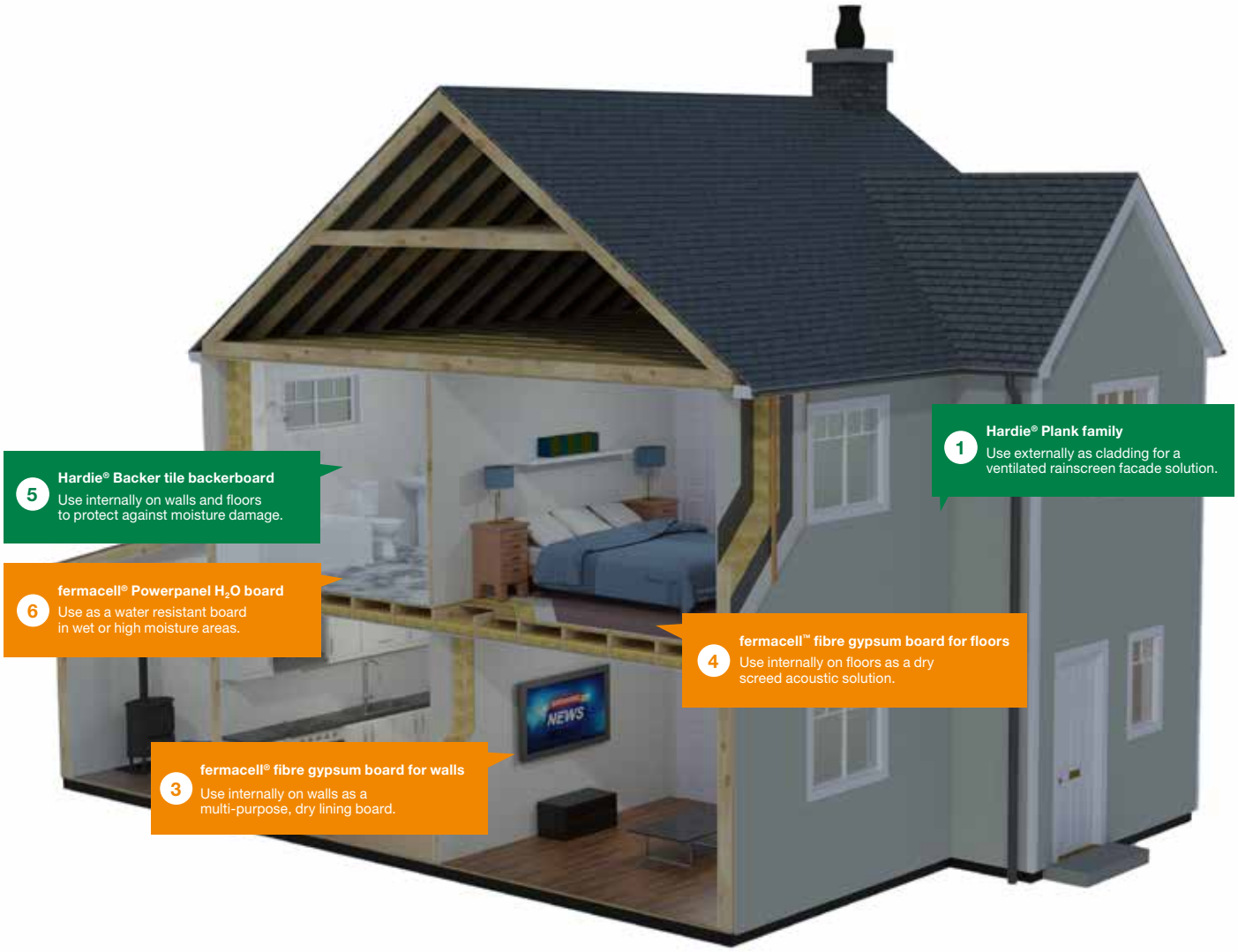
Our cladding products not only create a stylish stand-alone solution, but also look great with other building materials such as stone, wood and brick, making design potential endless. We will provide sustainable solutions for your project, giving you affordable, individual designs, energy efficiency and everything you need to ensure your project looks stunning for years to come.



Build your projects with a global organisation that's been pursuing excellence since 1888.

OUR PRODUCT RANGE

Complete, through the wall solutions



1 Hardie® Plank Family

Hardie® Plank product family consists of two profiles - Hardie® Plank lap weatherboard and Hardie® VL Plank inter-lock. Both cladding solutions offer the ultimate design flexibility, with both horizontal and vertical installation.

2 Hardie® Architectural Panel cladding

Hardie® Architectural Panel cladding is a large element cladding sheet that brings real flexibility and freshness to your facade designs - at an affordable price. Its crisp, clean lines make it a smart choice for strong, contemporary designs.

3 fermacell® fibre gypsum board for walls

fermacell® fibre gypsum board is a multi-purpose dry lining board that combines design flexibility with the optimum fire, acoustic and impact performance.

4 fermacell® fibre gypsum board for floors

fermacell™ Flooring is a dry screed solution that optimises thermal conductivity and is quick to install. Available with an optional wood fibre layer for advanced acoustic performance.

5 Hardie® Backer tile backerboard

Protect your tiles with Hardie® Backer tile backerboard, the UK's number 1 engineered tile backerboard for walls and floors. With its unique cement formulation, Hardie® Backer tile backerboard has no loose aggregates or fillers, making it the strongest, most uniform composition.

6 fermacell® Powerpanel H_2O board

fermacell® Powerpanel H_2O board is a water resistant construction material ideal for walls, floors and ceilings. It's specifically designed for use in rooms where there are wet conditions.

FERMACELL®

Product specs

fermacell® fibre gypsum board

Homogeneous dry lining board made from recycled gypsum, recycled cellulose fibres from post consumer waste paper and recycled water.

High performance building board that when installed offers the speed of drywall with the robustness of blockwork- saving in space, time and money.

Material Characteristics	
Gross density ρk	1 150 ± 50 kg/m³
Water vapour diffusion resistance coefficient μ	13
Thermal conductivity λ	0.32 W/mK
Specific heat capacity c	1.1 kJ/kgK
Brinell hardness	30 N/mm²
Thickness swelling after 24 hours of water storage	< 2 %
Thermal expansion coefficient	0.001 %/K
Extension/shrinkage at 30 % change in relative humidity (20 °C)	0.25 mm/m
Moisture content equilibrium at 65 % relative humidity and 20 °C air temperature	1.3 %
pH value	7–8
Usage class according to EN 1995-1-1 (Service Class areas of use)	Type 1 and 2

Dimensional tolerances for standard board sizes at constant humidity	
Length, width	+0 /-2 mm
Diagonal difference	≤ 2 mm
Thickness mm: 10/12.5/15/18	± 0.2 mm

Approvals/Identification	
European Technical Assessment	ETA-03/0050
BBA reference	Cert No : 90/2439
General Design Certification	Z-9.1-434
Manufacturing & Identification according to EN 15283-2	GF-I-W2-C1
Building material class according to EN 13501-1	non-combustible. A2, s1-d0
Component classifications	national / international

Board thickness and weight				
Thickness	10 mm	12.5 mm	15 mm	18 mm
Approx. weight per m²	11.5 kg	14.5 kg	17.5 kg	21 kg

Sizes in mm				
2400 × 1200	l	l	l	l
Special cut size boards are available upon request				

fermacell® Firepanel A1

Homogeneous fibre-reinforced gypsum-bonded dry construction board with paper fibres and additives of non-combustible fibres with inherent moisture resistance.

- **Complies with the highest European building material class A1 (EN13501-1).**
- **Provides even more efficient and slimmer components in fire protection than the well-known fermacell® fibre gypsum board.**
- **Installation just as simple and quick as the original fermacell® fibre gypsum board.**

Material Characteristics	
Gross density ρk (dry)	1 200 ± 50 kg/m³
Flexural strength (dry)	>5.8 N/mm²
Water vapour diffusion resistance coefficient μ according to EN ISO 12572	16
Thermal conductivity λ	0.38 W/mK
Extension/shrinkage at 30 % change in relative humidity (20 °C) according to EN 318	0.33 mm/m
Moisture content equilibrium at 65 % relative humidity and 20 °C air temperature according to EN 322	1.30 %
Compressive strength perpendicular to surface	>18 N/mm²
Alkalinity (pH value)	7-8
Elasticity of flexure module	>4 500 N/mm²

Dimensional tolerances for standard board sizes at constant humidity	
Length, width	+0 /-2 mm
Diagonal difference	≤ 2 mm
Thickness mm: 10/12.5/15/18	± 0.2 mm

Approvals/Identification	
Identification according to DIN EN 15283-2	GF-I-W2-C1
Building Material class according to DIN EN 13501-1	non-combustible. A1
IMO FTPC Part 1	non-combustible
Component classifications	national/European

Board thickness and weight		
Thickness	12.5 mm	15 mm
Approx. weight per m²	15 kg	18 kg

Sizes in mm		
2600 × 1200	l	l
Additional size and thicknesses upon request		

The biggest advantage of all

Its unique LFB (large format boards) – a full 6000 mm x 2540 mm. This means panels can be cut to the perfect size, eliminating joints and making them more airtight and thermally efficient – particularly important with closed panel systems. It also means less wastage as well as less time and labour in the factory, leading to reduced production costs.

Benchmarking compared to brick and traditional building methods

- Stores Carbon
- Improved hanging capabilities
- System supported by test data
- Enhanced durability

Certifications

- BBA certificate No 25/7494
- EPD (Environmental Product Declaration)
- DIN EN ISO : 14001
- ISO 9001: Issue: 21/08/2023 Valid until: 20/08/2026
- Recycled content to ISO 14021
- ETA – 03/0050
- EWC – European Waste Catalogue Ref listing REF – NO 1708 02
- Environmental certification: Rosenheim Institute Ecology Certificate
- eco INSTITUT – Quality Assurance
- GreenGuide - England - Wales - Scotland

BEFORE YOU START

Health & Safety

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

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

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

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

Fix & finish

fermacell™ Jointstik

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

fermacell™ Jointstik

Internal finish

fermacell™ Fine Surface Treatment and Joint Filler

General information: Wash soiled clothing before reuse.

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

Skin contact: Flush and wash with water and soap.

Eye Contact: Rinse eyes immediately with clean water.

Ingestion: Follow H&S and medical guidelines.

fermacell™ Joint Filler

fermacell™ Fine Surface Treatment

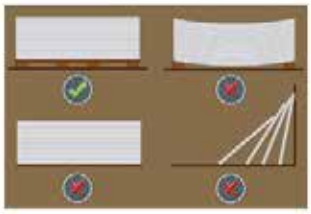
Storage

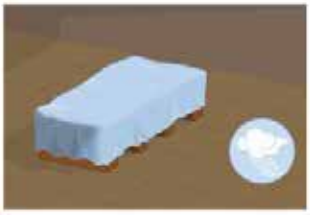
Safe working habits and conditions also cover lifting of heavy materials (which should be undertaken in the correct manner using mechanical handling equipment where appropriate); cutting and handling of metal components (the wearing of gloves to avoid cuts and abrasions is recommended); and the avoidance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

Please see the diagrams below for handling and storage guidance.

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

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





Handling

All boards must be fully supported when being lifted and handled.

- Boards should be carried on edge
- Care should be taken when lifting
- Large sized boards should be mechanically lifted. In all cases refer to the relevant manual handling regulations
- For ceiling use, we recommend the use of mechanical board lifters
- For full size boards we recommend the use of board lifting clamps
- For panel sections an ‘A’ frame trolley can be used. It is recommended that there is some resilience in the wheel or support mechanism to reduce the risk of ‘jarring’ or ‘bumping’ during transport.

Board preparation

- The boards must be stored in the factory/site environment for a minimum of 24 hrs prior to use to acclimatise them to the site conditions
- fermacell® fibre gypsum boards come pre-sealed with a starch derivative.

Safety Data Sheets for all relevant fermacell™ products including accessories are available, you can find these on our website www.fermacell.co.uk

STORAGE FOR LARGE FORMAT BOARDS

- fermacell® fibre gypsum boards should be stored on bearers or stored flat. The bearer centres should be set at 35 x board thickness
- Where fermacell® fibre gypsum boards are to be stored for long periods of time, then the boards should be stored flat to avoid cracking or sagging and should be kept dry
- When boards are to be stored in multiples of 10 (up to a maximum of 150 mm), the bearers must be set at support centres of 35 x board thickness; with no more than 100 sheets in a stack. 450 mm max. for storage
- The bearer support face should be a minimum of 60 mm
- Ensure that the bearers are laid on a flat even surface, and that the bearers are all the same depth
- Typical weight per pack of boards = 2400 kg (i.e. 10 x 15 mm fermacell® or 15 x 10 mm fermacell®)
- Lifting: Specialist vacuum tools and lifting appliances should be used with large format fermacell® fibre gypsum boards. Specialist extension forks on forklift trucks should also be used. In all cases check the lifting method is suitable for the weight and size of the pallet
- Bearers must be kept in alignment vertically where ‘sets’ or ‘packs’ of fermacell® fibre gypsum boards are stored one on top of each other. This avoids point loads between boards in unsupported areas
- Damp boards should not be used until they have dried out.

Cutting & installation

Cutting

- Hand or electric saw (see next page)
- Boards can be cut using a saw (blades should be tempered or Tungsten Carbide steel)
- When using electrical cutting tools, we recommend using a vacuum attachment to collect dust and appropriate PPE must be worn
- We recommend saw blades which have fewer teeth and a slower saw speed. The Hardie™ Blade is recommend for cutting fermacell® fibre gypsum boards.

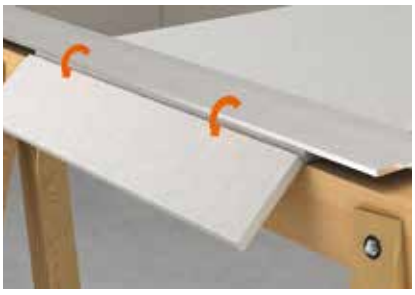
Installation

- fermacell® fibre gypsum boards are the perfect choice for sustainable construction - it's made from recycled papers and gypsum, board waste can be recycled too. may be installed in a number of different ways. For Timber Frame, it may be change to screwed, stapled or nailed.
- Specific fixing details are shown in the following sections of this guide
- When fixing boards, it is imperative that the fixings are installed in a sequential manner so as NOT to induce additional stresses into the boards. These should be fixed from one side to the other, top to bottom, or from the middle outwards.

Cutting

Measurement

Scoring



Breaking off of the sections to be trimmed and removed

Cutting with hand-held plunge saw (adjustable speed)

Cutting with electric jigsaw

Hand-held plunge saw with extraction

Hand cutting

Cutting out for penetrations

When installing fermacell® board products, we recommend wearing appropriate PPE. Minimum mask requirements are a FFP1.

Fixing overview

- Keep fixings at a minimum of 10 mm from the edge of the board, and 50 mm from corners
- Boards can be fixed to timber sub frames using pneumatically fired staples or nails, or screwed using fermacell™ screws
- When double boarding, the second layer can be screwed or stapled to the first layer. However, refer to the specification and drawings to ensure the correct fixing method for each layer to meet the tested fire requirement
- Square edges boards are fixed in sequence and if using the glue method each board is jointed as it is installed Only the outer facing layer of multi layered systems requires jointing

N.B. All inner layers must be tight butted, with board joints of ≤1 mm.

- When fixing boards in either single or double height partitions, cross joints must be avoided by installing boards as show in the adjacent diagrams A-C
- 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 over stress the board
- Ensure that there is a gap at junctions with adjoining substrate (normally 3-5 mm). This is filled later with a suitable flexible sealant, fire rated as required
- 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.

Fire stopping

- Service penetrations should be framed and lined to match the boarding of the partition system
- Size and location of fire stopping should be determined by EN 1366-3 in line with the fire stopping manufacturer's recommendations.

Fixing diagrams A-C

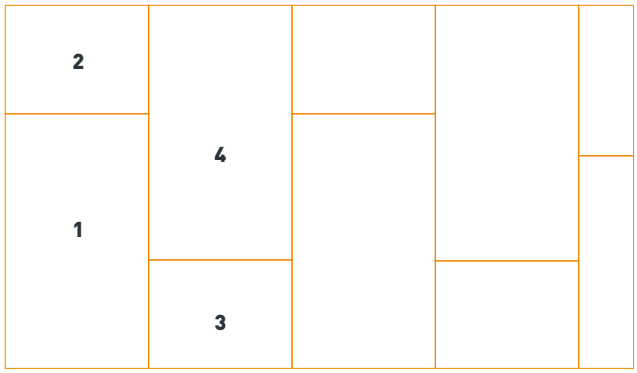


Diagram A:

Recommended fixing sequence for fire rated and double board height partitions

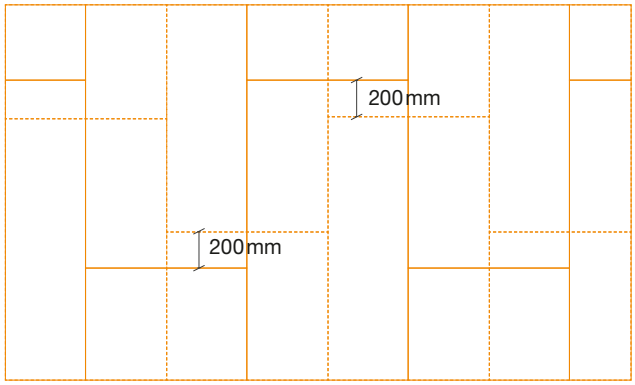


Diagram B:

Recommended fixing sequence in a double layer partition

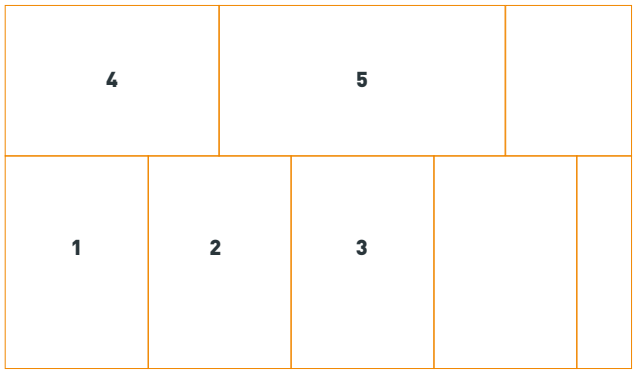


Diagram C:

Alternative fixing sequence, for non rated solutions.

NOTES:

- No cross jointing allowed. Ensure T-joints only at board junctions
- Offset all board joints by minimum 200 mm on both lower and subsequent layers.

Screwing to timber substructure

Stapling to timber substructure

Stapling fermacell® fibre gypsum board to fermacell® fibre gypsum board

Jointing & finishing

fermacell® fibre gypsum boards can be jointed and finished in either of these 2 ways to suit your construction.

1 Glued joints - Joining square edge wall boards (for glued butt joints with fermacell™ Jointstik)

- fermacell® fibre gypsum boards must be dry when installed
- Only fermacell™ Jointstik can be used for glue jointing. Max joint width ≤1 mm)
- Ensure board edges are clean and dust free
- Only use factory cut edges or board cut with a plunge saw and a guide for glue joints
- Once the first board is fixed the fermacell™ Jointstik is applied to the edge of the first board in a 3 mm bead. Ensure the glue is not applied or spread onto the stud behind the board
- Offer up the next board at least 10 mm away from the glue joint, then push the boards together to a tight butt joint of <1 mm
- fermacell™ Jointstik will cure in approximately 24 hours. Once cured the bead of glue can be scrapped off with a glue scraper or a paint scraper
- Any high spots over the joints can be surformed or sanded back
- At the same time remove any burrs of board from fixing locations
- Joints and fixing heads are then filled with fermacell™ Joint Filler.

Use of Jointstik adhesive or greenline Jointstik adhesive	
Board size	1 cartridge with 310 ml content
2 400 × 1 200 mm	22 m² or 20 lm of joint

(Assumed: wall height 2.5 m for 10 and 12.5 mm boards)

Glue

- Apply the adhesive joint and push the boards together so that a fully filled adhesive joint of max. 1 mm is formed.
- The dosage can be varied according to the thickness of the fermacell® fibre gypsum board used. For 10 or 12.5 mm fermacell® fibre gypsum board, use the joint tip as it is. For 15 mm, you can cut off the joint tip as shown in picture 2. For 18 mm fermacell® fibre gypsum board, the entire upper part of the joint tip can be cut off as shown in picture 3.

Picture 1
For 10 & 12.5 mm fermacell®

Picture 2
For 15 mm fermacell®

Picture 3
For 18 mm fermacell®

Glue & filler joint examples

Glue joint

Filler joint

2 Square edge & off-cut jointing (leave a 5-7 mm gap and then fill using fermacell™ Joint Filler)

Fix | Leave 5-7mm gap | Fill | Finish

Filled joints or off-cuts

- For hand sawn, jigsawn or scored and snapped boards the glue joint method cannot be used
- Leave a min 5-7 mm gap between boards, or use the following table as a guide dependent on board thickness
- Fully fill joints with fermacell™ Joint Filler. **N.B.** It is essential that joints are fully filled to ensure a good bond between boards.

Mixing fermacell™ Joint Filler

- Ensure tools and mixing buckets are clean
- Add clean water to the bucket, then add the fermacell™ Joint Filler and allow this to settle for about 2 minutes. Then mix by hand with a suitable hand trowel. **N.B.** do NOT mechanically mix
- Working time once mixed = approximately 30 minutes, so only mix the amount required
- Fill flush, do not overfill
- A second feather fill may be required due to shrinkage during drying.

Board thickness mm	Joint width mm
10	5 – 8
12.5	6 – 9
15	7 – 10
18	7 – 10

Horizontal joints

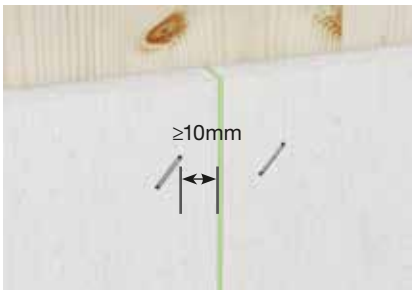
Horizontal joints are usually best placed at higher level within a partition.

- Glue Joints. Correctly formed Jointstik joints do not require any backing.
- Filler Joints with fermacell™ Joint Filler must be backed / supported.

Multi layer linings

- Inner boards are tightly dry butt jointed. Joint width ≤1 mm.
- Outer visible layers are jointed as per our guidelines below.
- All joints between layers must be staggered by a minimum of 200 mm.

Tight butt glue joint with fermacell® Jointstick. Joint width ≤1 mm.



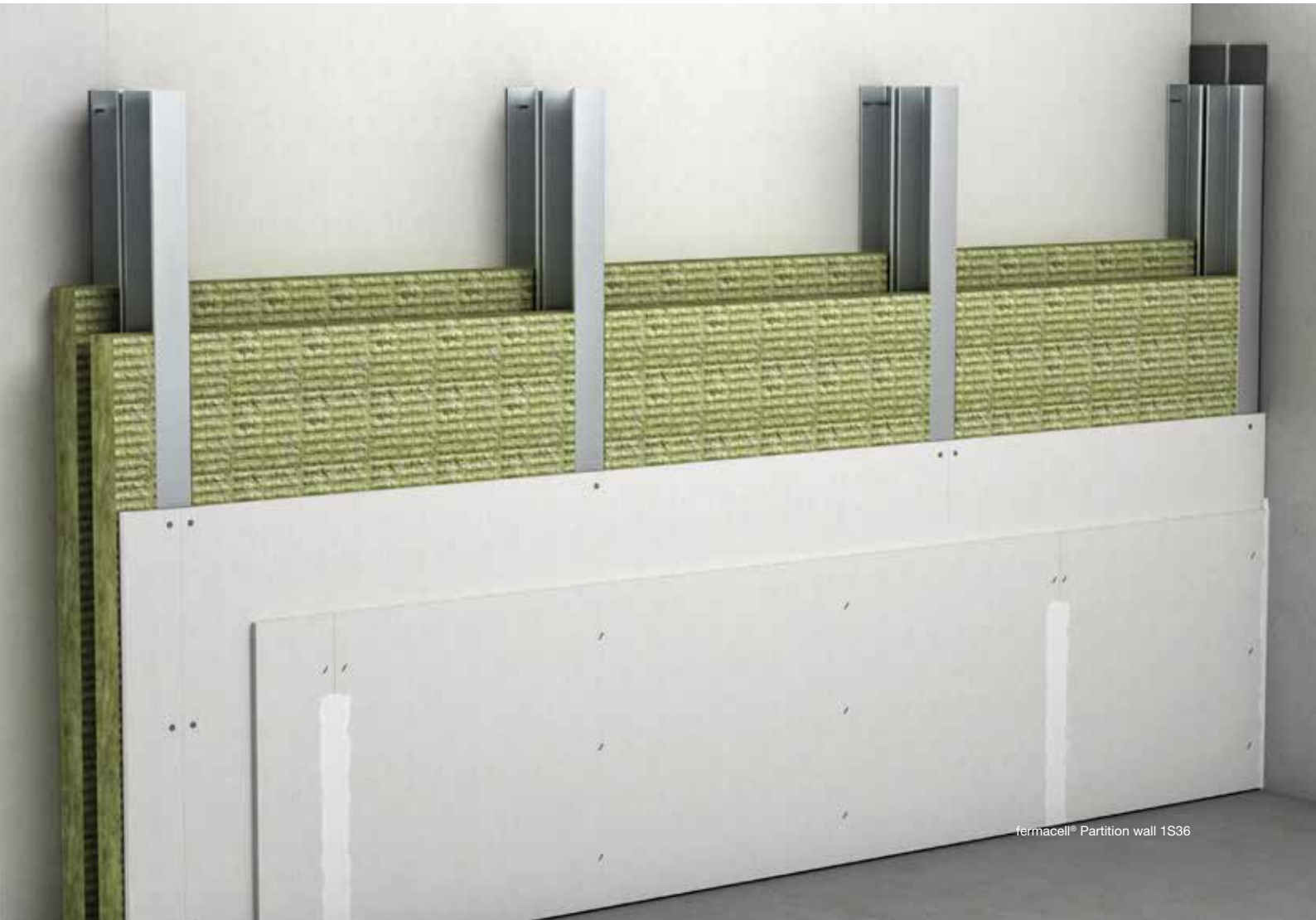
Spacing of staples to edge - ≥10 mm.

Countersunk staples 1-2 mm.

Fixing board in board.

FIRE PROTECTION

fermacell™ products and systems



fermacell® Partition wall 1S36

Protection objectives

Fire protection measures in housing serve primarily to protect life and health (personal protection), to preserve physical assets and to protect the environment. The building regulations are geared to the protection of life, followed by protection of property.

Essentially, there are three measures that are taken into account for structural fire protection in regard to protecting life.

- The arrangement of escape and rescue routes (corridors, stairwells, windows) for the rapid evacuation of people
- Measures against the spread of fire through ceilings, walls, doors, etc. within a building or to protect neighbouring buildings.
- Measures to ensure the stability of structural components (load-bearing walls, columns, beams, etc.) for a sufficient length of time.

Fire protection includes preventive and protective fire safety measures. These should be designed and planned with the principle designer, fire engineer and relevant notified bodies.

The fire protection requirements for buildings relate to components (e.g. walls, ceilings, staircases, etc.), building areas (e.g. escape routes, stairwells, etc.) and clearances. Requirements are primarily laid down in relation to the properties of the building materials (building material class) and the components (fire resistance). The level of the requirements depends mainly on

- the dimensions of the building, such as height and floor area,
- the type of use of the building,
- the occupancy density, e.g. the number of homes.

Components and constructions

The fire behaviour of partitions and their components is critically dependent on the following factors, and any changes to the constructions may lead to an impact on the performance of the system in question.

- The fire exposure direction (single- or multi-sided)
- Component dimensions
- The type of construction, the structure and the design of a component
- The individual load bearing systems of the construction and their interaction
- The load utilisation factor of the component
- The use of protective encasement or coating
- The building material used
- The structural connection between different components (junctions etc.)

The choice of building material is therefore only one factor influencing the fire behaviour of components.

Lightweight and drywall systems that give a fire performance consist of a combination of individual building materials or building elements. e.g.

Board materials/ Cladding materials

- fermacell® fibre gypsum boards, glass-fibre reinforced lightweight concrete boards
- Wood-based boards
- Boards made of mineral-bonded fibres

Supporting structure / substructure

- Metal profiles
- Wood

fermacell® fibre gypsum boards are non-combustible and correspond to building material class A2-s1, d0 to EN 13501-1.

ON SITE

Installation

Installation overview

fermacell® fibre gypsum boards must be fitted to fermacell™ steel profiles of minimum 0.6 mm gauge and a nominal 50 mm fixing face.

- Ensure the substrate to be fixed to is clean and flat
- Mark out the line of the partition allowing for the width of the fermacell® fibre gypsum boards to each side
- Use isolation strips to the back of the profiles abutting the substrate as required for the acoustic performance
- Head and base tracks are fixed at maximum 600 mm centres, or as per the system specification.
- Once base track is fixed, plumb the top track and fix
- Abutment studs are fixed at maximum 600 mm centres vertically, or as per the system specification
- Fixings must be suitable for the substrate, and where required pull out test may be required to confirm suitability and performance
- Intermediate studs should be cut 10 mm shorter than the floor to ceiling height, to the required deflection allowance (see section on Deflection Heads on page 40)
- Studs must NOT be fixed to the head or base tracks
- Studs should be installed facing the same direction
- Door opening studs should be marked out either side of the opening and fixed into place. Check the stud configuration required for the door weights and use the correct profiles as per manufacturers guidelines (refer to fermacell® maximum door weight details)
- Install the insulation as specified for the fire, acoustic or thermal performance. Install to the manufacturer's guidelines. Ensure a tight fit against the stud spines. Leave no gaps
- Cut the fermacell® fibre gypsum board 10 mm less than the room height and install leaving a min 5 mm gap at head and base
- For boards abutting other materials at partition ends, leave a 3-5 mm gap for differential movement. This can be filled with a suitable flexible sealant

N.B. This should be fire and acoustically rated as required.

- Base Tracks should be protected from Standing water. Any damaged/rusted tracks should be replaced
- When Installing before the building envelope is complete ensure that the partitions are designed for temporary wind loads. As a guide start partitions at a min 45° rake from the exposed opening soffit as this reduces the impact of weathering.

Twin stud systems

For twin studs systems two parallel stud profiles are fitted with a minimum cavity of 10 mm.

There is no maximum cavity width, though 200 mm is a typical guideline.

N.B. Twin studs can be braced for additional build height for non-fire rated solution only.

Steel stud walls

Steel stud installation

fermacell™ studs are inserted into fermacell™ head and base tracks.

fermacell™ tracks are available in standard sizes as follows:

- Track with a 40 mm leg
- Track width a 60 mm leg, also know as Deep Flange Track
- Extra deep flange tracks can be made to meet project requirements.

N.B. For partitions up to 5 m in height the 0.6 mm gauge tracks are used. For partitions above 5m in height the track gauge must be increased to 1 mm.

Studs must not be mechanically fixed to the tracks. They are left 'floating' within the tracks. When twisted into place they give a good friction fit that allows for adjustment as required when fixing fermacell® fibre gypsum boards.

Studs should be cut short by a minimum of 10mm but must also sit 50 % into the head track. E.g. for a 40 mm head track the stud is cut down a maximum 20 mm.

Stud centres are typically 600 mm but can be 400 mm or 300 mm depending on the board thickness and performance specification.

For high walls studs may need to be spliced or joined together. The table below gives the minimum overlap and splice options depending on stud width and type.

N.B. Minimum overlap is 10 x stud width.

Resilient bars or counter battening for increased acoustic performance

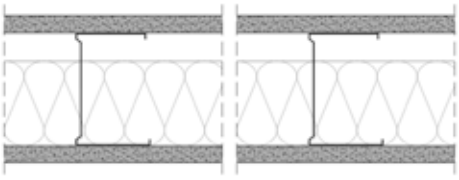
- Before mounting boards, fix resilient bars at right angles to the subframe (vertical studs or floor joists) at the appropriate centres (see table on page 32)
- With timber counterbattens use at least a 50 mm x 25 mm finished size wooden lath
- Before installing the battens, stone wool insulation or an isolation material may be sandwiched between the subframe and the battens to provide an isolation layer.

Floating stud system:
The adjusted fermacell™ stud profiles must not be screwed or crimped to the fermacell™ track profiles.

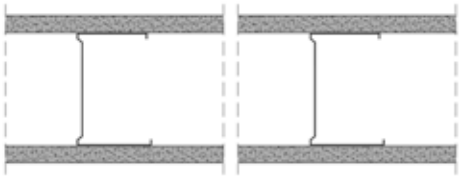
For fixing fermacell® to steel studs the last fixing must be at least 20 mm above the base track leg, and 30 mm or the deflection allowance below the head track leg.

Maximum allowable stud centres[1] in mm for different thicknesses of the first/lower layer of boarding with fermacell® fibre gypsum boards			
10 mm	12.5 mm	15 mm	18 mm
400	600	600	600

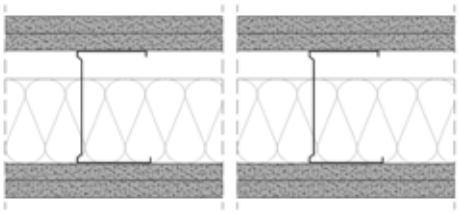
[1]Specifications apply to constant ambient conditions of up to 80% relative humidity



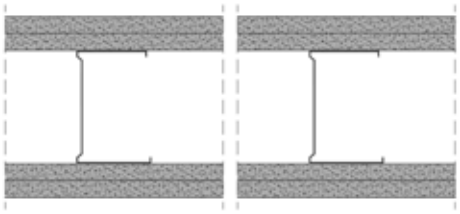
Partition wall with fermacell® fibre gypsum boards with insulation



Partition wall with fermacell® fibre gypsum boards without insulation



fermacell™ double layer stud partition wall



Double layer stud partition, no insulation

Twin stud fermacell™ partition wall, no insulation

FERMACELL® STEEL STUDS

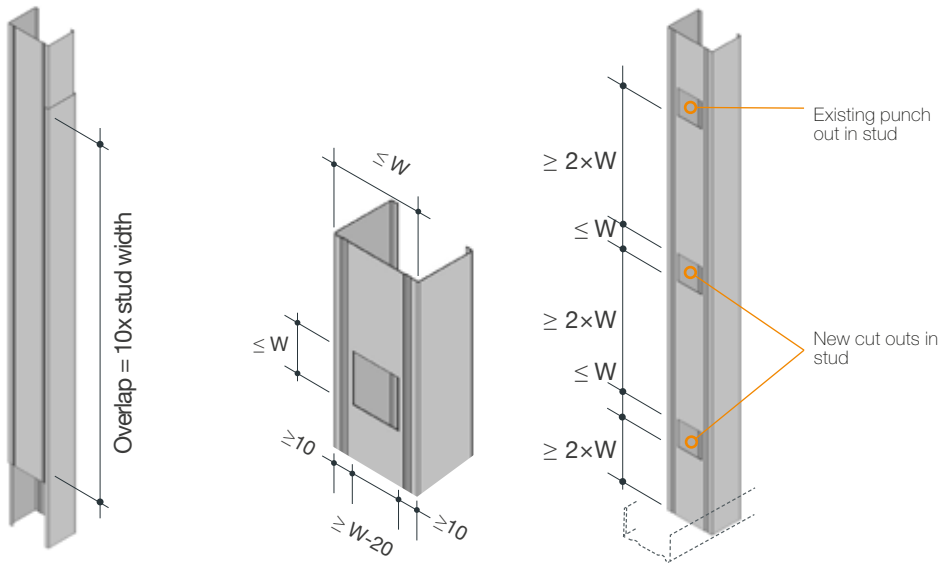
Splicing & cut outs

Overlapping distances for different fermacell™ stud profiles	
Profile	Min overlap distance
fermacell® 50 mm	≥500 mm
fermacell® 75 mm	≥750 mm
fermacell® 100 mm	≥1000 mm
fermacell® 125 mm	≥1250 mm
fermacell® 150 mm	≥1500 mm

Maximum web cut-outs in fermacell™ stud profiles of metal stud walls (created on site)		
Metal stud wall profiles	Boarding	Web cut-outs, number of openings
fermacell™ stud 75/100/125/150	10 mm	1 x per stud wall
fermacell™ stud 75/100/125/150	≥12.5 mm or multilayer	2 x per stud wall
fermacell™ stud 50	multilayer	1 x per stud wall

The openings indicated in the table may be installed in addition to the usual hole punchings. The web cut-outs can also be created in accordance with 18182 Part 1, Table 1, Column 11.

Further profile cut-outs can be created upon consultation with the profile manufacturer. The number and height of the cut-outs should be checked in regard to the load carrying performance of the system being used.



Timber stud walls

Timber stud installation

Timber stud walls are usually divided into the following different types:

- Non load-bearing stud walls. Typically internal partitions.
- Load-bearing stud walls. These can be internal or external walls.

It is important to check which grade of timber needs to be used for the required performance, as in some cases the fire rating and/or build height requires a C16 or C24 or other timber grade.

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 600 mm horizontally and 600 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.

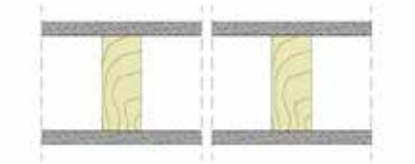
If the partition is a double stud system, two separate parallel subframes are installed in the same way as a single stud system, with a small gap (minimum 10 mm) separating the frames. Typical max gap between studs is 200 mm as a guide

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

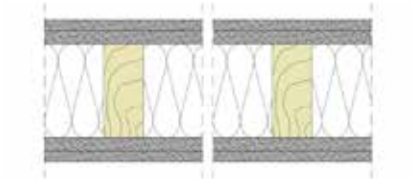
Horizontal studs (noggings or dwangs) are not required when using the Jointstik method of jointing (square edge) boards, but should be used when installing any joint using a the Joint Filler Jointing 5-7 mm gap joint method.

When using the Joint Filler method for jointing square edge boards the gap should be taken into account when setting out the studs.

Board thickness mm	Joint width mm
10	5 – 8
12.5	6 – 9
15	7 – 10
18	7 – 10



1 H 13



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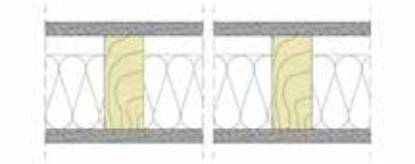


1 H 22

Wall linings

Wall linings, Independent and adjustable wall linings can be fitted to or in front of existing walls to increase sound performance or give added fire protection.

These can be made up as follows:

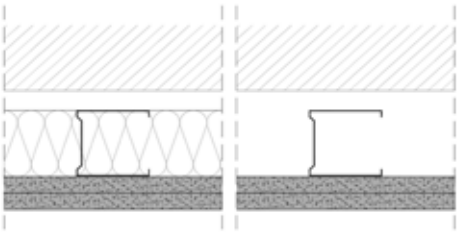
Steel profile solutions:

- Independent wall lining with fermacell™ steel studs.
- Adjustable wall lining with fermacell™ adjustable profiles.
- Fixed wall lining with fermacell™ metal furrings or Top Hat profiles.

Timber solutions:

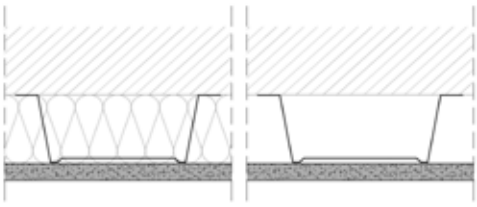
- Independent wall lining with timber studs
- Fixed wall lining with timber battens, minimum 50 mm wide x 25 mm deep. For enhanced acoustic performance fit an acoustic isolation layer between the battens and the supporting structure.

In each system insulation may be installed as required for the performance e.g. glass or stone mineral wool.



Independent lining

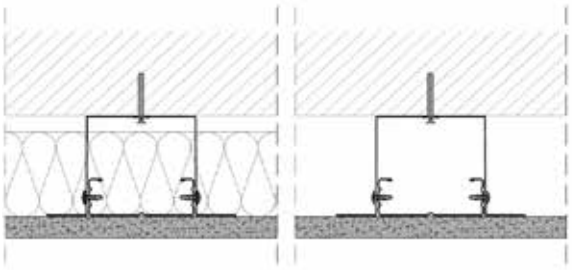
Ideal for backgrounds that do not allow a direct fixing. Constructed either with metal studs or timber sections with a minimum 50 mm fixing face. Minimum 10 mm cavity.



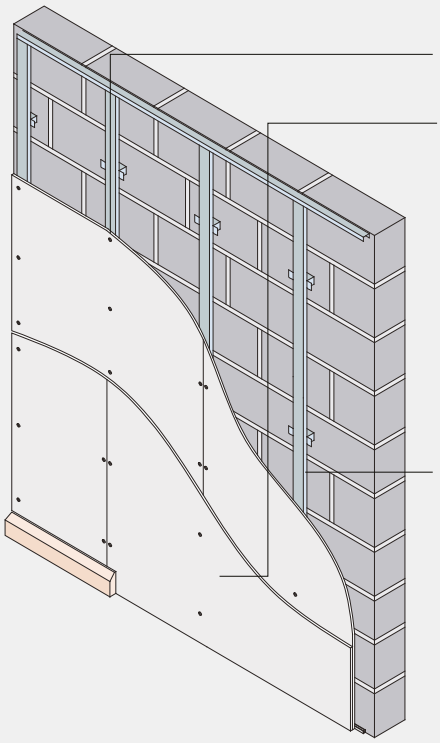
Adjustable lining systems

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

- 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® fibre gypsum board, mark horizontal lines at 800 mm centres and vertical lines at 600 mm centres for 1200 mm wide board.
- 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® fibre gypsum boards, centre the edges over the channels and fix with fermacell® screws at 250 mm centres
- Joint and finish the fermacell® fibre gypsum boards appropriately for the jointing method selected.



Top Hat/metal furring profile with single layer fermacell® fibre gypsum board Insulation optional.



Installation of electrical systems

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

Avoid installing sockets or penetrations opposite each other. 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 regulation's part E for socket penetrations. Timber battens or metal furrings are fitted to the original fermacell® wall and services laid in the new cavity.

For acoustic and fire rated partitions suitable putty pads or pattress boxes can be used; refer to fire stopping manufacturer's guidelines.

Installation of sanitary facilities

Sanitary and IPS systems can be installed within the cavity of fermacell™ partitions. Ensure the systems used do not affect the fire, sound or structural performance of the partition. e.g. for sound performance pipe fixings should be separated from the studs by isolation rubber felt or similar.

Where pipes penetrate the fermacell® fibre gypsum boards, a minimum gap should be left which must be sealed with a suitable fire/acoustic mastic or fire stopping solution. For gap size refer to Fire Stopping manufacturers guidelines.

Stud profiles come with standard punchings/cut outs already located towards each end of the studs. Where these are not large enough then cutout sizes are allowed as per the table on page 27. For larger pipework or other systems a twin stud partitions should be used.

Sound insulation measures for cable and pipes in partition walls

Cable and pipe passages of building services installations must be made airtight and soundproof. Pipework must be fitted with isolation supports and must not have any contact with the wall boarding and substructure. Fittings are installed with sound insulation according to the manufacturer's specifications.

If required, additional sound insulation solutions must be used. Sockets should be offset by at least one stud grid, i.e. do not install sockets opposite each other as this can significantly reduce the sound performance. It is recommended to install cavity insulation behind the sockets for improved sound insulation.

WALL CONSTRUCTIONS

Partition walls & boarding

Partition wall constructions

These tables are for standard fixing of fermacell® fibre gypsum boards. For **fire rated systems** refer to the system specification for the correct fixing and spacings required for the system performance.

Board thickness/Structure	Staples (galvanized and resin-coated) d ⩾ 1.5 mm, head width /crown ⩾ 10 mm			fermacell™ Drywall screws d = 3.9 mm		
	Length	Spacing	Use	Length	Spacing	Use
	[mm]	[mm]	[No./m²]	[mm]	[mm]	[No./m²]
Metal – 1-layer						
10 mm	–	–	–	30	250	26 (20)*
12.5 mm	–	–	–	30	250	20
15 mm	–	–	–	30	250	20
18 mm	–	–	–	40	250	20
Metal – 2-layer / 2nd layer fixed into the substructure						
1st layer: 10 mm	–	–	–	30	400	16 (12)*
2nd layer: 10 mm	–	–	–	40	250	26 (20)*
1st layer: 12.5 mm or 15 mm	–	–	–	30	400	12
2nd layer: 10 mm, 12.5 mm or 15 mm	–	–	–	40	250	20
Metal – 3-layer / 1st to 3rd layer fixed into the substructure						
1st layer: 12.5 mm or 15 mm	–	–	–	30	400	12
2nd layer: 10 mm or 12.5 mm	–	–	–	40	400	12
3rd layer: 10 mm or 12.5 mm	–	–	–	55	250	20
Timber – 1-layer						
10 mm	⩾ 30	200	32	30	250	26 (20)*
12.5 mm	⩾ 35	200	24	30	250	20
15 mm	⩾ 48	200	24	40	250	20
18 mm	⩾ 50	200	24	40	250	20
Timber – 2-layer / 2nd layer fixed into the substructure						
1st layer: 10 mm	⩾ 30	400	12	30	400	16 (12)*
2nd layer: 10 mm	⩾ 50	200	24	40	250	26 (20)*
1st layer: 12.5 mm	⩾ 35	400	12	30	400	12
2nd layer: 12.5 mm	⩾ 50	200	24	40	250	20
1st layer: 15 mm	⩾ 48	400	12	40	400	12
2nd layer: 12.5 mm or 15 mm	⩾ 60	200	24	40	250	20
Timber – 3-layer / 1st and 3rd layer fixed into the substructure						
1st layer: 12.5 mm	–	–	–	30	400	12
2nd layer: 10 mm or 12.5 mm	–	–	–	40	400	12
3rd layer: 10 mm or 12.5 mm	–	–	–	55	250	20

* Bracketed values apply to boarding with fermacell® Firepanel A1

Note:

- For 4-layer with 10 mm fermacell® gypsum fibre board sheathed wall constructions, the last board layer can be fixed directly in the substructure with fermacell™ drywall screw 3.9 × 55 mm.
- For wall constructions with specific fire protection requirements, refer to the fixing centres stated in the respective test certificates.
- To fix 10 mm, 12.5 mm or 15 mm fermacell® fibre gypsum boards to reinforced metal substructures of up to 2 mm material thickness, use fermacell™ drill tip screws 3.5 × 30 mm. The use is approx. 4 screws per linear meter of section.
  N.B for double layer requirements use the 40 mm Powerpanel drill tip screws for the outer layer - maximum fixing spacing 250 mm.

Partition Wall constructions – Board to board fixing

(Fixing of the 1st board layer as described for a single layer as per the table on page 32)

Board thickness/Structure	Diverging staples (galvanized and resin-coated) d ≥ 1.5 mm, row spacing ≤ 400 mm			fermacell™ Drywall screws d ≥ 3.9 mm, row spacing ≤ 400 mm		
	Length [mm]	Spacing [mm]	Use [No./m²]	Length [mm]	Spacing [mm]	Use [No./m²]
Wall area per m² dividing wall						
10 mm fermacell® on 10 or 12.5 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® on 18 mm fermacell®	31–34	150	43	40	250	26

Installing insulation

Where required insulation can be fitted into fermacell™ partitions.

Typically this will be a mineral wool insulation in a batt or roll form. There are two types of mineral wool, either stone mineral wool or glass mineral wool. They have different melting points and thus the correct type must be used to suit the specification for both fire and acoustic performance. e.g. stonewool insulation melting point is >1000°C.

Alternative insulation products may also be used e.g. wood fibre, paper fibre and sheepswool. Ensure the fire rating is checked if required for these options.

Where insulation is required for thermal requirements please contact the insulation manufacturer for thermal calculations.

For most fermacell™ systems a stonewool batt insulation is required. the specification will dictate the minimum thickness and density (kg/m³). Where required the minimum thickness and density can be increased in line with EN 15254-3 for fire rated systems, or as required for non-fire rated systems.

The required thickness of insulation should be fitted and supported to manufacturers guidelines with no gaps, ensure joints are tight. Any holes or gaps should be suitably filled, as these will reduce the sound, fire and insulation performance. Where two or more layers of thinner insulation are used, then all joints must be staggered between layers.

Installation of insulation

Boarding the substructure

fermacell® fibre gypsum boards can be fitted in single or multiple layers on each side of the partition, depending on the different requirements of the partition walls for sound, fire protection or loading.

The boards are fixed to fermacell® stud profiles or timber studs walls as follows:

Steel Studs - fermacell™ drywall screws. **N.B.** Boards fixed to Studs only.

Timber Studs - fermacell™ screws, staples or nails. **N.B.** Fixed to both studs and tracks.

N.B. Fixing locations:

- min 10 mm from board edges.
- min 50 mm from board corners.

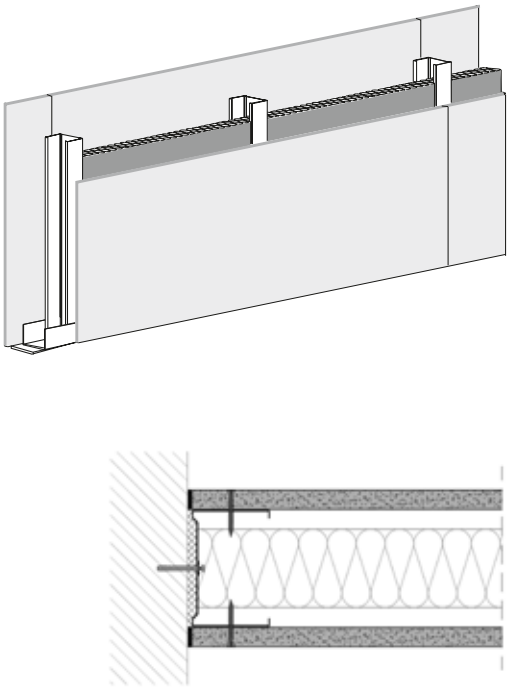
Fixing spacing tables for walls are shown on page 32 and for ceilings on page 62.

N.B. for fire rated systems the tested / approved fixing and centres MUST be followed.

Refer to the system specification and drawings for further clarification.

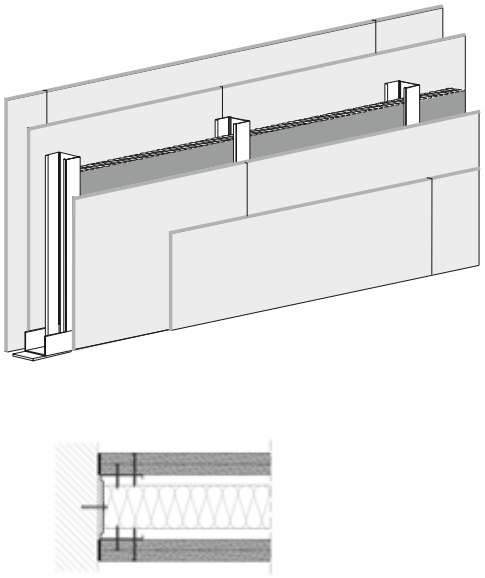
Boarding of the metal substructure

Single layer boarding



Arrangement of fermacell® fibre gypsum boards on steel studs.

Double layer boarding



Staggering of Joints

All joints must be staggered by a minimum of 200 mm; both on the same layer and between layers.

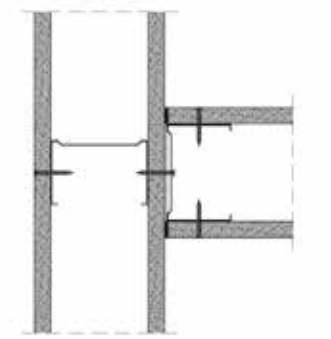
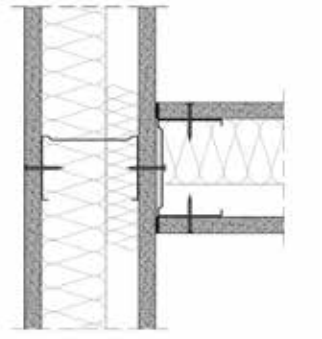
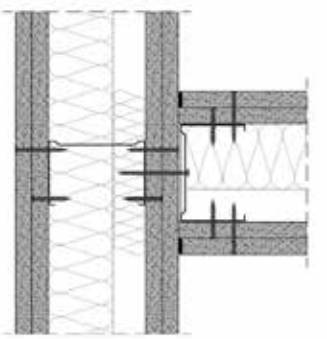
Cross joints, i.e. four board corners at the same point, are not recommended. See board layout installation diagrams for guidance on page 18.

Staple fixing fermacell® fibre gypsum boards to timber substructure

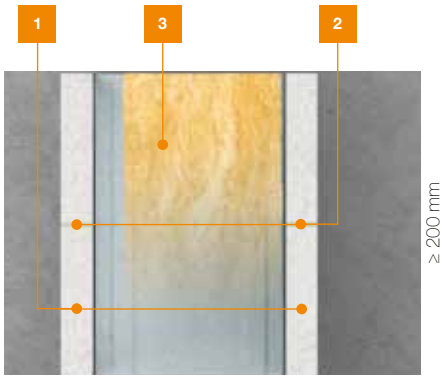
Fixing with screws

Stop End detail

Partition joints

1 S 15 fermacell™ Partition	1 S 21 fermacell™ Partition	1 S 31 fermacell™ Partition
		

Horizontal jointing

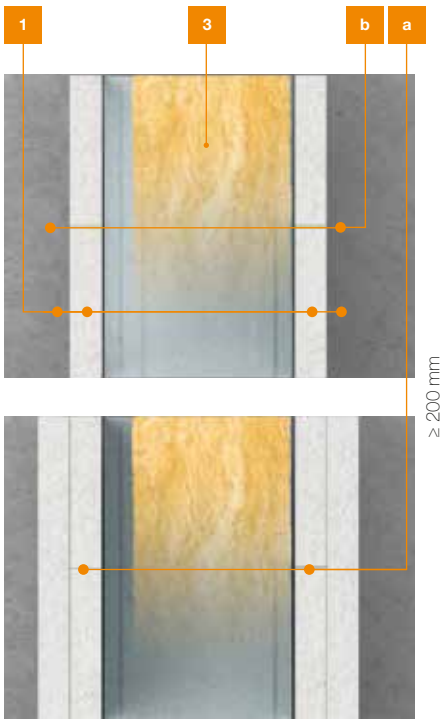


1 fermacell™ partition wall, single layer of fermacell® fibre gypsum board to each side.

2 fermacell™ partition wall, double layer of fermacell® fibre gypsum board to each side. Glue or filler joint options for outer layer.

N.B. Inner layer MUST be dry butt jointed. Joint width ≤1 mm.

3 With or without insulation material.



Alternative joint designs

a fermacell™ adhesive joint width: ≤1 mm.

b fermacell™ Joint Filler joint width: ½ × board thickness + max. 3 mm.

? Board joint tightly butted joint width: ≤1 mm.

Corner joints' internal and external

Internal

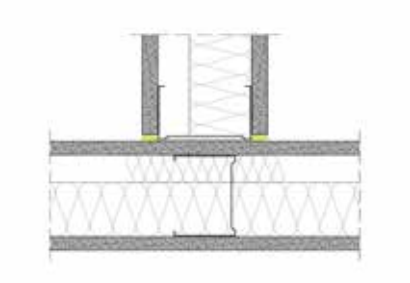
- There are a number of ways to construct an internal corner depending on the installers preference.
- Leave a 3-5 mm gap between the femacell® fibre gypsum boards and other building backgrounds, the gap can then be filled with a flexible decorators' filler or accoustic/fire rated sealant as required.
- 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. suitable for the performance of the partition in regard to fire and acoustics.

External

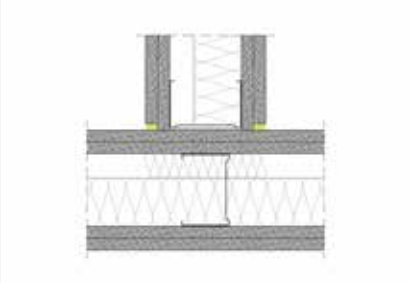
- fermacell® fibre gypsum boards are strong enough to withstand day to day impacts on external corners with out the requirement of additional corner protection.
- To create an external corner the boards should be aligned flush and fixed to the stud using fermacell™ screws, or staples with timber studs, and secured with fermacell™ Jointstik leaving a 1 mm finished joint. Alternatively the Joint Filler gap can be left between the boards at the junction and filled with fermacell™ Joint Filler.
- Once the fermacell™ 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.
- When feathering out joints/ corners with beads, ensure a min 300 mm feather to the bead to loose any high points.

Tip:
The surface should be dry and free of stains.

Steel stud corner junction - Filler & glue



Steel stud single T-Junction - No fixings



Steel stud double T-Junction - No fixings

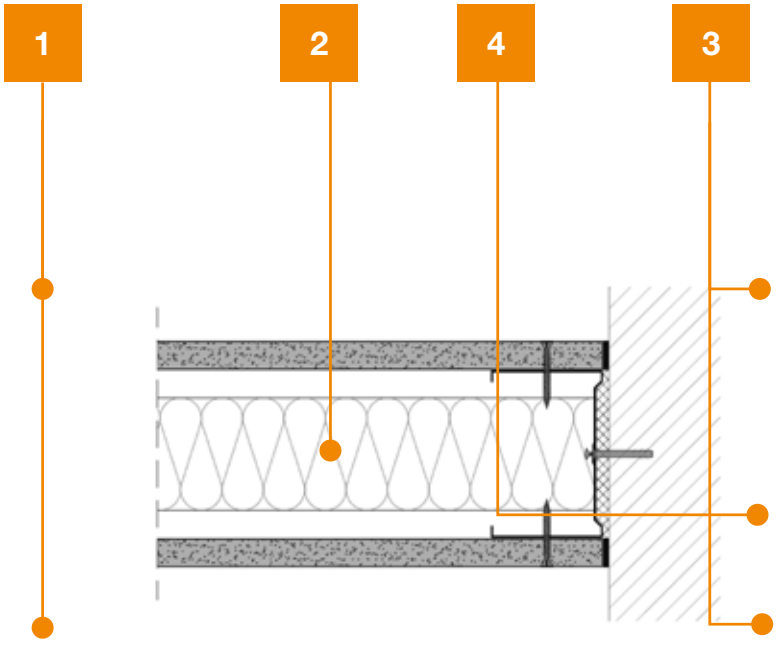
JUNCTIONS

Junctions, joints & movement joints

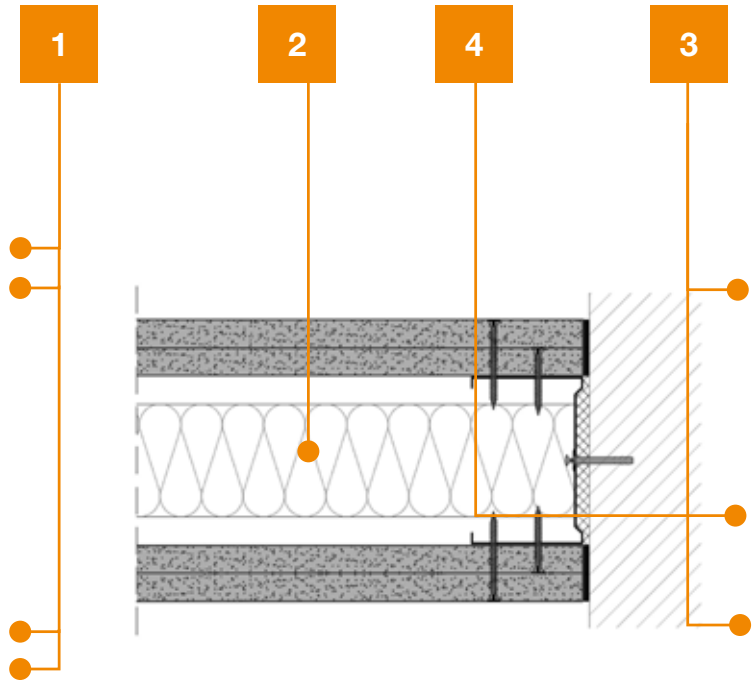
Wall and ceiling junctions

When abutting fermacell™ partitions to other materials, such as plaster skim, exposed concrete, masonry, steel or timber materials, an allowance for differential movement must be accommodated as per the details below:

1. fermacell® fibre gypsum boards
2. Insulation material optional
3. Flexible mastic, fire rated as required. Gap size to manufacturer's recommendations
4. Acoustic isolation strip



Double layer partition wall abutment detail



Corner & T-junctions

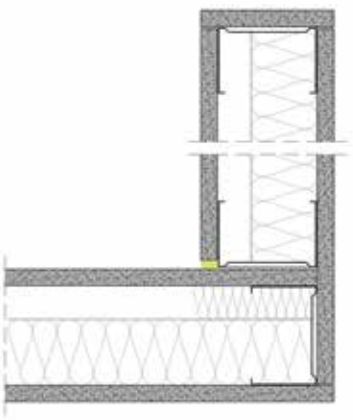
Corner and T-junction details are constructed as shown. Additional details are also shown in each system drawing. These details can be applied for both fermacell® steel stud partitions and timber partitions.

In some cases open acoustic junctions may be required. These are specific sections and details can be supplied from the Technical Department.

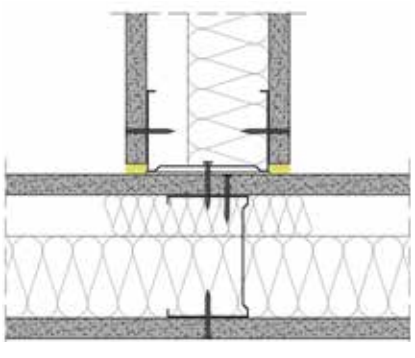
At T-junctions where greater sound performance is required, a break in the fermacell® fibre gypsum board behind the junction will reduce the influence of flanking sound.

Internal corner joints must can be jointed with the fermacell™ Joint Filler method. Ensure a minimum gap of 5-7 mm is left to allow for a full fill of fermacell Joint Filler. If required to allow for movement, a suitable flexible mastic may be used. This would need to be fire rated as required.

External corner joints can be jointed with the fermacell™ Jointstik glue or fermacell ™ Joint Filler method.

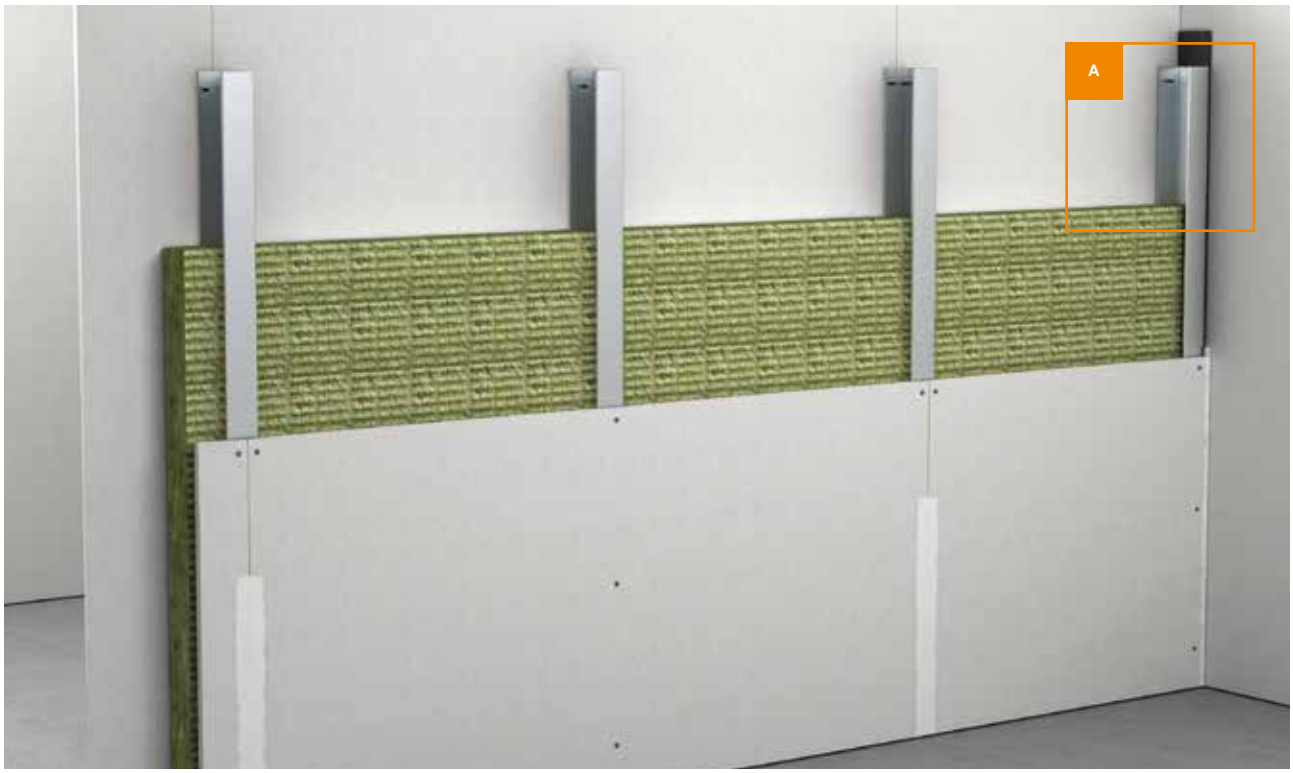


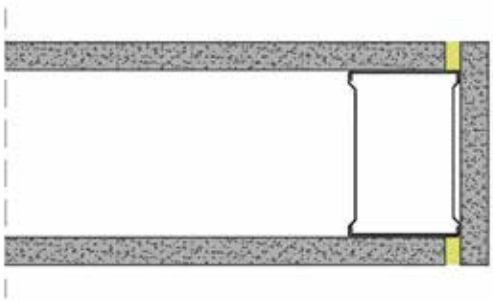
Corner junction detail



T-Junction detail

Example abutment details



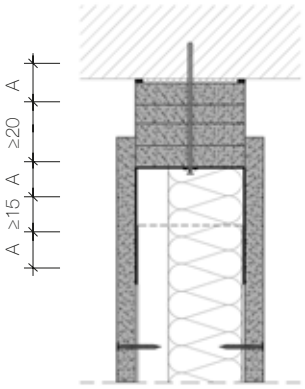


Partition stop ends

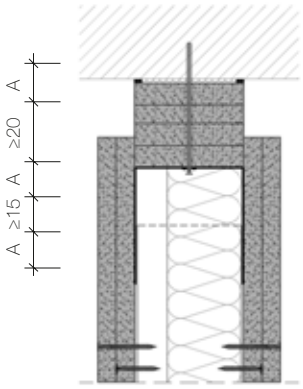
Partition stop ends can be constructed easily by boxing the studs to increase the strength of the partitions at these points.

Check the wall height required, as in some instances the 2 mm door reinforcement profiles may be needed.

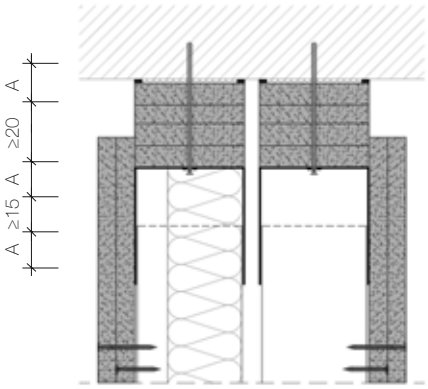
A = Movement amount in mm



Deflection head detail with strips of fermacell® fibre gypsum board. Single layer partition.



Deflection head detail with strips of fermacell® fibre gypsum board. Double layer partition.



Deflection head detail with strips of fermacell® fibre gypsum board. Double layer, twin stud partition.

Deflection head details

- 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.

Refer to the specific system detail as required for the deflection and fire rating required. Also refer to the latest fermacell™ deflection head drawings and fire assessment for further guidance. For ≥60 minute performance a double head fixing may be required.

fermacell® deflection head details do not require an additional flat strap just below the head detail, making them much easier and simpler to construct.

- 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® fibre gypsum boards – refer to our Technical Department for guidance
- Alternatively, a timber deflection head may be used as per the fermacell™ Deflection Head Standard details.

Note:
For fire rated deflection head details, refer to the latest fermacell® deflection head fire assessment and drawings.

Partition base junctions

Accurate and tight partition to floor junctions are crucial for fire and sound performance. It is essential that all gaps are sealed with suitable Joint Filler or flexible mastic.

Flanking sound should be considered and where required one of the examples shown below may be needed to meet the project requirements.

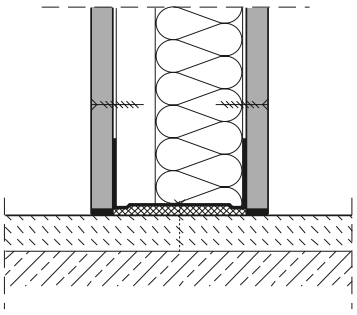
An acoustically ‘broken’ floating screed is usually the best option.

However, ensure that partition weights are checked in the design at these locations.

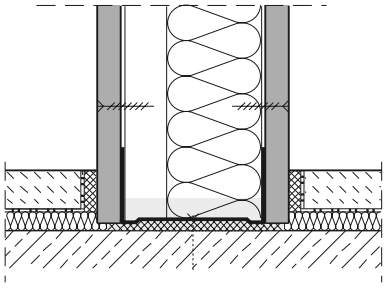
The best option is to fit the screed after the partitions are installed. If a wet screed type is to be used ensure that the partitions are protected with vapour barrier (visqueen or similar) wrapped up the partition above the finished screed height. This must extend under the screed by a minimum of 400 mm and be taped down to the substrate. Ensure the screed is decoupled from the partition.

N.B. if pumpable type wet screeds are to be installed after the partitions then the following jointing options must be followed as the added moisture in the building causes greater product movement:

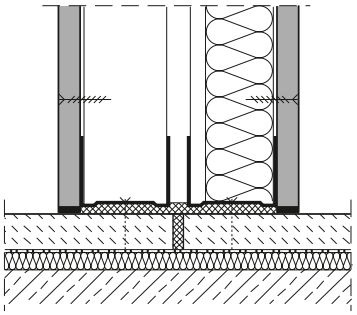
- Board can be pre jointed with the Glue Joint method
- fermacell™ Joint Filler joint option, must be carried out once the screed has dried.



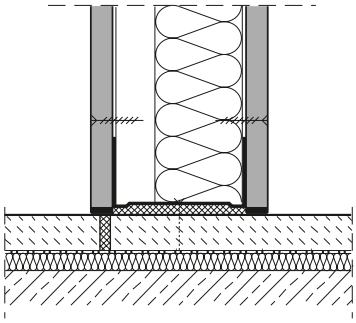
Partition wall against composite screed (R_{LWR}) = 38 or 44 dB*



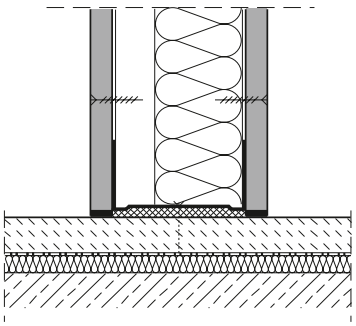
Floating screed against partition wall (R_{LWR}) = 70 dB*



Twin stud partition wall on floating screed with separation joint (R_{LWR}) = 55 dB*



Partition wall on floating screed with separation joint (R_{LWR}) = 55 dB*



Partition wall on continuous floating screed (R_{LWR}) = 38 dB*

Sound performances shown are indicative Flanking sound performance.

Movement joints

Movement joints are required in fermacell® partitions and ceilings as shown below, and are specific to the board jointing method used. As a structural board, fermacell® fibre gypsum board is subject to changes in length due to moisture and temperature influences. Though minor, these need to be allowed for.

N.B. Movement joints must be fitted in fermacell™ partitions where Main structural movement joints occur within the building shell/structure.

Movement Joint requirements:

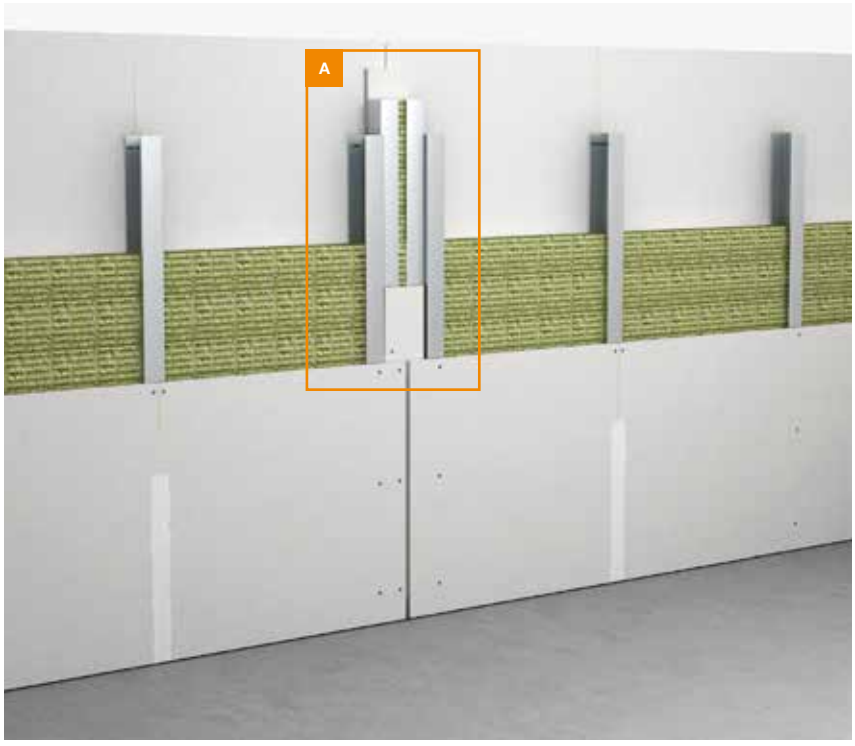
- fermacell™ Jointstik glue joints - max. 10.0 lm intervals
- fermacell™ Joint Filler Joint - max. 8.0 lm intervals.

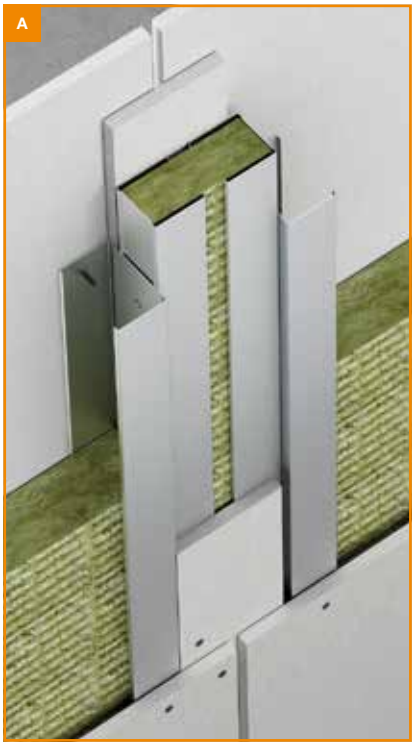
Examples of how these are constructed are shown in the illustrations. Ensure that movement Joints are not locked off, as this would restrict them being able to work correctly. Specific movement joint details are also shown in the drawings for each system. Please refer to these for additional guidance.

Decoration of movement Joints. Flexible cap/cover profiles are available to suit the project requirements. We do not recommend specific products.

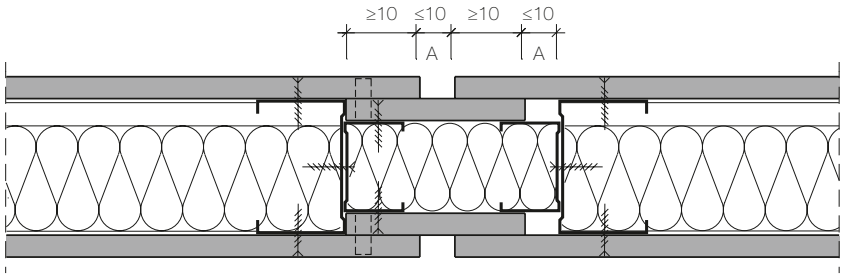
Flexible mastics can be used, but these must have a much greater elasticity. In general these types of product tend to dry out and crack, becoming unsightly.

If the fermacell™ Jointstik board jointing method is used, this can be extended to max 10 m intervals.

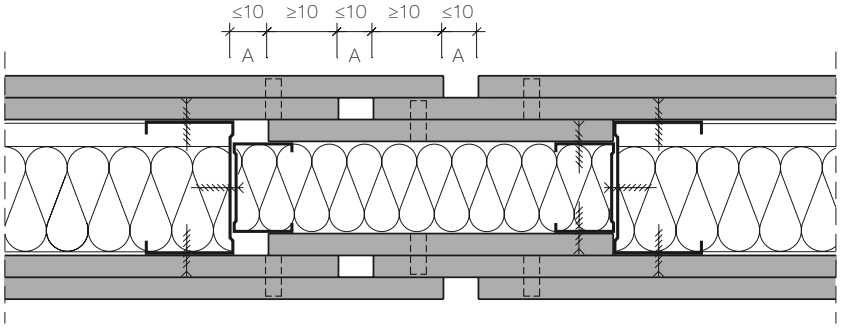




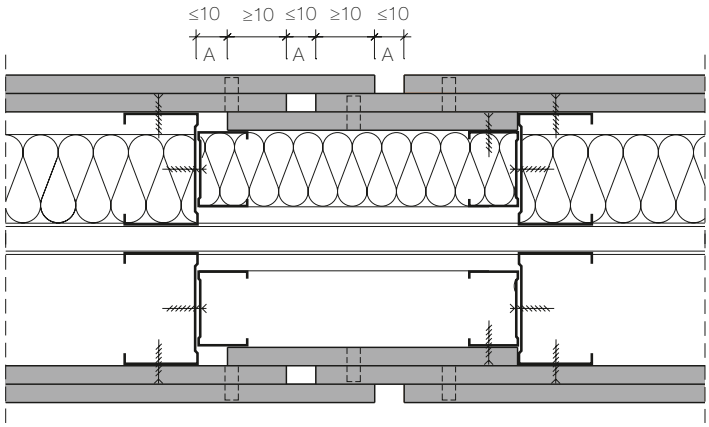
A = Movement amount in mm



Single layer partition movement joint



Double layer partition movement joint

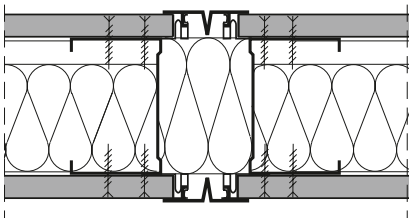


Double layer twin stud partition movement joint.

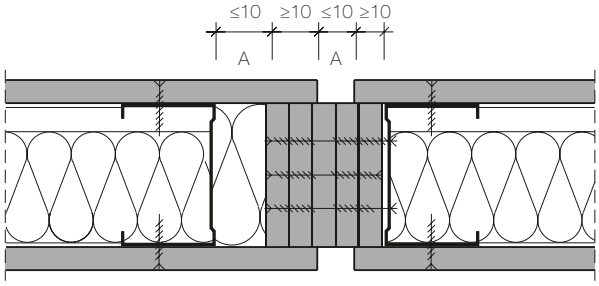
This detail can also be used as a guide for Independent wall linings.

Alternative Movement Joint options

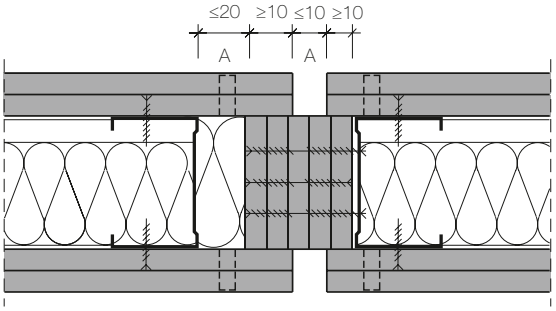
A = Movement amount in mm



Non fire rated movement joint with a flexible profile cover strip.



Single layer partition movement joint using strips of fermacell® as a main block support, similar to a Deflection Head detail.

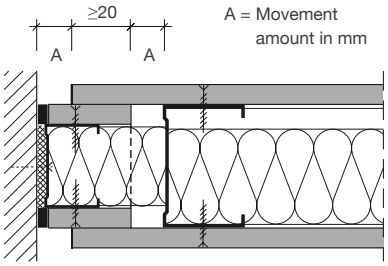


Double layer partition movement joint using strips of fermacell® as a main block support, similar to a Deflection Head detail.

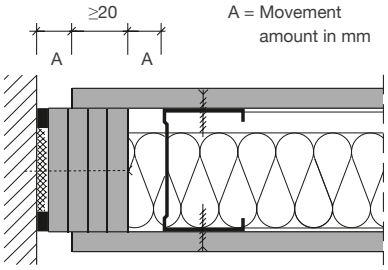
Floating wall & façade junctions

External façades, primarily curtain walls, can cause pressure and suction movements due to wind loads, these must be considered and accommodated at their junction with fermacell™ partitions.

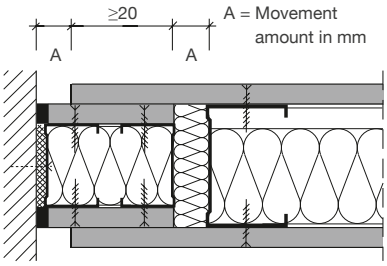
Different variations are shown below. Ensure that any structural forces are not transferred into the fermacell™ and the partition system. Allowances should be made for fire and sound performance, and additional measures may be required. Always check with the project fire engineer.



End wall movement joint using a reduced end wall section with a single stud.



End wall movement joint using strips of fermacell® fibre gypsum board similar to a Deflection Head detail.

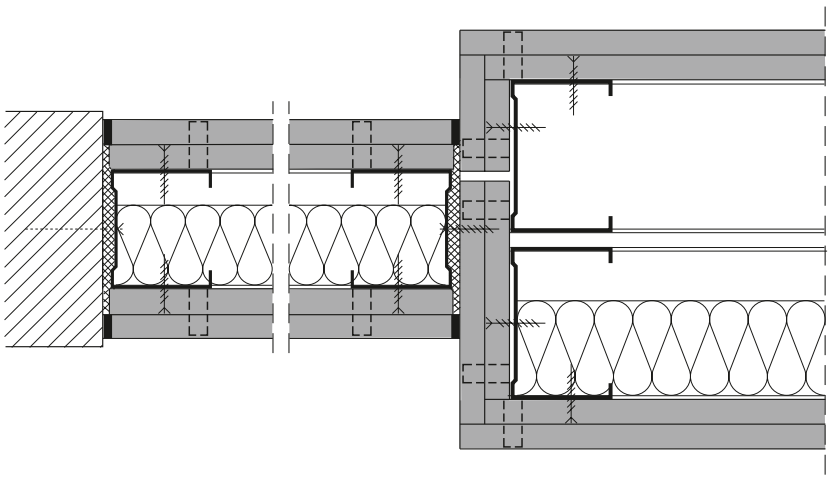


End wall movement joint using a reduced end wall section with a double stud.

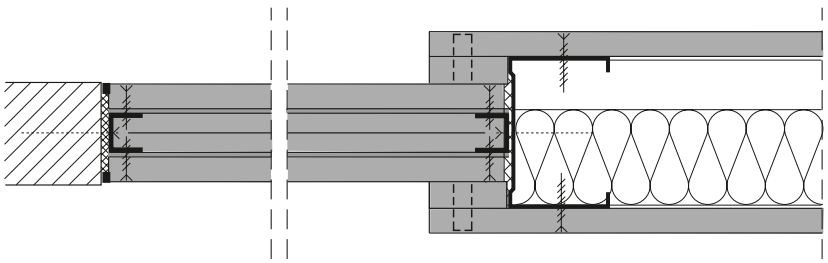
Reducing junctions (tapered wall and façade junctions)

These details can be used where partitions need to reduce down to interface with slimmer connections e.g. window mullions.

Fire and acoustic performance can be affected so additional boarding or mass may be required, e.g. adding lead sheet. These details should be discussed on a project-by-project basis with the fire and acoustic engineers.



Reducing connection of a twin stud wall with sound insulation requirements on a column.



Reducing junction of a single stud wall with lead insert 2.5mm for enhanced acoustic performance.

Service penetrations & door openings

Service penetrations and BWIC's

Service penetrations and BWIC openings should be designed and installed to EN 1366-3 and should be suitably framed and supported.

As a minimum guidance we recommend that any framed openings are lined with the same amount of board as is used to line each side of the partition. e.g. single layer partition lining = single layer aperture lining etc.

The maximum buildable opening sizes are shown in the fermacell™ standard details datasheets; however, these must be read in conjunction with the Fire Stopping manufacturers guidelines. These details should be reviewed with the fire engineer on a project-by-project basis to ensure compliance to current guidance and regulations. Distances between service penetrations will be determined by the test evidence of the Fire Stopping Manufacturer

Door and window openings

There are many different methods of fixing and support that can be used for securing door frames into fermacell™ non fire rated and fire rated partitions.

These will depend on key factors:

- Wall Height and room height, as larger heights may required greater support or bracing
- Door width, height and weight, including furniture etc.
- Window width, height and weight

Please see data sheet regarding door frame reinforcement and window opening support. Options include timber reinforced standard fermacell™ studs and fermacell™ 2 mm Door Reinforcement Kit.

Key Points to note:

- For any openings in fire rated partitions, line the opening edges with the same number and type of boards as on the face of the studs. e.g. single layer partition = single layer linings
- When jointing boards around doors and windows, do not run board joints vertically from opening corners as this will lead to cracking at these locations.

Cut the fermacell® fibre gypsum boards so that joints sit above the door head, with a minimum offset from the edge of the door opening of ≥200 mm. In this instance stagger the joints above door openings on either side of

the partition. fermacell® has door options to include for various weights and widths.

The standard weight ranges per leaf are:

- 01) **0-60 kg** to a max width of 900 mm
- 02) **0-60 kg** to a max width of 1200 mm
- 03) **Up to 100 kg** to a max width of 900 mm
- 04) **Up to 100 kg** to a max width of 2000 mm

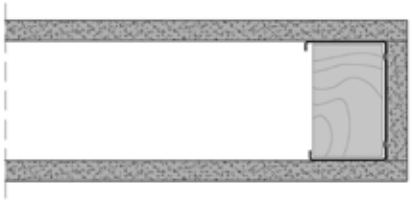
All as shown in the details below.

In all cases refer to FSD-0017 (Fermacell® Standard Detail) for door weights.

Key Points to Note:

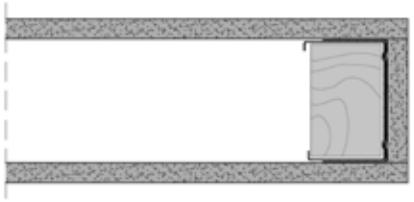
- We advise door openings are lined with the same thickness and layers of board as per each side of the partition unless the door manufactures fire test evidence shows this is not required; refer to their details for clarification.
- There are maximum weights/partition heights above door openings that need to be considered. For anything greater than 1500 mm please contact the Technical Helpline for further assistance.

01) 0-60 kg to a max width of 900 mm

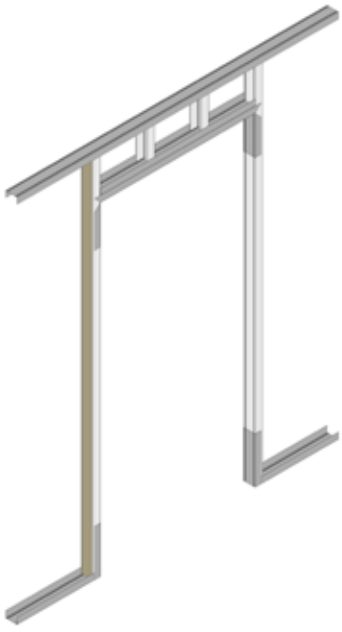


Timber insert into fermacell™ stud opening

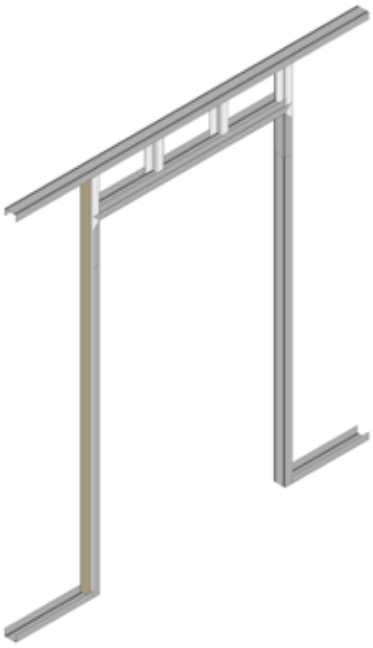
02) 0-60 kg to a max width of 1200 mm



Timber insert into fermacell™ stud opening, with full wrap of track up the door jamb stud.

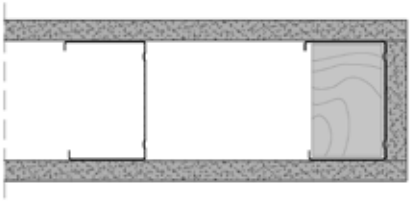


Door Support 60 kg max 900 mm width

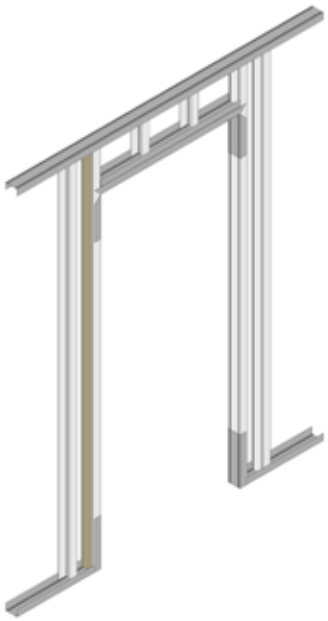


Door Support 60 kg max 1200 mm width

03) Up to 100 kg to a max width of 900 mm

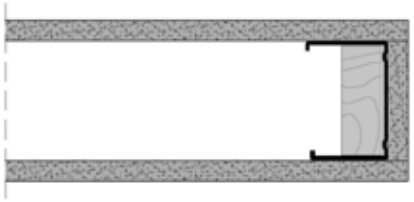


Timber Insert and cripple stud 150 mm from each door jamb.

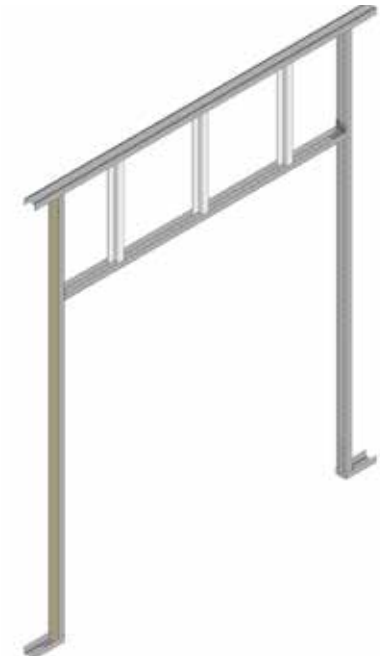


Door Support 100 kg max 900 mm width

04) Up to 100 kg to a max width of 2000 mm

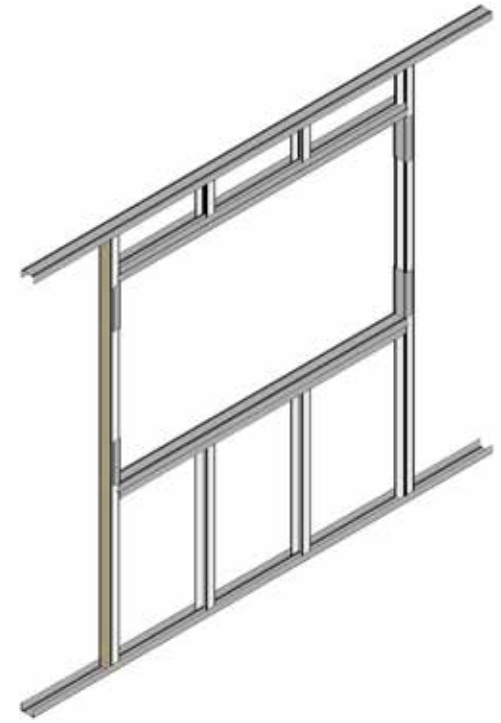


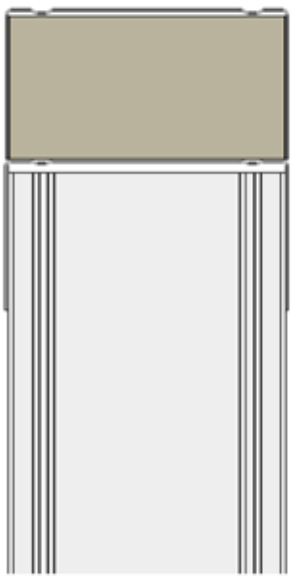
Fermacell® 2 mm gauge Door Reinforcement Kit.



Door Support 100 kg max leaf weight-2000 mm width

Window Isometric detail





Head and base of window lintels showing timber support insert

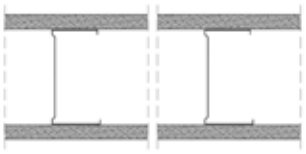
Impact, duty rating, crowd loading and wind loading

Impact

Resistance Performance - Duty Rating To Bs5234:Part2

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

The simplest fermacell® steel stud partitions have been tested to BS 5234-2 and achieve a SEVERE duty rating.*



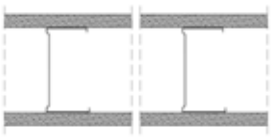
fermacell® offers solutions to challenging conditions and requirements. Theses include:

- Duty Rating - Severe Rating achieved with as shown
- Crowd Loading - allowing for solutions for Sports Stadia's and similar venues.
- Impact Rating - Specific systems can be used in Sports Halls
- Wind Loading - with its ability to be used as a racking and Rainscreen backer board, fermacell® systems also have performance tables for a range of higher wind loadings up to 700 Pa.

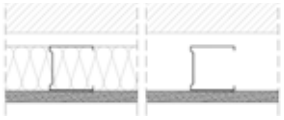
Ceram Test Data To Bs 5234:pt2

Test wall	Description	Build height	Result
fermacell® 1S15 (1)	Partition 4.50 m long by 5.0 m high with overall thickness of 100 mm; comprising 1 layer each side of 12.5 mm fermacell® fibre gypsum board fixed to 75 mm x 50 mm x 0.6 mm gauge fermacell® steel studs at 600 mm centres	3 m & 5 m	Severe Duty
fermacell® 3S01 (2)	Independent Lining 4.50 m long by 3.0 m high with overall thickness of 100 mm; comprising 1 layer one side of 12.5 mm fermacell® fibre gypsum board fixed to 75 mm x 50 mm x 0.6 mm gauge fermacell® steel studs at 600 mm centres	3 m	Severe Duty
fermacell® 1S15 H_2O (3)	Partition 4.50 m long by 3.0 m high with overall thickness of 100 mm; comprising 1 layer each side of 12.5 mm Powerpanel H_2O Board fixed to 75 mm x 50 mm x 0.6 mm gauge fermacell® steel studs at 600 mm centres	3 m	Heavy Duty

1S15 (1)



3S01 (2)



1S15 H_2O (3)

Bending fermacell® fibre gypsum boards

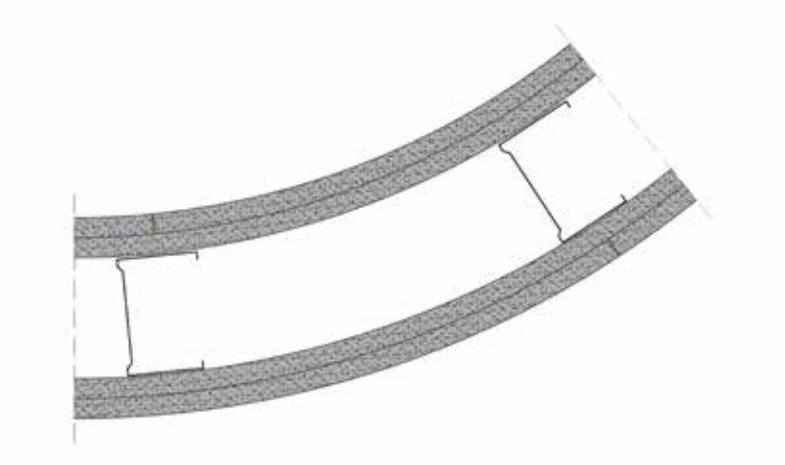
Curved wall or ceiling constructions are best created with 10 mm and 12.5 mm fermacell® fibre gypsum boards. There are three options dependent on the dependent on the radius of curvature of the surfaces to be created.

Radius of ≥4 000 mm. These can be formed by dry bending the fermacell® fibre gypsum board onto a substructure with a maximum spacing of 300 mm. For this application laying the boards horizontally or 'railroading' them allows for easier dry bending.

N.B. If this is a fire rated wall ensure the board orientation is acceptable for the application.

Radius between ≤4 000 mm to ≥1 500 mm. These radii can only be formed with fermacell® fibre gypsum boards using the 'wet bending' process. The maximum spacing of the substructure is ≤250 mm. For these reduced radii, it is preferable to use 10 mm fermacell® fibre gypsum boards.

The boards must be wetted for a minimum of 10 hours before they are then gently bent / curved to the desired radius on suitable templates. Allow the boards to dry out and they will retain their former strength and remain curved.



Surface prep & finishing for internal areas

Site conditions

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. All screeds and plasters fitted in the local area must be dry. The surface must dry, free of stains, dust and dirt.

Ensure that:

- Splashes of plaster, mortar, etc. are removed,
- Scratches, joints etc. Any damage or indentations must be filled with fermacell™ Joint Filler or for light scratches the FST (Fine Surface Treatment) can be used,
- All filled areas must be worked to a smooth finish and sanded if necessary.

fermacell® fibre gypsum boards are sealed on both sides in the factory. The use of additional primers or base coats are only required if the if a system manufacturer requires this for fibre gypsum/gypsum boards, e.g. for thin or textured plaster, paint coating or tile adhesive. Primers with a low water content must be used. For multi-layer decorative systems, the manufacturer's drying times must be observed.

Surface quality

In tender documents for wall or ceiling constructions, terms such as "ready to paint" or similar often appear, but these do not represent a precise definition of the required surface, finish or quality. Since such designations do not adequately describe the expectations of the client, Thus it should be agreed on a project by project basis what the level of finish required is.

We strongly advise that a sample area/room is finished and agreed on by all parties at the earliest opportunity. This can then be used a benchmark reference for the rest of the project.

Note:
Heating commissioning must take place as a gradual temperature build up. A rapid increase in temperature can lead to thermal shock, possibly resulting in cracked joints.

Glue joint

Filler joint

Please note that there are two different jointing methods:

- fermacell™ Jointstik adhesive joint
- fermacell™ Joint Filler gap filling joint

Follow guidance in BS 8000-8:2023: The Standard for Workmanship on construction sites - Design and installation of dry lining systems.

Any inspections should be taken in normal lighting conditions. Where wall lights or downlighters are to be used, then ensure that there is a project specific agreed level of finish.

Depending on the level of finish required, the following guidelines can be used.

Non decorated areas

e.g. above ceiling lines etc.

fermacell™ Jointstik Adhesive/ Glue joint

Required work:

- Glueing of the joints as boards are installed.
- Once cured, scrape off any protruding fermacell™ Jointstik adhesive. Fill over tool marks, grooves and gouges
- Fill over joints and fixings with fermacell™ Joint Filler

fermacell™ Joint Filler joints

Required work:

- Fully fill all joints and fixing head with fermacell™ Joint Filler
- Spot filling of joints and fixings with fermacell™ Joint Filler
- Filling over tool marks, grooves and gouges.

Areas to be decorated

Filler joints and dry lining edges

Required work:

- Fully fill all joints and fixing heads with fermacell™ Joint Filler
- Feather fill, sand back and apply FST as required.
- Sand as required.

Adhesive/Glue joint

Required work:

- Glueing of the joints
- Scraping off of the protruding joint adhesive after curing
- Fill all visible fixings with fermacell™ Joint Filler,
- Feather fill, sand back and apply FST as required.
- Sand as required.

Smoke Sealing in Fire Rated Partitions and linings:

In areas that are not decorated e.g. above ceilings etc., the joints and fixing heads must be spotted and filled over with fermacell™ Joint Filler as a smoke seal.

Surface finishes

These should not be used below +5°C. The substrate must be free of dust, dry (average humidity ≤70% over several days), clean and free of any release agents. As the fermacell® fibre gypsum boards are already sealed at the factory, no additional priming of the boards is necessary.

However, suitable, commercially available surface treatments can be used, which are applied according to the specifications of the filler manufacturer.

If work that is exposed to moisture is planned, e.g. installing wet screed, or wet plastering, then application of the FST may only be carried out once this has dried out.

Installation of fermacell™ FST (fine surface treatment and spray fine surface treatment)

fermacell™ FST is a ready mixed solution and can be applied directly from the bucket. The white, ready mixed filler contains water and very finely ground high quality dolomite marble.

Any shrinkage of the fermacell™ Joint Filler may be taken up with a feather coat of FST Prior to the final full surface application of FST. 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. It should be applied as thinly as as possible. Once the FST has keyed in, typically a couple of minutes, then remove all excess FST in a smoothing out motion. Use the same tool for this. 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.

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.

fermacell™ FST will cover approx 5 m^2 per litre applied at 0.5 mm thickness. It should be applied as thinly as possible.

FST can also be spray applied. This is a time saving option for large areas e.g. commercial application.

For renovations, new buildings, conversions and extensions. Airless spray pumps and tools must be used. The FST will not cure in the pipes and machines with airless tools. Examples are: Graco: Mark X or similar.

Filling over the entire surface: Uniform spraying of a very thin filler coating (≤0.5 mm) in long lengths from the ceiling to the floor. Apply about 20-30 m^2 before smoothing.

To avoid possible rippling and to minimise sanding spray (and smooth) 2 × thin coating rather than 1 × thick coat. Allow the first coating of FST to dry thoroughly.

The more time that elapses between spraying and smoothing (max. 10 minutes depending on temperature, relative humidity and air exchange rate), the better the filling capability achieved will be. The first coat must be completely dry before a second FST coating is applied.

With the smoothing work from the bottom to the top if possible. We recommend the fermacell™ Wide Spatula as a tool. Smoothing is done under light pressure in the direction of the joint or main light.

fermacell™ FST or spray FST can be colour-coated with emulsion paints, acrylic paints, latex, silicate and silicone resin paints. It is not compatible with epoxy paints and coatings.

N.B. Eggshell or high sheen paints are not recommended for use over FST. IF these are to be used then a minimum of two coats of FST are required; and we recommend a sample test area that is agreed on site before the main finishing work is started..

Finishing of fermacell® fibre gypsum boards with FST (fine surface treatment)

fermacell™ Fine Surface Treatment

Plaster & textured plasters

A smooth plaster finish is not normally recommended as the same finish can be achieved using fermacell™ 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.

N.B. All Joints must already be jointed with either the fermacell Jointstik or Joint Filler as per our guidelines.

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.

Painting

For painted surfaces, all commercially available paints such as latex, emulsion or gloss paints can be used on fermacell® fibre gypsum boards. Systems with a low water content are preferable. Mineral paints, e.g. lime paints and silicate paints, may only be applied to fermacell® fibre gypsum boards if they have been approved by the paint manufacturer for fibre gypsum boards/gypsum boards.

In the case of latex paints, care must be taken to ensure optimum coverage. Lambskin or foam plastic rollers should be selected according to the covering material. Eggshell or high sheen paints are not recommended for use over FST. IF these are to be used then a minimum of two coats of FST are required; and we recommend a sample test area that is agreed on site before the main finishing work is started.

The paint should be applied in at least two coats according to the manufacturer's instructions. A sample coat is recommended. The system manufacturer's specifications must be observed.

Wallpapering

- Fill screw heads and dress or fill joints prior to wall papering.
- Most types of paper can be applied to fermacell® fibre gypsum board 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.

Note:
Most types of wallpaper can be applied to fermacell® fibre gypsum boards.

Tiles and larger decorative coatings

Tiling

- Standard fermacell® fibre gypsum 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 per page 59.
- Wall surfaces that require sealing must be protected against the penetration of water to a height of 2 000 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® fibre gypsum board - 35 kg/m²
  – Powerpanel H_2O – 50 kg/m²

Reduce stud centres to 400 mm as required.

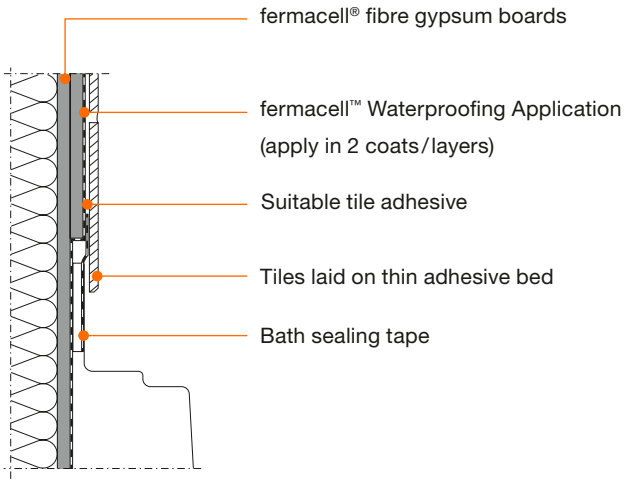
Tip:
Maximum tile sizes will depend on the flatness of the wall, the stud support centers and the type of tile adhesive being used.

Always check with the tile adhesive manufactures guidelines before tiling onto fermacell® fibre gypsum board or Powerpanel H_2O.

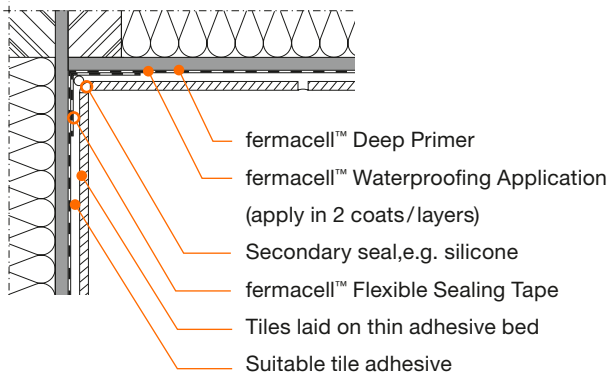
Waterproofing systems

The fermacell™ Waterproofing System is a composite waterproofing system that is applied directly to fermacell® fibre gypsum boards, consisting of:

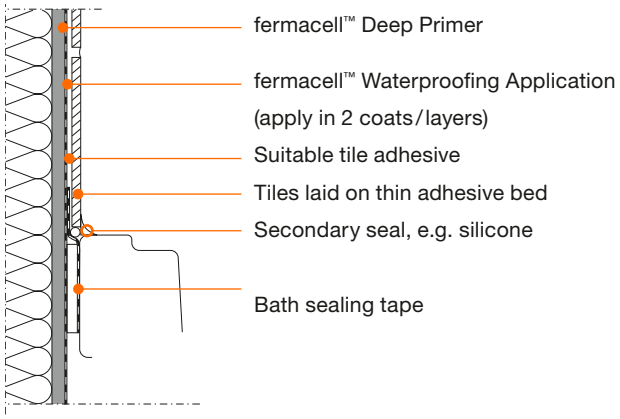
- fermacell™ Deep Primer
- fermacell™ Waterproofing Application
- fermacell™ Flexible Corner / Sealing Tape
- fermacell™ Flexible Preformed Corner Tape Pieces
- fermacell™ Pipe Penetration Patch



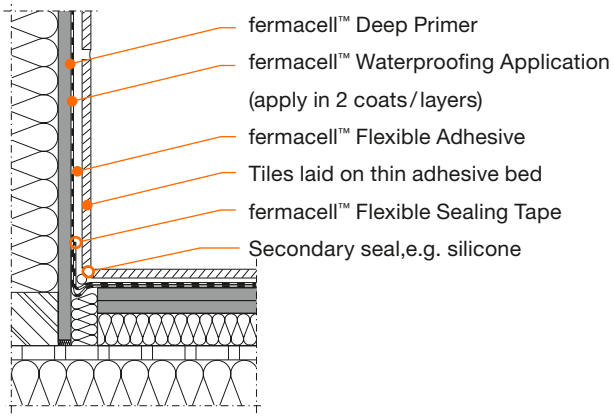
Shower tray-wall junction detail with raised shower tray rim



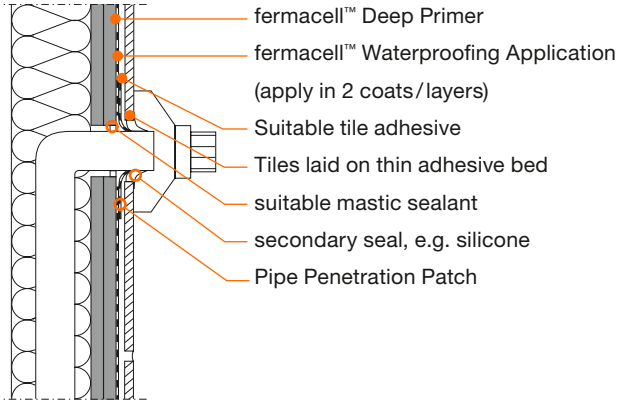
Wall corner detail in the water-exposed area



Shower tray-wall junction with sound insulation strip



Floor-wall connection



Installation feed-through across structural wall

Sealing of penetrations or individual components

As per the details, a primary and a secondary seal must always be provided for baths and shower trays. The primary seal is the invisible seal between the bath edge and the boarding.

The secondary seal is the visible connection between the edge of the bath or shower tray and the tile and is usually a suitable silicone sealant or similar.

Installation the waterproofing system

Install the fermacell® fibre gypsum boards as per the previous manufacturers instructions.

N.B. for tiled areas reduce the studs to 400 mm centres.

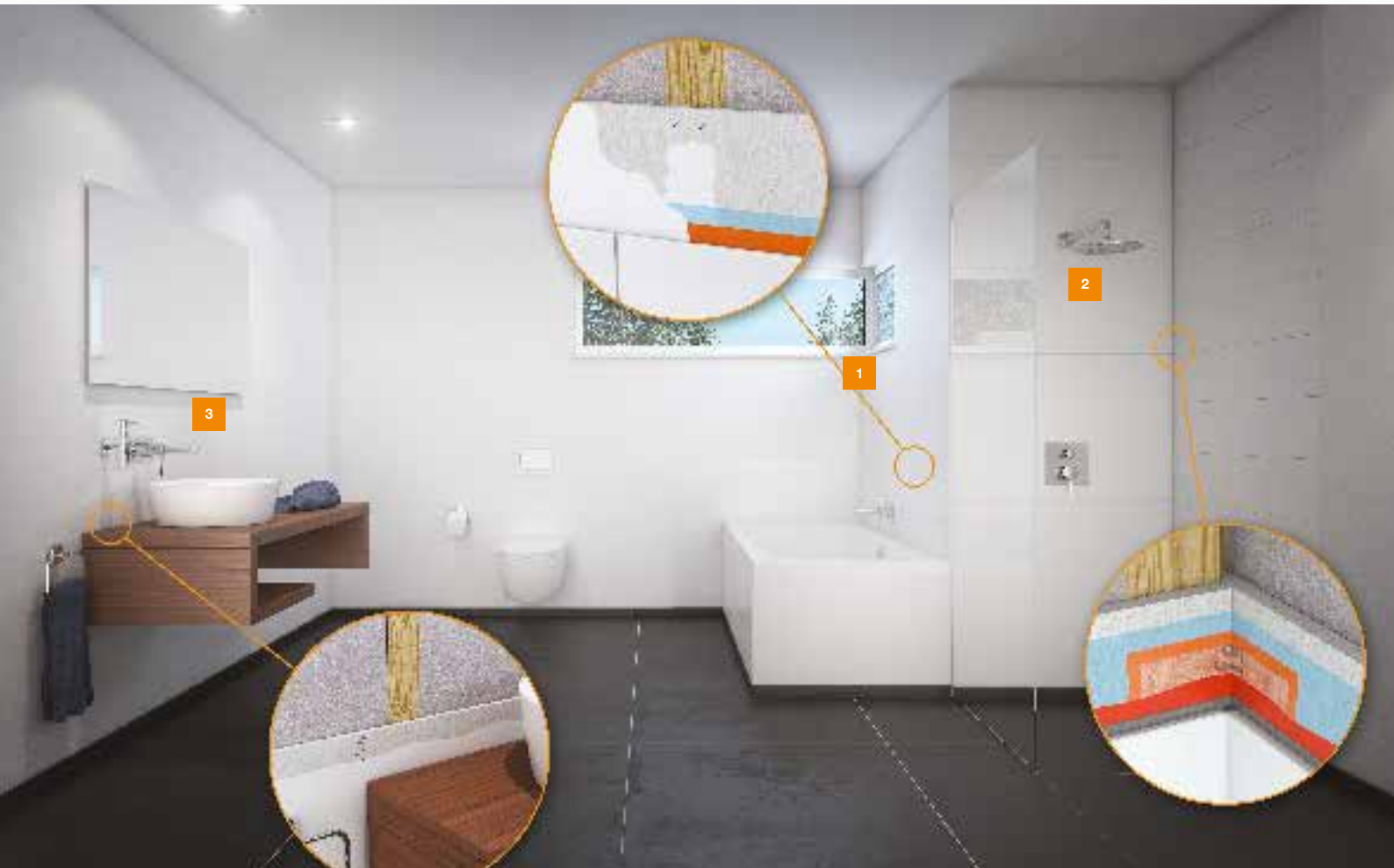
The surfaces requiring waterproofing are shown below. On fixed showers, the seal must extend to ≥200 mm above the shower head.

Wall/wall and wall/floor edge connections as well as expansion and connection joints, e.g. at penetrations, must be provided with system-specific waterproof sealing tapes, waterproof sealing waterproof corners or waterproof sealing sleeves. In addition, the entire base area of the walls in a room with a shower or bath must be sealed to protect against any moisture rising from the floor. The waterproof sealing components are applied as shown.

1 Sealing of edges, junctions and movement joints as well as penetrations with fermacell™ Waterproofing System

2 Wall area: Full-surface waterproofing with fermacell™ Waterproofing System

3 Floor area: Full-surface waterproofing with suitable product, e.g. sheet waterproofing



Special constructions

System design, performance and meeting building regulations and requirements

Evidence of the physical properties of performance walls with fermacell® fibre gypsum boards in to sound insulation and fire protection is provided by test certificates or expert reports from officially recognised UK and European test institutes. The respective build and installation of these systems and constructions must be carried out in accordance with the information given in these documents.

Fire performance evidence is provided by the following and these can be provided to support the systems performance. Please note that in all instances the performances and supporting evidence should be checked with the Building Control Officer or project fire engineer to ensure acceptance and compliance.

- Fire test reports to EN standards. BS evidence is available until 2029
- Supporting EN Fire Classification reports
- Fire Assessments by accredited third party Fire Assessors (e.g. Warringtonfire, BRE, etc.).

Airborne sound insulation performance of fermacell™ partitions and linings is provided by test certificates according to EN ISO 140-3 and EN ISO 140-1.

Duty Rating, Crowd Loading and racking performance of fermacell® systems is provided by test and/or calculation evidence from accredited third parties.

Tall wall constructions with thinner partition thicknesses can meeting demanding duty and crowd loading in the most demanding environments and height requirements

Raked auditorium layouts require high walls with excellent performance characteristics, which fermacell™ partitions can help achieve.

Ceilings with fermacell® fibre gypsum board

Supporting Structure

fermacell® fibre gypsum boards can be fitted to many different types of ceiling structure. It is essential that the correct build of the supporting system is followed for fire rated solutions. **N.B.** these details are shown in the Specification Guide.

Typical Support Systems:

- Timber joists
- Timber joists with counter battens
- Timber joists with suitable fermacell™ steel MF & Top Hat systems.
- fermacell™ steel ceiling systems; including Nonius hangers, slotted or perforated steel hangers, wire hangers or threaded bars.

Due to the weight of the boards it is imperative that the ceiling support system is designed and checked to ensure the all the supports are at the required centres. e.g. primary, secondary and board support bearers.

Non-Fire Rated Solutions - Support Centres for ceiling and suspended ceilings

Area of application/ Type of construction	Area of use	Max. board support centres in mm for different thicknesses of fermacell® fibre gypsum boards				Drawing reference
		10 mm	12.5 mm	15 mm	18 mm	
Boarding to ceilings and roofs, suspended ceilings	Rooms for normal domestic use [1]	400	400	500	600	f
	Areas with occasional higher humidity [2]	300	400	500	500	

Table showing the maximum fermacell® fibre gypsum board support centres dependent on board thickness in mm.

1) e.g. domestic shower/bathrooms rooms or living areas or rooms of similar use with temporarily high humidity due to use.

2) e.g. when applying wet screed or plaster or when exceeding the conditions in note 1. N.B. not for use in wet rooms or areas with a constant relative humidity of >80%.

Substructure in mm		permissible span in mm for a total load[3]			Drawing reference
		up to 15 kg/m²	up to 30 kg/m²	up to 50 kg/²	
Sheet steel profiles [1]					
Basic profile	CD 60 × 27 × 06	900	750	600	a
Support profile	CD 60 × 27 × 06	1000	1000	750	b
Timber battens (width x height) [mm]					
Primary Support Batten fixings centres - Direct fixed to Joist	48 × 24	750	650	600	c
	50 × 30	850	750	600	
	60 × 40	1000	850	700	
Suspended Primary support Batten - Suspension profile fixing centres	30 × 50 [2]	1000	850	700	d
	40 × 60	1 200	1000	850	
Primary support Batten fixing centres	48 × 24	700	600	500	e
	50 × 30	850	750	600	

Support fixing and profile/batten centres are shown in the table above and the drawings below.

Ensure the correct support and centres are used in conjunction with the board support centres in the table above.

1) fermacell™ steel ceiling profiles (according to EN 18182 or EN 14195).

2) Minimum support battens of 50 mm width and 30 mm height.

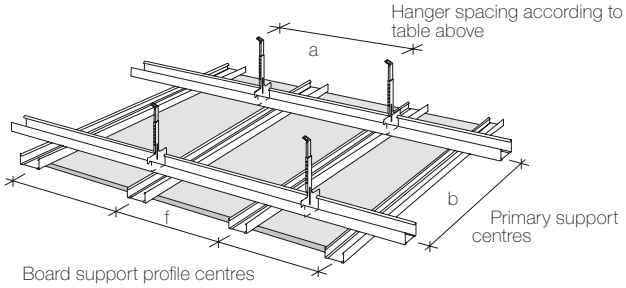
1) When determining the total load, any additional loads such as ceiling lights, services or other items must be taken into account.

NOTE:

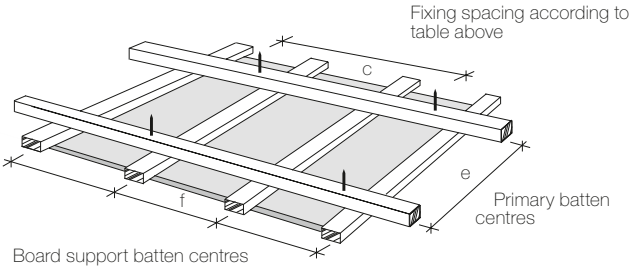
- For any ceilings needing 50 kg/m² load refer to support system manufacture for structural calculations.

- Any metal ceilings in swimming pool or corrosive environments must be coated to the required C5 anti-corrosion requirement.

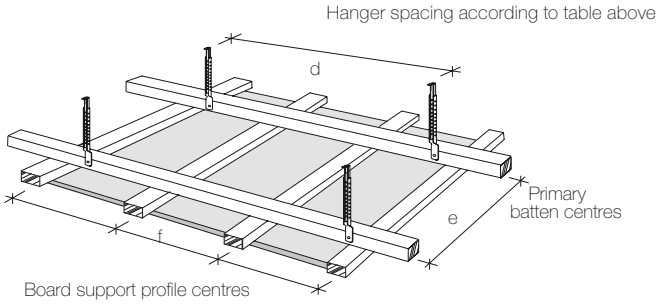
Suspended ceiling with steel substructure



Ceiling linings with timber battens - direct fixed.



Suspended ceiling with timber battens



Fixings and spacings for Non Fire Rated ceiling linings

The table to the right shows the fixings and spacing for fermacell® fibre gypsum boards in a non fire rated ceiling application.

Ensure fixings are countersunk into the board by 1-2 mm and that they are adequately protected against corrosion.

fermacel® fibre gypsum boards can be fixed to different ceiling support materials as follows:

- Timber battens - fermacell™ Screws or suitable staples.
- fermacell™ steel profiles 0.6 mm up to 0.7 mm gauge - fermacell™ Screws.
- Higher gauge steel profiles from 0.7 mm to 1.5-2mm gauge - fermacell® fibre gypsum board or fermacell™ Powerpanel drill tip screws

Note:

For fire rated ceiling you must follow the system fixing details as specified.

The table opposite is for non-fire rated solutions only.

Ceiling constructions*

Board thickness/Sub-Structure	Staples (galvanized and resin-coated) d ⩾ 1.5 mm, head width /crown ⩾ 10 mm			fermacell™ Drywall screws d = 3.9 mm		
	Length [mm]	Spacing [mm]	Use [No./m²]	Length [mm]	Spacing [mm]	Use [No./m²]
Metal – 1-layer						
10 mm	–	–	–	30	200	22
12.5 mm	–	–	–	30	200	19
15 mm	–	–	–	30	200	17
18 mm	–	–	–	40	200	15
Metal – 2-layer / 2nd layer fixed into the substructure						
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	13
2nd layer: 12.5 mm or 15 mm	–	–	–	40	200	17
1st layer: 18 mm	–	–	–	40	300	11
2nd layer: 15 mm or 18 mm	–	–	–	55	200	15
Metal – 3-layer / 3rd layer fixed into the substructure						
1st layer: 15 mm	–	–	–	30	300	12
2nd layer: 12.5 mm	–	–	–	40	300	12
3rd layer: 12.5 mm	–	–	–	55	200	16
Timber – 1-layer						
10 mm	⩾30	150	30	30	200	22
12.5 mm	⩾35	150	25	30	200	19
15 mm	⩾44	150	21	40	200	17
18 mm	⩾50	150	19	40	200	15
Timber – 2-layer / 2nd layer fixed into the substructure						
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	13	40	300	13
2nd layer: 12.5 mm or 15 mm	⩾60	150	23	40	200	17
1st layer: 18 mm	⩾44	300	11	40	300	11
2nd layer: 15 mm or 18 mm	⩾60	150	21	55	200	15
Timber – 3-layer / 1st or 3r 3rd d layer fixed into the substructure						
1st layer: 15 mm	–	–	–	40	300	12
2nd layer: 12.5 mm	–	–	–	40	300	12
3rd layer: 12.5 mm	–	–	–	55	200	16

*** These fixings and centres are for Non Fire rated ceilings.** For Fire rates solutions the tested fixing method as per the systems specification must be followed.

Note:·

- For ceiling constructions with specific fire protection requirements, refer to the fixing centres stated in the respective test certificates.
- For fixing the 10 mm, 12.5 mm or 15 mm fermacell® fibre gypsum boards to reinforced metal substructures of up to 2 mm material thickness, fermacell™ drill tip screws 3.5 × 30 mm can be used. The use is approx. 5 screws per linear meter of steel section.
  N.B for double layer requirements use the 40 mm Powerpanel drill tip screws for the outer layer - maximum fixing spacing 200 mm.

Ceiling constructions - Board-to-board fixing*

Board thickness/Structure	Diverging staples (galvanised and resin-coated) d ≥ 1.5 mm, row spacing ≤ 300 mm			fermacell™ screws d = 3.9 mm. row spacing ≤ 300 mm		
	Length	Spacing	Use	Length	Spacing	Use
Ceiling zone per m² ceiling surface	[mm]	[mm]	[No./m²]	[mm]	[mm]	[No./m²]
10 mm on 10 or 12.5 mm	18–19	120	35	30	150	30
12.5 mm on 12.5 or 15 mm	21–22	120	35	30	150	30
15 mm on 15 mm or 18 mm	25–28	120	35	30	150	30
18 mm on 18 mm	31–34	120	35	40	150	30

Junctions of fermacell™ ceilings to fermacell™ partitions.

fermacell® fibre gypsum board to fermacell® fibre gypsum board junctions are constructed using a suitable edge profile batten to steel angle. Leave a minimum 5-7 mm gap at the junction and fill with fermacell™ Joint Filler.

If building movement is expected then use a suitable flexible mastic as shown in the following section.

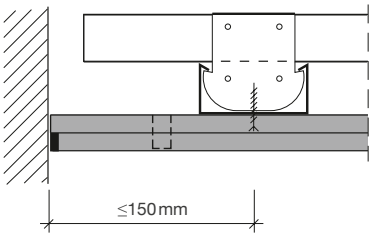
Separation of ceiling junctions

Where fermacell™ ceilings or roof linings butt up with other types of material, such as plaster, exposed concrete, masonry, steel or wood, a flexible mastic must be used at the junction point. The mastic must have 20 % movement capacity, and must be fire or acoustic rated as required. This is to avoid a rigid connection at these junctions to allow for differential movement. Options are shown in the diagrams below. Options include:

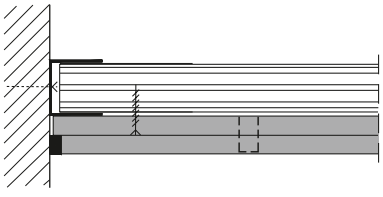
- flexible mastic joint. Mastic must be fire or acoustic rated as required.
- Filler joint with separation strip & decorative mastic finish.
- Shadow gap detail - various options are available.
- Strips of fermacell® fibre gypsum board
- Angle profile

Note: if using an angle profile and building movement is expected, then do not fix the fermacell® fibre gypsum board to these angle profiles.

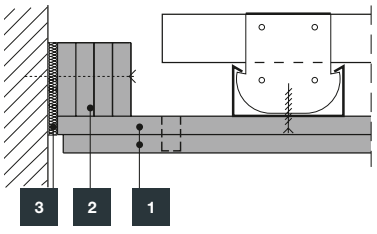
N.B. the maximum unsupported overhang of fermacell® fibre gypsum board is 150 mm from the last fixing.



Junction with a flexible mastic



Junction with a UD profile



Junction with fermacell® Strips as a pre-made block.

Junctions of fermacell™ ceilings to fermacell™ partitions.

Movement joints in fermacell™ ceilings and soffits are required in the same location where there are movement joints in the main building shell. Ceilings and roofs boarded with fermacell® fibre gypsum boards are subject to a changing internal climate and thus differential movement (expansion and shrinkage), movement joints should be used as required.

Movement joints centres are determined by the main board jointing method being used, and must be set as follows:

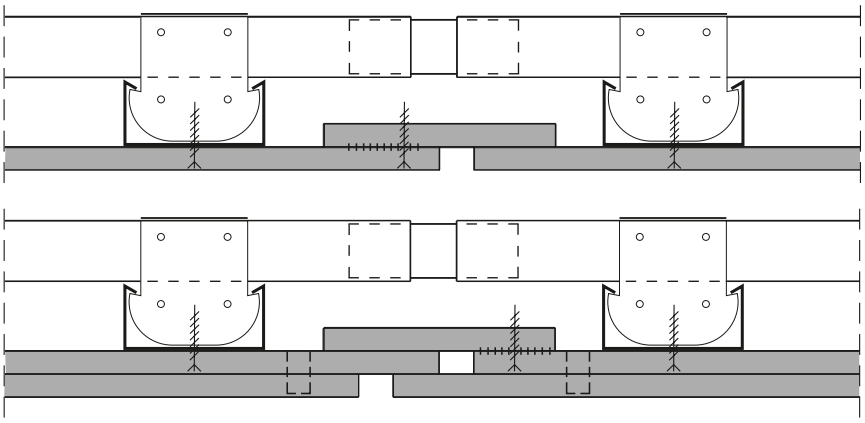
- For fermacell™ Joint Filler joints at maximum 8 m intervals
- For fermacell™ Jointstik adhesive joints at max. maximum 10 m intervals

Movement joint example details are shown below. Where fire performance is required ensure that these details are checked with the project fire engineer in line with the ceiling system being used.

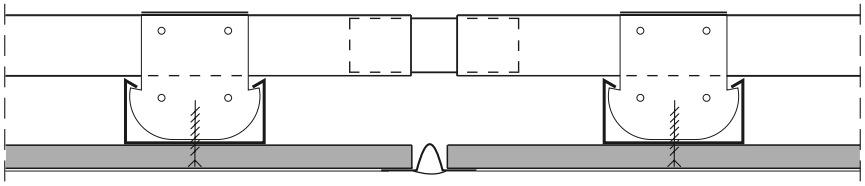
(1) fermacell® fibre gypsum board

(2) Strips of fermacell™ as a fire rated movement joint option. Min board thickness for strips 4 x 12.5 mm

(3) Edge insulation strip (for fire protection requirements, made of mineral wool, melting point ≥1000 °C), or suitable fire stopping solution.



Ceiling movement joint detail. Fire performance to be agreed with fire engineer.
Movement joint for single or double-layer boarding. Board strips glued and screwed on one side.



Non Fire rated movement joint with flexible joint profile (by others).

FIXING DEAD LOADS TO

fermacell™ partitions

Lightweight wall-mounted single loads

Dead loads can be fixed directly to fermacell™ partitions and ceilings as per the tables shown below.

Please also see the fermacell™ Datasheet ‘fermacell™ Pattress Support Datasheet’ as this give further information with alternative fixings types.

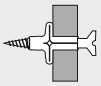
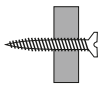
Please note the safety factor shown in the notes under the tables. These permissible load figures are based on systems being used in an environment with a max. constant relative humidity of 85%.

Live loads always required additional pattressing or other support methods, depending on the requirement. Examples of live loads include:

- Handrails
- Cantilever sinks & toilets
- Assistance handrails in disabled toilets etc.
- Cantilever TV and interactive whiteboard arms
- Mechanically and hand operated roller shutter mechanism, etc.

Note:
Live loads always require additional pattressing or other support methods, depending on the requirement.

Light and medium weight dead loads*

Dead loads fastened with toggle bolt or screws [18]		Permissible load per fixing in kg for different fermacell® fibre gypsum board thicknesses *** (100 kg = 1 kN)							
		10 mm	12.5 mm	15 mm	18 mm	2 × 10 mm	12.5 + 10 mm	12.5 mm H_2O	2 × 12.5 mm H_2O
Toggle Bolt **		40	50	55	60	50	60	50	60
Screw - fully threaded. min ø 5 mm		20	30	30	35	30	35	-	-

* Permissible loads shown with a safety factor: 2 (static load with relative humidity up to 85%).

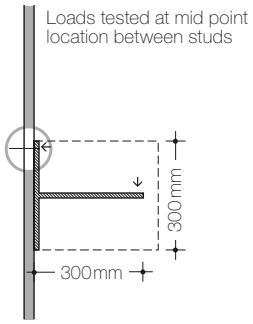
** Follow installation instructions of toggle bolt manufacturer.

*** Maximum stud/support centres = ≤ 50 × board thickness.

The stated load values can be added up, if the fxing centres are ≥ 500 mm apart. For smaller fixing centres, 50 % of the relevant permissible load per fixing should be used. The total single loads for walls should not exceed 150 kg/m and for free-standing Dry Lining and double studwalls not physically connected to one another, 40 kg/m. The stability of the wall or lining should be verified as described above according to BS 5234.

Lightweight wall-mounted single loads on fermacell® fibre gypsum boards

Picture hook with nail fixing [1]	Permissible load per hook in kN for different fermacell® fibre gypsum board thicknesses [2] (100 kg = 1 kN)				
	10 mm	12.5 mm	15 mm	18 mm	10 + 12.5 mm
	0.15	0.17	0.18	0.20	0.20
	0.25	0.27	0.28	0.30	0.30
	0.35	0.37	0.38	0.40	0.40



1) Failure load of hooks depends on make. Fixing of the hooks in the boarding only, with no effect on substructure.

2) Safety factor: 2 (static load at relative humidity up to 85%).

Installation of sanitary support frames

For fixing heavy loads with dynamic/live loadings, such as sanitary objects (washbasins, wall-suspended lavatory pans, built-in WC cisterns, bidets, urinals), specialist support sections are required.

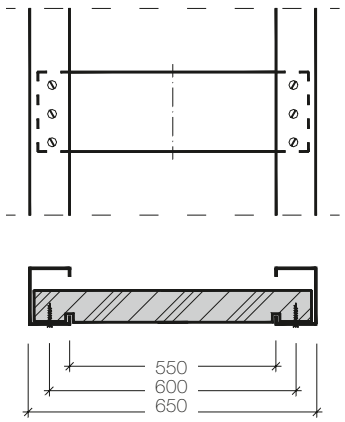
Lightweight sanitary items can be fixed to pattresses, horizontally mounted metal rails, timber noggins, or timber strips at least 40 mm thick. These support elements must be fixed securely to the main stud supports.

Fixings the stud with the stud spines facing each other as per the diagram allows for a flush fixing of the support section/ pattress behind the board; giving greater stability and support.

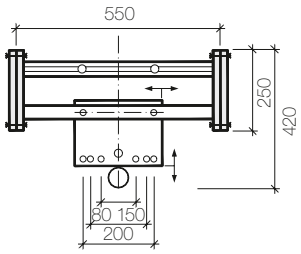
If the studs are facing the same way, then this will require a notching out of the face of the pattress / support profile to allow for the lip of the stud to remain undamaged.

Heavy sanitary items should be fixed to prefabricated support stands. There are many systems available; generally these are welded metal frames with adjustable fixing points to suit the required stud centres. These frames should be floor mounted, as per manufacturers instructions, and these stands should be fitted flush with the front face of the stud framework.

In the case of particularly heavy console loads and/or heavily frequented sanitary installations or relatively high installation walls, we recommend using the 2 mm thick fermacell™ door reinforcement profiles for additional support. Where required the stud centres can also be reduced.



Timber pattress for lightweight support requirements (dimensions in mm)

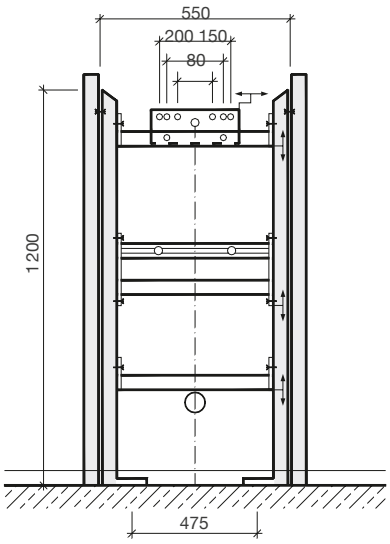


Support Noggin for lightweight supports (dimensions in mm)

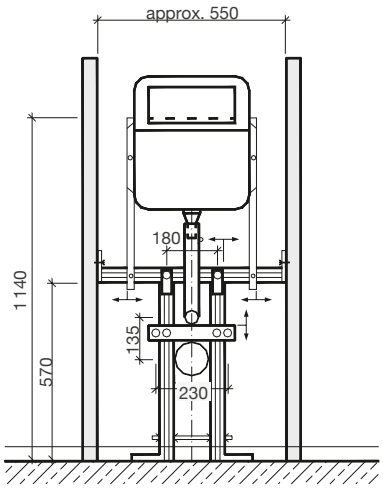
For particularly heavy loads that are to be installed in twin stud partitions, the vertical fermacell™ stud profiles must be connected to each other at 1/3 and 2/3 of the wall height.

If cantilever support rails are required for the WC, ensure that the live load requirements are taken into account when choosing the support frame.

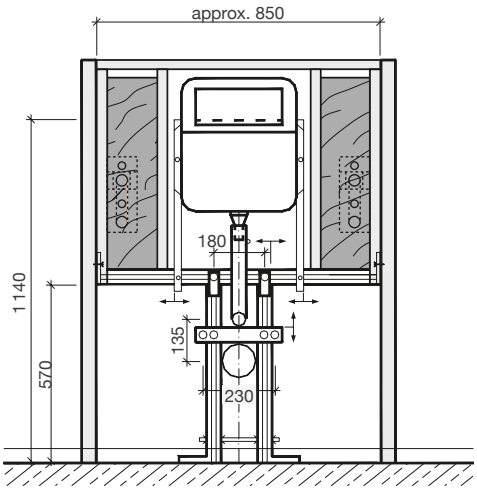
Irrespective of the type and location of the reinforcing sub-frame or supports, all pipe and ducting through the boarding should be cut out with a clear 10 mm clearance, the edges should be primed and closed with a flexible anti-fungicidal sealant. If required for a gypsum based substrate, prime the board edges prior to the application of this type of sealant (always follow manufacturers instructions).



Support frame for washbasins, urinals or sinks (dimensions in mm)



Support frame for wall-hung WCs with surface-mounted cistern (dimensions in mm)



Support frame for wall-hung WCs with surface-mounted cistern and the option of attaching cantilever support rails (dimensions in mm)

ACCESSORIES & TOOLS

For fermacell® fibre gypsum boards

	Quantity	Description	Item number	Bag/ Pallet	Use
fermacell™ Joint Filler					
	5 kg	For jointing fermacell® fibre gypsum boards.	79001	144	approx. 0.1 kg/m² for room-high boards
	20 kg		79003	48	

	Quantity	Description	Item number	Bucket/ Pallet	Use
fermacell™ fine surface treatment					
	3 l	Ready-to-use lightweight filler for full-surface finishing prior to painting.	79007	96	Surface filling approx. 1 litre/m² per 1 mm layer thickness. Typically 40m² per 10 l tub.
	10 l		79002	44	

	Quantity	Description	Item number	Bag/ Pallet	Use
fermacell™ bonding compound					
	20 kg	For attaching fermacell® fibre gypsum boards in a dot and dab method.	79043	48	approx. 3-4 kg/m²

	Dimension ø × length	Description	Item number	Unit/ Pack	Package/ Box	Use Wall	Ceiling
fermacell™ drywall screws							
	3.9 × 30 mm	For single layer boarding on wood and metal substructure.	79011	1000	10	10-13 pcs. per m² per side	16-22 pcs. per m² per side
			79021	250	40		
	3.9 × 40 mm	For single and double layer boarding on timber and metal substructure.	79047	1000	10		
	3.9 × 55 mm	For single- and multi-layer boarding on timber and metal substructure.	79053	1000	8		

	Dimension ø × length	Description	Item number	Unit/ Pack	Package/ Box	Use Wall	Ceiling
fermacell™ drywall screws, collated strips							
	3,9 × 30 mm	Collated. For timber and metal substructures. Collated on strips. Suitable for commercially available drywall screwguns.	79049	1000 (50 × 20)	10	10-13 pcs. per m² per side	16-22 pcs. per m² per side
	3.9 × 40 mm		79235				

	Dimension ø × length	Description	Item number	Unit/ Pack	Package/ Box	Use Wall	Ceiling
fermacell™ drywall screws with drill tip							
	3.5 × 30 mm Drill tip	For single layer boarding on higher guage metal substructure.	79052	1000	10	10-13 pcs. per m² per side	16-22 pcs. per m² per side

	Quantity	Description	Item number	Unit/ Box	Box/ Pallet	Use
fermacell™ Greenline Jointstik adhesive						
	310 ml	Board joint adhesive for fixing board joints, with special nozzle for easy application.	79224	25	48	approx. 20 ml / running m joint, i.e. approx. 22 m² wall surface (large format), approx. 11 m² ceiling surface (small format)

	Length	Description	Item number	Rolls/ Box	Use
fermacell™ joint repair tape					
	50 m	Width: 70 mm Non-woven fabric joint repair tape.	79026	180	as required

	Length	Description	Item number	Rolls/ Box	Use
fermacell™ DL reinforcing tape					
	45 m	Width: 60 mm Alkaline resistant, self-adhesive glass mesh fabric as joint reinforcement for Powerpanel H_2O boards when using Powerpanel Surface Finish.	79028	30	as required

Original fermacell™ tool

	Quantity	Description	Item number	Unit/ Box
fermacell™ board knife				
	**1 Piece**	For quick and easy cutting of **fermacell**® fibre gypsum boards. With hardened special blade.	79015	6

	Width	Description	Item number	Unit/ Box
fermacell™ Wide Spatula				
	**250 mm**	Made of dimensionally stable blue steel for seamless filling for the highest surface quality.	79030	5

	Quantity	Description	Item number	Dimension mm
fermacell™ Adhesive Scraper and replacement blade				
	**1 Piece**	Special tool for easy removal of adhesive residues. Rounded edges prevent jamming in the material. Long handle for back-friendly work.	79017	–
	3 Piece	Spare blade, galvanised, 3 pieces/package.	79016	100 × 100

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