

fermacell



FERMACELL Dry Flooring Elements

**Dry Acoustic and
Thermal Floor
Solutions**



xella

FERMACELL floating floor systems

For new build and renovation over masonry,
suspended timber or steel constructions



FERMACELL flooring systems are designed for use as floating floors in a wide variety of applications. They are manufactured throughout Europe by Xella Dry Lining Systems using the same technology as the high performance FERMACELL wallboards, and are available through builders merchants in both the United Kingdom and the Republic of Ireland. For more information about the company and its products, or for an up to date list of stockists in your area, please visit our website at: www.xella.co.uk

Areas of application:

There are four main areas of use for FERMACELL flooring, and the constructions vary slightly according to the specific application. All of the systems share the same basic

technology which produces a continuous floating membrane capable of installation and use within 24 hours and which is ready to accept a wide variety of floor finishes, from vinyls to laminates, and tile or parquet. The four types are:

■ 1. For improving Acoustic Insulation

Types 2 E 31 and 2 E 32: When used in conjunction with an acoustic ceiling system to meet the requirements of Part E of the Building Regulations and Robust Details.

■ 2. For use over underfloor heating

Type 2 E 22 or 2 E 11: Used in conjunction with warm water heating systems using grooved insulation trays with heat dispersion plates.

■ 3. For levelling uneven floors

A range of solutions are available, capable of filling voids up to 2 metres.

■ 4. For improving Thermal Insulation

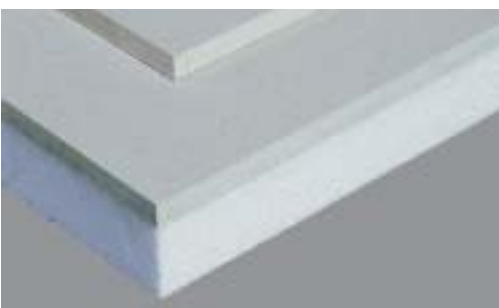
Types 2 E 13 and 2 E 14: For use instead of insulation and wet screed, usually on a ground floor application.

FERMACELL: Physical properties

FERMACELL is manufactured using a combination of 80 % recycled gypsum, 20 % cellulose fibres (recycled paper) and recycled water. The FERMACELL flooring elements are supplied in the form of 2 boards of 10 or 12.5 mm thickness, factory laminated with a 50 mm overlap (shiplap). This overlap provides a wide edge around the perimeter for jointing.

FERMACELL Flooring Elements can be used over the following:

- FERMACELL dry levelling compound (100 mm max)
- FERMACELL bonded levelling compound
- FERMACELL self levelling compound
- 30 mm FERMACELL honeycomb
- 60 mm FERMACELL honeycomb
- Expanded polystyrene foam of at least $20 \text{ kg/m}^3 \leq 30 \text{ mm}$ under the 2 E 11 and 2 E 22 flooring elements
- Extruded polystyrene foam of at least $33 \text{ kg/m}^3 \leq 100 \text{ mm}$ under the 2 E 11 flooring elements and $\leq 120 \text{ mm}$ under the 2 E 22 flooring elements.



Thermal Flooring

For improved thermal insulation

FERMACELL flooring elements offer varying thermal performances, depending on the thickness and the type of insulation used:

- 2 E 13: FERMACELL flooring element 2x 10 mm + 20 mm expanded polystyrene foam
- 2 E 14: FERMACELL flooring element 2x 10 mm + 30 mm expanded polystyrene foam
- Alternatively you may select your own insulation for use under FERMACELL elements.
- For example FERMACELL type 2 E 22 element laid over 70 mm Kingspan Kooltherm K3, to provide a Part L compliant solution.

Insulation from airborne and impact noise

The FERMACELL systems also offer a variety of cost-effective solutions for improving the acoustic insulation of solid masonry floors, lightweight steel or timber floor constructions. There is an appropriate flooring solution for each condition:

- 2 E 31: FERMACELL flooring element 2x 10 mm + 10 mm compressed wood fibre
- 2 E 32: FERMACELL flooring element 2x 10 mm + 10 mm high density mineral wool

See the applications table on page 20 of this brochure

Extensive acoustic tests have been conducted on FERMACELL systems. Full details of acoustic performance are given on page 17.

Fire protection from above

FERMACELL flooring elements are suitable for use in providing fire protection from above the structure

- for example in compartmentalisation.



Acoustic Flooring

- Dry
- Fast
- Simple to use

The great number of combinations of FERMACELL systems make it possible to easily meet modern requirements for acoustic and thermal comfort.

Ready to fit system, easy to handle, cost effective to install allowing immediate use

Easy installation

FERMACELL flooring elements are easy to install. Care should be taken to ensure that the floor is clean, dry and even, so that the FERMACELL flooring rests on the entire surface. The laps of the boards are glued together and the edges are screwed (or stapled). This ensures a perfect site finish every time.

This system ensures high point and rolling load resistance, even over the joints. For full technical details including load capacities for FERMACELL flooring elements, please refer to the brochure "FERMACELL Dry Flooring Elements – Instruction Manual".

Installation Method

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

2 First row of boarding: Cut off the overlap on two sides of the first element and on the long side of the following element.

3 Lay the FERMACELL flooring elements as shown in diagram 1. If the FERMACELL flooring elements are being laid on levelling compound, we recommend that you work from the door to avoid disturbing the granules. This method is shown in diagram 2.

The overlaps are only removed from the first row to ensure a close fit against the wall. Use the off-cut from the end of the first row of flooring elements to start the next run of boards (must be a minimum of 250 mm long), avoiding cross-joints.

4 The overlaps are glued with FERMACELL flooring adhesive (coverage: 20–25 m² per bottle). Follow the instructions on the packaging.

5 The boards are screwed or stapled together through the lap joints. This holds the edges securely whilst the glue expands through the joint and cures.

6 When the glue is dry and the excess has been scraped off, FERMACELL joint filler should be used, if required, for finishing the joints and screw or staple heads.



Diagram 1

■ **Always lay FERMACELL Flooring Elements in a brick bond pattern.**

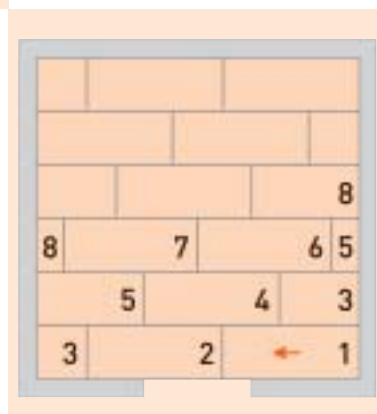


Diagram 2



FERMACELL Flooring Elements – a system with many advantages:

- Simple and quick installation. It takes very little time to fit. Waste is avoided by using the off-cuts to start the following row.
- Provides a light weight solution capable of withstanding high traffic and point loads.
(FERMACELL flooring elements must always be laid over a structural floor).
- Granular dry levelling compound can be used where the structural floor is uneven.
- No drying time, no waiting. Following trades can commence once the glue has hardened (usually 24 hours).



It is possible to walk on the FERMACELL dry floor and to lay the floor covering as soon as the glue is dry

FERMACELL

Levelling Compounds

FERMACELL produce three types of levelling compound to suit varying requirements:

1. FERMACELL Dry Levelling Compound
2. FERMACELL Bonded Levelling Compound
(combined structural and thermal performance)
3. FERMACELL Self-Levelling Compound
(a wet solution for the ultimate flat floor finish)



FERMACELL Dry Levelling Compound

FERMACELL dry levelling compound is suitable for use in new build and renovation: the special physical properties of the porous mineral granules mean they can be used for a variety of applications.

This material is suitable for all floating dry screed systems (for example FERMACELL flooring elements or chipboard) as well as for other screed systems requiring the use of levelling granules.

Special advantages: The benefits of FERMACELL Dry Levelling Compound:

- Universal use for all dry flooring systems (FERMACELL flooring elements, chipboard or others) and traditional screeds. Can also be used as insulation between joists.
- High load bearing capability.
- Non combustible.
- Improved airborne and impact sound insulation.
- Mineral material: rot-proof, verminproof, odourless and environmentally friendly.
- No additional work required.

- Easy to work with: light to transport, simple to spread, free flowing and clean.
- Light: approx. 3.7 kg/m² per 10 mm thickness.
- Easy, quick and cost-effective to use.

On concrete slabs a waterproof membrane should be used

If the FERMACELL dry levelling compound is laid over a concrete floor, a polyethylene membrane (0.2 mm thick) should be spread over the entire surface of the floor, taking care to leave a minimum of 200 mm overlap between each sheet.

On wooden floors, trickling protection should be used

If the granules are likely to fall through the floor (e.g. through cracks, knot holes or as a result of shrinkage of floor boards), lay FERMACELL Trickle Protection Sheet underneath.

Ensure that the sheet is continuous and that it is turned up at the perimeter above the level of the finished floor. When using a polyethylene membrane as trickling protection, ensure that a condensation risk analysis is carried out.

Additional considerations:

All services, pipe work and conduits can be buried in the compound as long as that they are covered in at least 10 mm of granules. All precautions must be taken to avoid condensation in the vicinity of pipe work.

When using in conjunction with underfloor heating, hot asphalt or other types of traditional screed, a load dispersing sheet should be used in order to prevent disturbance of the granules.

With Underfloor Heating systems, a 10 mm FERMACELL board may be used for this purpose. For other applications, selection and installation of the appropriate material must be in accordance with the manufacturer's instructions and according to site conditions.

As a general principle, when laying flooring elements using tongue and groove or similar joints, a sheet of Kraft paper or similar should be spread in order to prevent the granules hampering assembly. For systems using a lap joint (e.g. FERMACELL floor elements) this precaution is unnecessary.



Easy to lay

The finished floor level of the dry flooring must be set out and marked on the walls with the aid of a level or a chalk line or laser. The granules are poured out and levelled off with a straight edge as shown in the photographs above.

The FERMACELL dry levelling compound must be laid to a minimum of 10 mm deep and a maximum of 100 mm. A special FERMACELL floor levelling set is available from our distributors.

Alternatively, strips of graded timber or other straight materials may be used to set the height of the compound. The surface of the FERMACELL granules is then ready to receive the dry flooring elements.

As it is not possible to walk directly on the FERMACELL granules, either use islands – e.g. 500 x 500 mm. FERMACELL off-cuts – as stepping stones, or start laying from the door.

FERMACELL Bonded Levelling Compound

FERMACELL bonded levelling compound is a lightweight cement and polystyrene based material suitable for filling voids from 40 mm to 2 metres.

- A simple way to provide a structural base ready to accept FERMACELL dry flooring elements.
- Rapidly fills deep voids whilst providing additional thermal insulation

- Can be laid over services
- Ready to accept foot traffic after 6 hours
- Robust, stable, vermin-proof and impermeable to water
- Vapour barrier not required

It's installed in the following way:



Empty sack into mixing container



Add 12-13 litres of water per sack and mix



Pour onto first side of floor to be levelled



Set levelling bar on compound



Check levels



Pour out second line of compound, set second levelling bar and check level. Repeat as necessary across floor area and allow to set



Fill between set levelling bars and tamp off



Trowel off for fine levelling

FERMACELL Self-Levelling Compound

FERMACELL self-levelling compound is suitable for levelling from 0-20 mm and may be placed above or below FERMACELL dry flooring elements.

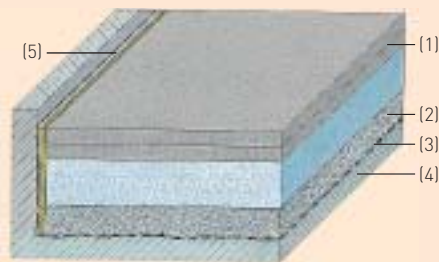
- Dry in 24 hours (3 mm thickness)
- Simple to lay, easy to use

For further information please contact our Technical Hotline on 0870 - 6090306



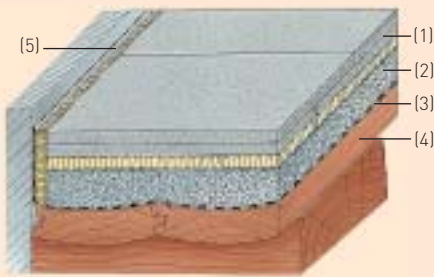
Typical Applications

Ground-supported concrete floor



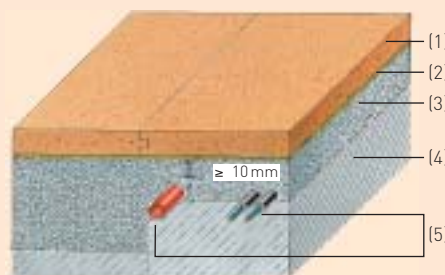
- (1) 2 E 14 FERMACELL dry flooring element with 30 mm rigid foamed polystyrene
- (2) FERMACELL levelling compound (to level up an uneven sub-floor and provide additional thermal insulation)
- (3) Vapour control layer
- (4) Concrete floor
- (5) Perimeter strip to isolate floor construction from walls

Suspended timber floor with uneven floorboards



- (1) 2 E31 FERMACELL dry flooring element with 10 mm wood fibre
- (2) FERMACELL levelling compound (to level up an uneven sub-floor and improve impact sound performance)
- (3) Trickle-proof barrier layer (building paper or similar)
- (4) Floorboards
- (5) Perimeter strip to isolate floor construction from walls

Solid concrete floor, stepped construction



- (1) Flooring-System
- (2) Trickle-proof barrier layer (building paper or similar)
- (3) FERMACELL levelling compound (services may be contained within this layer)
- (4) Stepped solid concrete floor
- (5) Service pipes (depth of cover not less than 10 mm)

For further details on the use of FERMACELL flooring elements and accessories, please refer to the “FERMACELL Dry Flooring Elements – Instruction Manual”.

FERMACELL Honeycomb Acoustic System

High performance acoustic insulation
with FERMACELL Honeycomb System



The FERMACELL honeycomb system is suitable for both renovation work and new build.

FERMACELL honeycomb is used as a modern version of acoustic pugging – i.e. it adds mass to light-weight (typically) timber floor constructions. Unlike traditional forms of pugging, the honeycomb is laid over the existing structural floor, thus avoiding the need to take up floorboards during installation.

The 30 mm or 60 mm thick FERMACELL honeycomb board is laid over the whole area of the floor and is filled with Honeycomb Infill. This structure increases the weight of the floor by approximately 45 kg/m² or 90 kg/m² respectively. This significantly improves acoustic performance whilst enabling an exposed ceiling detail to meet Part E – see the tables on page 18.

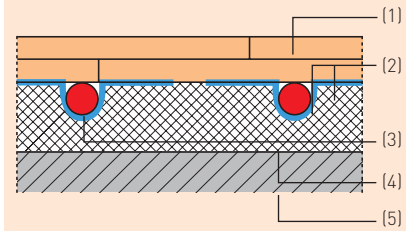
A Dry Solution For Under-floor Heating Systems

Ideal for under-floor heating

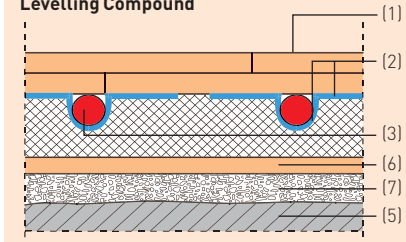
For under-floor heating systems using warm water, the 25 mm 2 E 22 or 20 mm 2 E 11 FERMACELL (only for specific systems) flooring elements – developed especially for this purpose – are the ideal solution; providing the fast response times not possible with concrete screeds, with the rapid installation of a dry flooring system. Detailed information is available in the document "FERMACELL Dry Flooring Elements – Instruction Manual".

- (1) FERMACELL dry flooring element 2 E 22 or 2 E 11 (check with Underfloor Heating Manufacturer for requirements)
- (2) Metallic diffuser plate
- (3) Heating system
- (4) Insulating board
- (5) Sound base (flat and dry)
- (6) FERMACELL board (10 mm)
- (7) FERMACELL dry levelling compound
- (8) Expanded polystyrene foam up to 120 mm
- (9) Suitable mineral wool board
- (10) Floor covering
- (11) Climatic Flooring
- (12) Suitable insulation

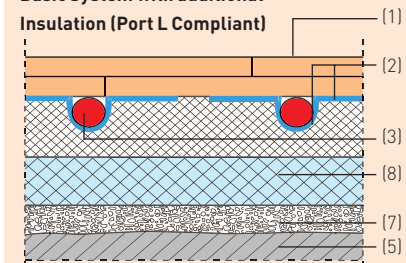
Typical Basic System



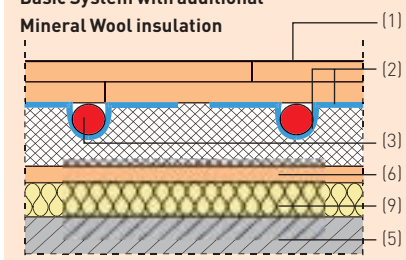
Basic System with additional Levelling Compound



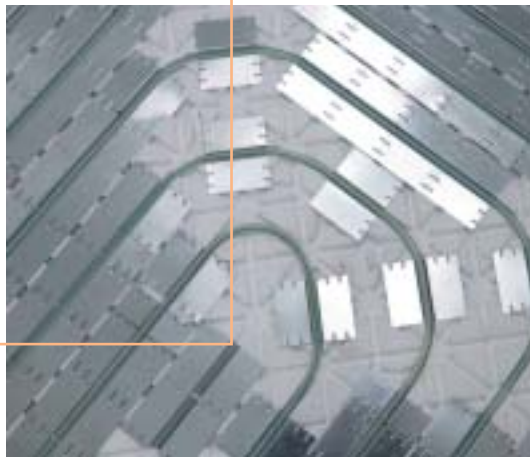
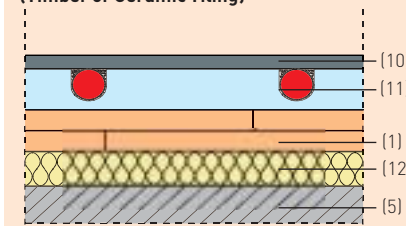
Basic System with additional Insulation (Port L Compliant)



Basic System with additional Mineral Wool insulation



System with structural floor covering (Timber or Ceramic Tiling)



Details

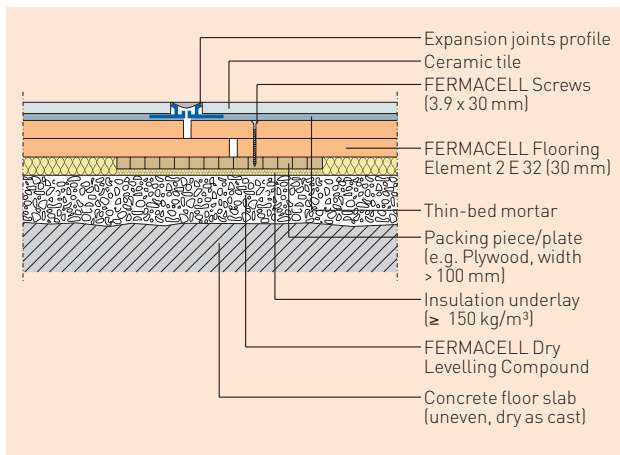
Junction details and expansion joints

As FERMACELL is a very stable product, having a low expansion and contraction rate, no expansion joints are required in the flooring elements for floor lengths up to 20 m.

This is also applicable for areas with various controllable and separated heating units or between heated and non heated surfaces/areas.

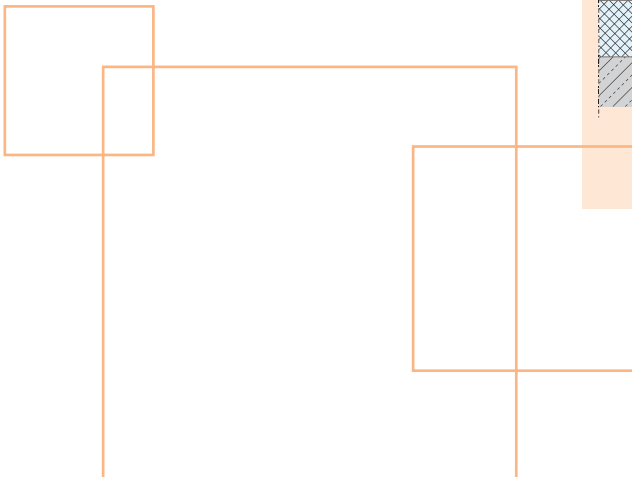
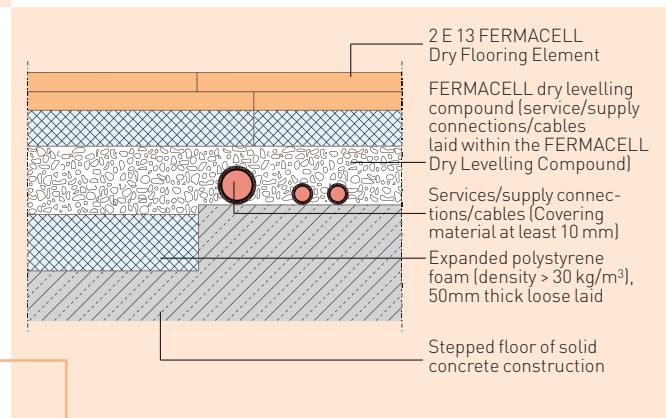
However, where there are expansion joints built into the main structure, then these should be mirrored in the FERMACELL Flooring Elements.

Expansion joints on the surface

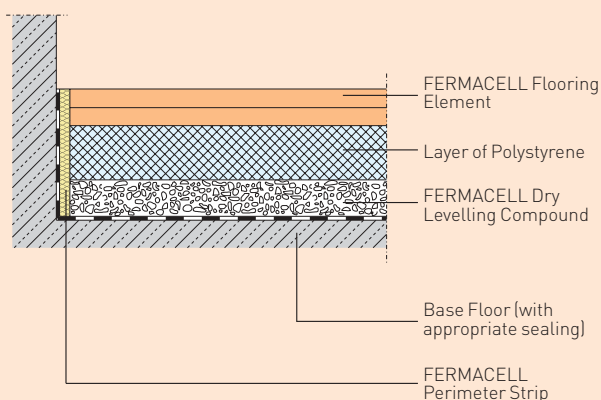


Expansion joints should be kept directly over the packing plate. Set the FERMACELL flooring elements as a floating layer with a movement gap of at least 5 mm. After that fix an expansion profile to the surface finish.

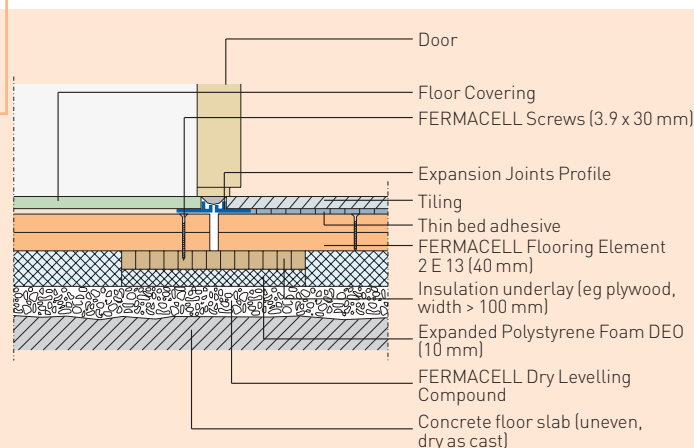
Floor cover with a great height difference



Ground floor – not above a cellar



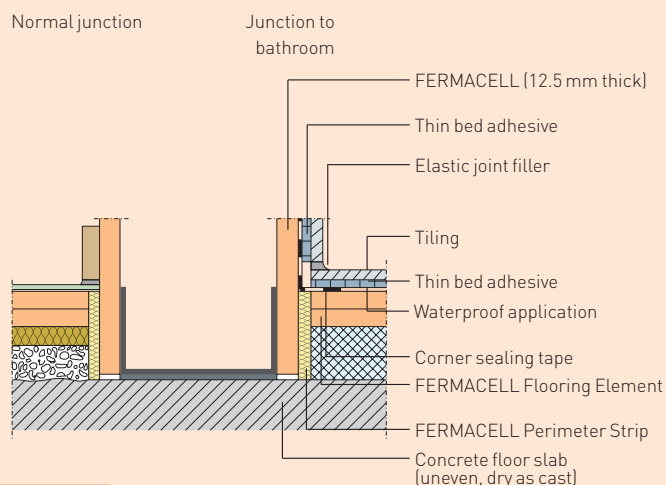
Doorway with Expansion Joint



Lay Flooring Elements on a hard base with a continuous 5 mm gap in the door area.

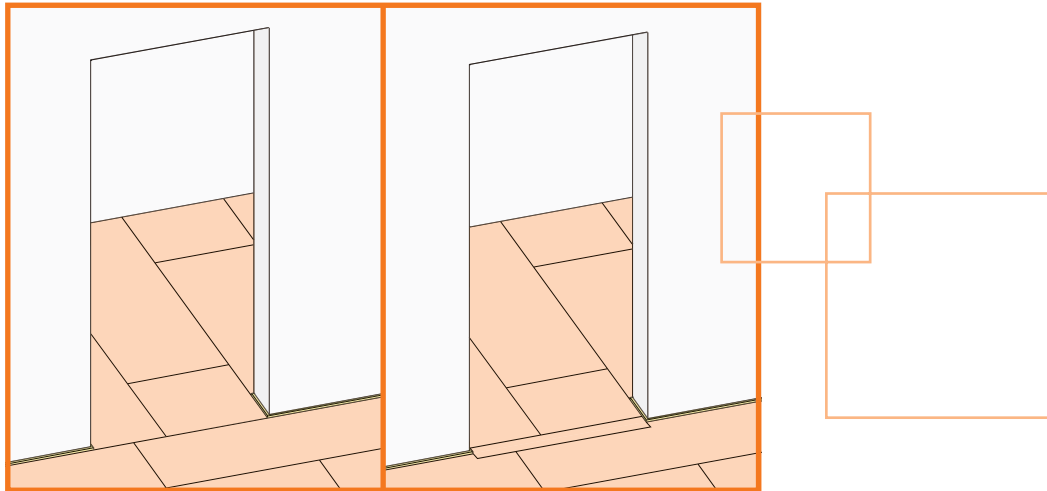
Then fit an expansion profile to the surface covering.

Junction of FERMACELL walls and floors



Details

Door ways – Version 1: FERMACELL Flooring Elements T-Junction



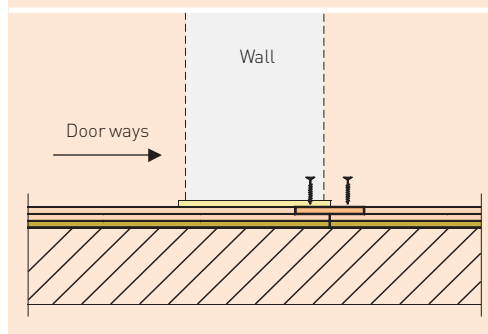
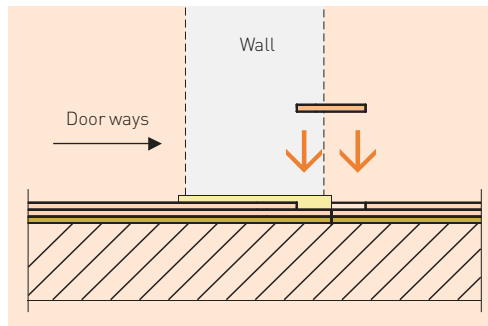
WRONG:
FERMACELL Flooring Elements
in door area : T-Jointed.

RIGHT:
Strip step connection in door
ways.

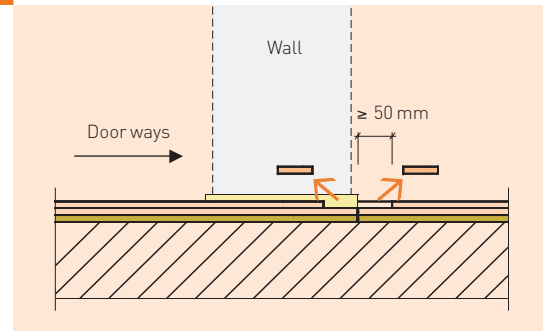
Installation steps in detail

2. Cut a strip of the same
thickness FERMACELL to the
required length and width.
Apply FERMACELL Flooring
Adhesive to the gap and
insert the strip.

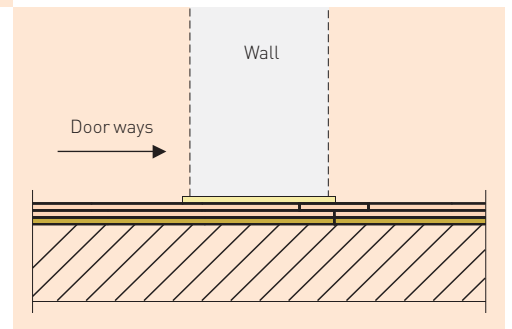
3. Fix the FERMACELL Strips
and Flooring Element tightly
to each other. Use
FERMACELL flooring screws
or diverging staples at no
more than 150 mm centers.



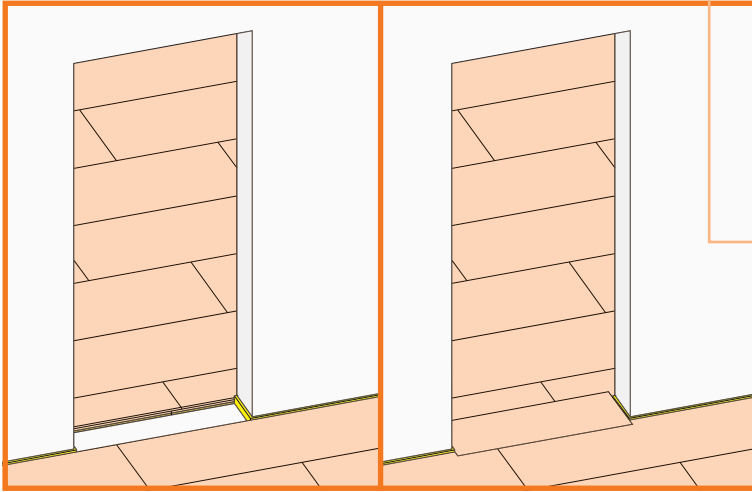
1. Cut a 50 mm wide FERMACELL strip from the
upper layer/position for each side, e.g. using a
hand-held circular saw.



4. Correctly fitted door ways
with T-jointed FERMACELL
Flooring Elements.



Door ways – Version 2: FERMACELL Flooring Elements laid longitudinally

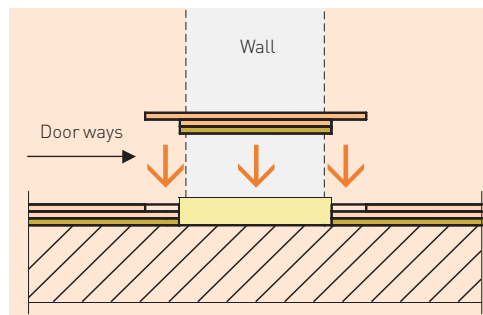


General Details: Keep the door area open during the installation of FERMACELL Flooring Elements.

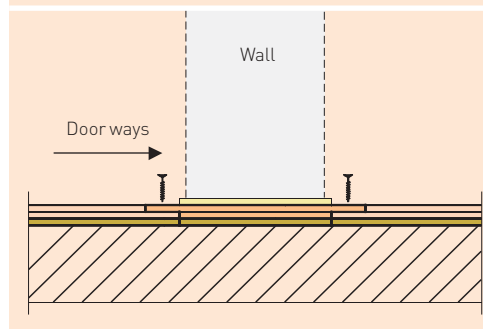
Complete passage in the door area.

Installation steps in detail

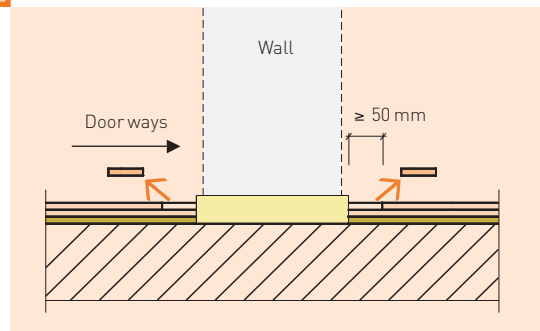
2. Cut an infill section of flooring to the required length and width from a FERMACELL Flooring Element. Apply the FERMACELL Flooring Adhesive on the joint and fit the infill piece.



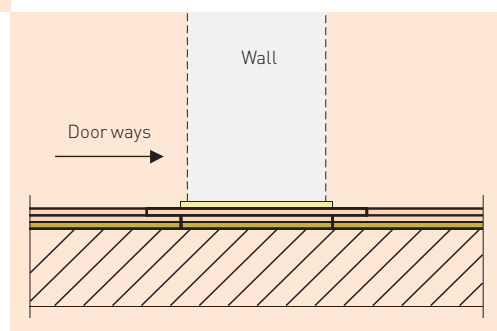
3. Glue the elements tightly together and fix using FERMACELL floor screws or diverging staples at no more than 150 mm centers.



4. Correctly fitted door ways with a longitudinally laid infill piece of FERMACELL Flooring.



1. Cut a 50 mm wide FERMACELL strip from the upper layer of the FERMACELL Flooring Element on each side, e.g. using a hand-held circular saw set to the top layer board thickness.



For all floor coverings

All current floor coverings can be laid onto FERMACELL flooring boards.

- Carpet, vinyl and PVC
- Linoleum and cork
- Ceramic tiles
- Natural stone, terracotta tiles
- Parquet
- Laminate and wooden floors

Special techniques are available for laying solid wooden floors that can overcome the problems that are traditionally associated with differential movement caused by seasoning of timbers.

For further information please refer to the FERMACELL Flooring Instruction Manual.

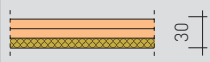
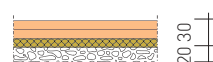
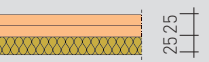
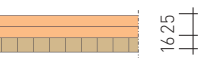
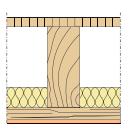
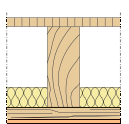
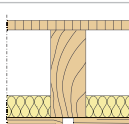
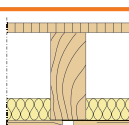
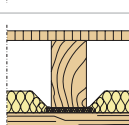
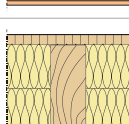
Range of accessories for the FERMACELL flooring board

The use of specific FERMACELL accessories facilitates laying and ensures the work is carried out perfectly:

- FERMACELL flooring adhesive
- FERMACELL levelling compounds
- FERMACELL Honeycomb boards and FERMACELL Acoustic infill
- FERMACELL joint filler
- FERMACELL perimeter strip
- FERMACELL screws for floor boarding (3.9 x 19 mm or 3.9 x 22 mm)
- FERMACELL levelling sets



FERMACELL Dry Flooring Elements – improved sound insulation in timber joist floors

Floor/ceiling constructions				FERMACELL dry flooring systems			
				2 E 32	2 E 32-c	2 E 22-mi	2 E 22-al
				 FERMACELL dry flooring element + 10 mm mineral wool	 2 E 32 FERMACELL dry flooring element + 10 mm mineral wool -c FERMACELL levelling compound	 2 E 22 FERMACELL dry flooring element -mi mineral wool 25 mm Rockfloor	 2 E 22 FERMACELL dry flooring element -al wood fibre insulation slab 17/16 mm ≥ 150 kg/m³ [2]
1		40	R' _w [dB]	49	52	51	48
		75	L' _{n,w,R} [dB]	64	67	63	69
2		42	R' _w [dB]	51	54	53	51
		73	L' _{n,w,R} [dB]	62	63	61	65
3		50	R' _w [dB]	54	56	55	54
		67	L' _{n,w,R} [dB]	58	56	55	58
4		53	R' _w [dB]	58	59	58	57
		62	L' _{n,w,R} [dB]	53	51	50	53
5		53	R' _w [dB]	57 (1)	59 (1)	59 interpolated	57 interpolated
		63	L' _{n,w,R} [dB]	53 (1)	49 (1)	49 interpolated	53 interpolated
6		55	R' _w [dB]	59 (1)	59 (1)	58 (1)	58
		58	L' _{n,w,R} [dB]	50 (1)	45 (1)	49 (1)	49

Part
Solu

Party Floor Solution

(1) Floor and ceiling constructions F 90

(2) Product mineral wool: 25 mm Rockfloor by Rockwool.

Product wood fibre insulation slab: Pavatex. Area of application 1. Admissible point loading 1.0 kN.

Floor and ceiling construction (from top to bottom).

1 22 mm chipboard
75 x 225 mm timber joists
50 mm mineral wool
50 x 30 mm battens
10 mm FERMACELL

2 22 mm chipboard
75 x 225 mm timber joists
50 mm mineral wool
50 x 30 mm battens
10 mm FERMACELL
10 mm FERMACELL

3 22 mm chipboard
75 x 225 mm timber joists
100 mm mineral wool
Protektor TPS25
Acoustic Ceiling System
10 mm FERMACELL

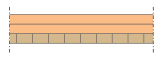
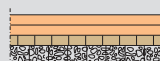
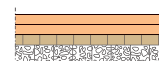
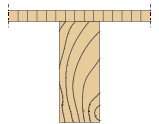
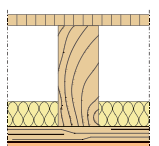
4 22 mm chipboard
75 x 225 mm timber joists
100 mm mineral wool
Protektor TPS25
Acoustic Ceiling System
10 mm FERMACELL
10 mm FERMACELL

5 22 mm chipboard
75 x 225 mm timber joists
50 mm Rockwool RPM
60 x 40 mm counterbattens
60 x 40 mm battens on acoustic hangers
10 mm FERMACELL
10 mm FERMACELL

6 22 mm chipboard
75 x 225 mm timber joists
100 mm mineral wool
100 mm mineral wool
Protektor TPS25
Acoustic Ceiling System
15 mm FERMACELL
15 mm FERMACELL

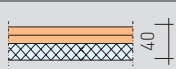
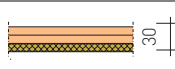
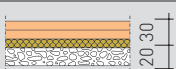
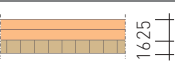
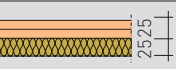
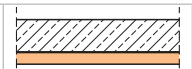
Additional test results and a more comprehensive range of constructions including Party Floor Solutions with underfloor heating are available on the FERMACELL website:
www.xella.co.uk

Improved sound insulation with FERMACELL Dry Flooring Elements

		Basic construction		2 E 31		2 E 31		2 E 31	
				20 mm FERMACELL + 10 mm wood fibre insulating slab		20 mm FERMACELL + 10 mm wood fibre insulating slab		20 mm FERMACELL + 10 mm wood fibre insulating slab	
System drawing									
Construction under the dry flooring elements				-		30 mm FERMACELL dry flooring honeycomb with FERMACELL honey- comb acoustic infill		60 mm FERMACELL dry flooring honeycomb with FERMACELL honey- comb acoustic infill	
		R_w [dB]	$L_{n,w,R}$ [dB]	R_w [dB]	$L_{n,w,R}$ [dB]	R_w [dB]	$L_{n,w,R}$ [dB]	R_w [dB]	$L_{n,w,R}$ [dB]
	Open timber joist floor 22 mm chipboard 75 x 225 mm timber joist	28	88	43	82	53 *	67 *	55	61
	Timber joist floor with counterbattens 22 mm chipboard 75 x 225 mm timber joist 50 mm mineral wool 30 mm battens 10 mm FERMACELL	45	79	48	73	55	64	57	61
	Timber joist floor with Protektor TPS 25 acoustic ceiling system 22 mm chipboard 75 x 225 mm timber joist 50 mm mineral wool 30 mm Protektor TPS 25 10 mm FERMACELL	56	64	59	56	62	47	62	43

* For greater impact sound insulation: Use FERMACELL dry flooring element 2 E 32 which will provide: $R_w = 53$ dB, $L_{n,w,R} = 62$ dB when used with 30 mm honeycomb system (20 mm FERMACELL, 10 mm mineral wool, 30 mm FERMACELL dry flooring honeycomb system with FERMACELL honeycomb acoustic infill, 28 mm floorboards, 200 mm timber joist)

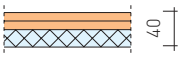
FERMACELL Dry Flooring Elements – improved sound insulation on concrete floors

		2 E 13	2 E 32	2 E 32-c	2 E 22-al	2 E 22-mi
System drawing		 FERMACELL dry flooring element + 20 mm rigid foamed polystyrene	 FERMACELL dry flooring element + 10 mm mineral wool	 2 E 32 FERMACELL dry flooring element + 10 mm mineral wool -c FERMACELL levelling compound	 2 E 22 FERMACELL dry flooring element -al wood fibre insulation slab 17/16 mm ≥ 150 kg/m ³ [2]	 2 E 22 FERMACELL dry flooring element -mi 25 mm Rockfloor
Concrete floors (minimum 315 kg/m ²)						
	$L'_{n,w,R}$ 83 dB	ΔL_w [dB]				
			17	21	22	27

[2] Product mineral wool: Rockfloor by Rockwool.
Product wood fibre insulation slab: Pavatex. Area of application 1. Admissible point loading 1.0 kN.

FERMACELL Dry Flooring Elements

at a glance

Ref. no.	Floor construction	Thick- ness	Weight	Areas of application	Admissible (1) (2) point loading	Thermal resistance (3)	Class (4) Fire load from above
		mm	kN/m ²		kN	[1/Δ] (m ² K/W)	
2 E 11	 20 FERMACELL dry flooring element (2 x 10 mm)	20	0.24	1 + 2	1.5	0.06	F 30
2 E 22	 25 FERMACELL dry flooring element (2 x 12.5 mm)	25	0.30	1 + 2 + 3	2.5	0.075	F 60
2 E 13	 40 FERMACELL dry flooring element (2 x 10 mm) + 20 mm rigid foamed polystyrene	40	0.24	1 + 2	1.5	0.56	F 30
2 E 14	 50 FERMACELL dry flooring element (2 x 10 mm) + 30 mm rigid foamed polystyrene	50	0.25	1 + 2	1.5	0.81	F 30
2 E 31	 30 FERMACELL dry flooring element (2 x 10 mm) + 10 mm wood fibre insulating slab	30	0.26	1 + 2 + 3	2.5	0.26	F 90
2 E 32	 30 FERMACELL dry flooring element (2 x 10 mm) + 10 mm mineral wool	30	0.26	1	1.0	0.31	F 90
2 E 32-c	 50 FERMACELL dry flooring element (2 x 10 mm) + 10 mm mineral wool 20 mm FERMACELL levelling compound	50	0.33	1	1.0	0.53	F 90
2 E 22-a	 35 10 mm FERMACELL glued to FERMACELL dry flooring element (2 x 12.5 mm)	35	0.42	1 + 2 + 3 + 4	3.5	0.10	F 90
2 E 31-a	 40 10 mm FERMACELL glued to FERMACELL dry flooring element (2 x 10 mm) + 10 mm wood fibre insulating slab	40	0.38	1 + 2 + 3 + 4	3.5	0.28	F 90
2 E 32-a	 40 10 mm FERMACELL glued to FERMACELL dry flooring element (2 x 10 mm) + 10 mm mineral wool	40	0.38	1 + 2	1.5	0.33	F 90
2 E 11-c	 40 FERMACELL dry flooring element (2 x 10 mm) 20 mm FERMACELL levelling compound	40	0.31	1 + 2	1.5	0.28	F 90

(1) Data relating to the admissible point loading is based on a square loading surface area $\geq 10 \text{ cm}^2$ and the distance between loading points must be $\geq 500 \text{ mm}$.

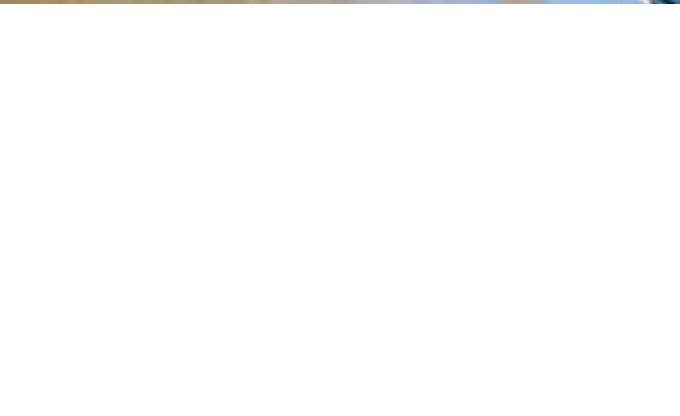
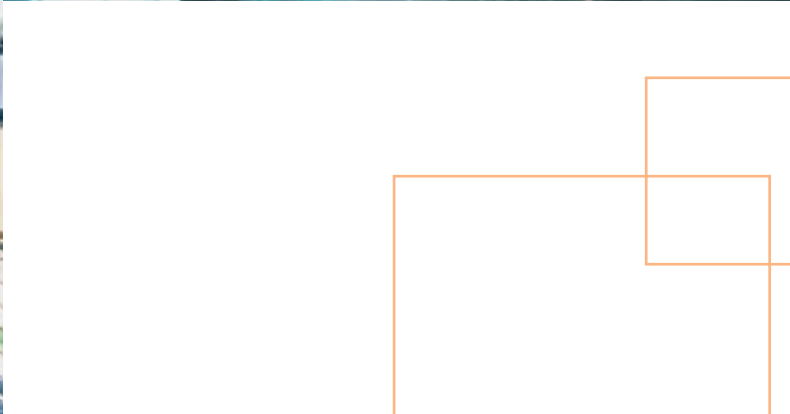
Where point loads are applied within 250 mm of the perimeter of a room the point load should be applied over an area not less than 100 cm^2 . The total floor load must not exceed the maximum admissible floor load capacity.

(2) The admissible point loading can be increased by the installation of a third layer of FERMACELL – see “FERMACELL Dry Flooring Elements – Instruction Manual”.

(3) Where a greater degree of thermal insulation is required, an increase in the thickness of the insulating layer can be achieved by using the appropriate materials in accordance with the “FERMACELL Dry Flooring Elements – Instruction Manual”.

(4) The listed floor constructions with FERMACELL dry flooring have been classified according to DIN 4102 into the respective fire protection class.

(5) When installing underfloor heating systems, a value of $0.09 \text{ m}^2 \text{ K/W}$ (thermal resistance) can be assumed.



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

The addition of extra layers does not restrict the range of use and does not change the resistance to concentrated loads.

If the flooring elements are laid on top of a concrete slab, the allowable concentrated load rating increases to 2.5 kN for the 2 E 11 flooring elements and to 3.5 kN for the 2 E 22 flooring elements. The scope of use extends to field 3 for 2 E 11 and to field 4 for 2 E 22.

Areas Exposed to Moisture

FERMACELL Flooring Elements (FFE) are suitable for use in areas prone to moisture such as domestic spaces, hospitals, offices, administrative departments, schools and similar buildings. In domestic spaces with greater humidity exposure for the floor, as for example bathrooms or entrance hall ways, the FFE should be coated with a waterproofing sealing coat or with a sealing adhesive system like, for example, the FERMACELL waterproofing system.

The FERMACELL waterproofing system consists of the following components which are applied in the following sequence:

- FERMACELL Primer Sealer
- FERMACELL Waterproofing application
- FERMACELL Flexible Sealing tape
- FERMACELL Waterproof Service Penetration Patches

Any other floor preparation or sealing that is required should be carried out prior to tiling, e.g. by the floor tiler.

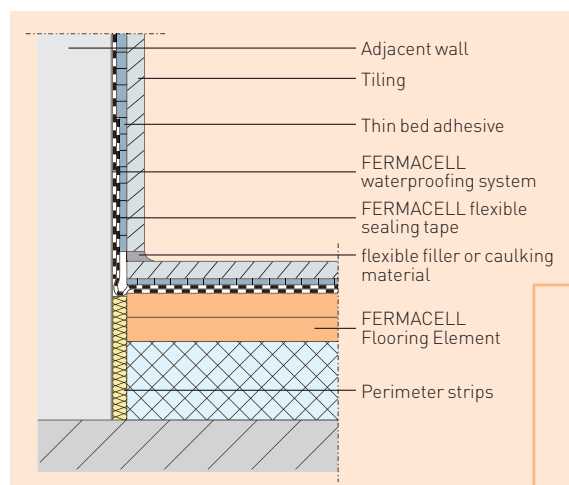
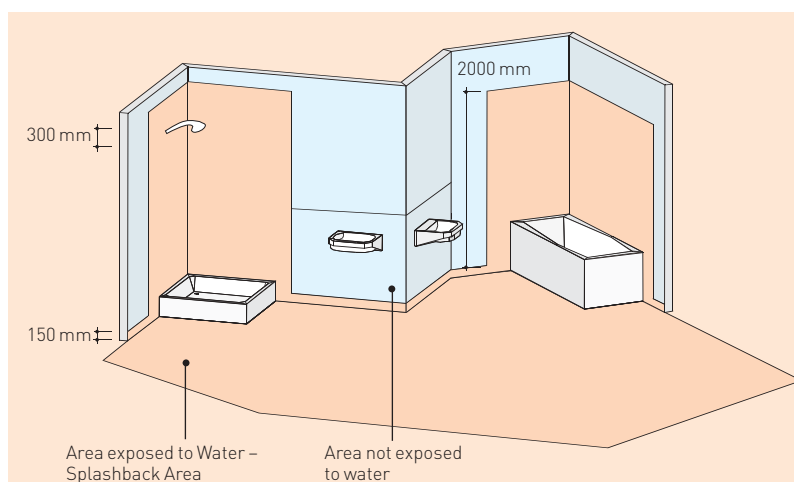
We recommend the use of a thin to medium bed tile adhesive, preferably a low water content type.

For other sealing systems we recommend that the manufacturer be contacted first to check for suitability for the area of application.

Corners and penetrations should be carefully sealed using the flexible sealing tape or the penetration patches to provide a complete waterproofing system.

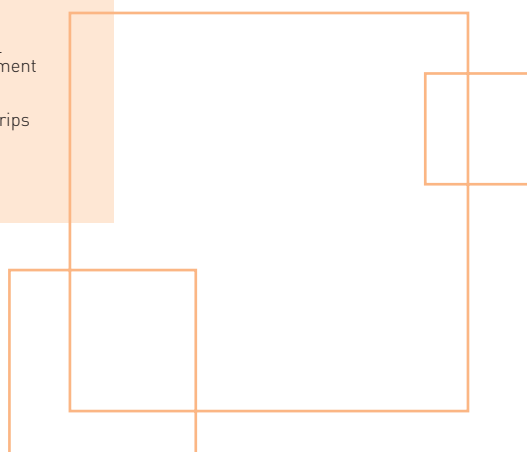
In areas with a bath, shower or similar the waterproofing system must be extended up the wall by a minimum of 150 mm to allow for humidity from ground level.

For areas of very high humidity or moisture exposure e.g. for example saunas, wet rooms or changing/shower areas in sports complexes, we recommend the use of the new FERMACELL Powerpanel H₂O Flooring Element.



**Example: Wall to Floor
Junction – splashback area**

**Waterproofing system
application areas**



Certification

Testing – and approval documents

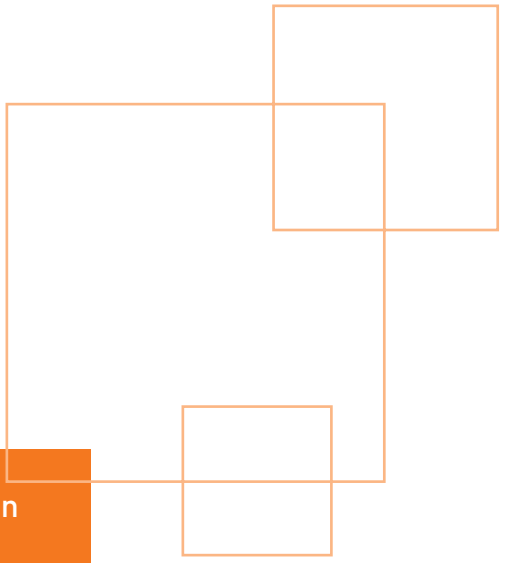
For constructions with FERMACELL Flooring Elements there are number of test certificates, approval documents, reports and comparative documents. Please call for further details.

FERMACELL also has a European Technical Approval ETA (CE 04 ETA 03-0006); all the FERMACELL Flooring Elements are CE-Certified. The applicability and adaptability of FERMACELL Gypsum Fibre Boards has been tested to current British and European standards.

FERMACELL Flooring elements also provide a fire classification from above from F30 to F90 as per test report P-3381/9177.

FERMACELL Flooring elements also provide a comprehensive solution for airborne and impact sound insulation, individually and as part of a system.





For further information
Please contact the
FERMACELL
Technical Helpline on
0870-6090306

fermacell

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Version: 08/2007. We reserve the right to change specifications.
Please call the helpline to ensure that you are in possession
of the latest information.
For additional information please see the FERMACELL website.

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