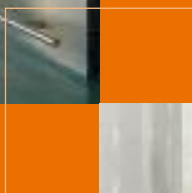


fermacell



Flooring Solutions

A useful quick reference guide to floors and ceilings with FERMACELL flooring systems.

xella

About this Guide

FERMACELL Gypsum Fibreboard provides a wide range of solutions to floor and ceiling constructions.

This guide is designed to help ease you through the installation process and maximise the most effective use of the product of your choice.

Thank you for choosing FERMACELL.

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Accreditation

Various international bodies provide standardised tests and accreditation, based on local regulations and standards. FERMACELL has achieved a variety of accreditations including – BBA (British Board of Agrément), ETA (European Technical Approval) & ECO Institut (Promoting Healthy Living Building Environment)



About Part E

The New **Approved Document E** sets acoustic performance standards for residential purposes.

The new acoustic standards are intended to improve the sound insulation and privacy between homes and rooms for residential purposes such as hotels. There is now also a set requirement for the standard partition walls within homes.

The New Approved Document E was implemented on the 1st July 2003. This document applies to houses, flats, schools, hotels and hostel types of accommodation. A distinction is also made between New Building and Material Change of Use (refurbishment).

Site Testing

There is now a requirement for pre-completion site testing. The builder will be required to prove by testing that the sound insulations meets that of the new regulations.

Workmanship

As with any construction, good design and installation practice should be observed at all times. All flanking issues must be addressed and detailed carefully at design stage; these must then be emulated by the quality of workmanship on site.

For further information about Part E visit www.AcousticRegs.info

Approved Document E Performance Requirements

Element	Airborne Sound – Site Test $D_{nT,w} + C_{tr}$ (100 to 3150Hz)	Impact Sound – Site Test $L_{nT,w}$
Separating floors between dwellings and rooms for residential purpose	Equal to or higher than 45dB	Equal to or lower than 62dB
Separating floors between rooms created by a change of use	Equal to or higher than 43dB	Equal to or lower than 64dB

dB – Decibel is a measurement of sound.

Part E solutions

FERMACELL board may be used in floor solutions to satisfy the requirements of Part E. A requirement of Part E is that 10% of all new dwellings are subject to pre-completion testing on site to ensure compliant performance for separating performance (or party) walls and floors. Testing should be carried out by a test body with third party accreditation.



RD solutions

As an alternative to pre-completion testing, a number of separating (or party) wall or floor solutions for new build dwellings are approved as Robust Details (RD's). If built correctly these may be deemed to satisfy Part E without the need for pre-completion testing.



FFT = Floating Floor Treatment.
CT = Ceiling Treatment.

> Look out for the stamps on the different flooring make ups in this booklet to help guide you.



Note:

To use a Robust detail, buildings must be registered with Robust Details prior to commencement of work.



As with any construction, good design and installation practice should be observed at all times.



FERMACELL Dry Flooring Systems

Dry, fast and simple to use

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 or www.fermacell.co.uk

Areas of application:

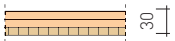

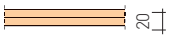



There are four main areas of use for FERMACELL flooring, and the constructions vary according to the specific application. All of the systems share the same basic technology which produces a continuous floating membrane capable of installation and use within 24 hours and which is ready to accept a wide variety of floor finishes; from vinyls and laminates, to tile or parquet.

The four types are:

1. Types 2E31 & 2E32 – For improving Acoustic Insulation
2. Type 2E22 or 2E11 – For use over underfloor heating
3. For levelling uneven floors – A range of solutions are available, capable of filling voids up to 2 metres.
4. Upgrading thermal performance – In conjunction with suitable insulation e.g. Kingspan Kooltherm

Elements at a glance



Ref. no.	Type	Floor construction	Thickness	Weight	Admissible point loading	Thermal resistance	Class Fire load
			mm	kg/m ²	kN	[1/Δ](m ² K/W)	Class
2E31	Sound insulation	 <p>FERMACELL dry flooring element (2x10mm) + 10mm wood fibre insulating slab</p>	30	26.5	2.5	0.26	F90
2E32	Sound insulation	 <p>FERMACELL dry flooring element (2x10mm) + 10mm mineral wool</p>	30	26.5	1.0	0.31	F90
2E11	Under-floor heating	 <p>FERMACELL dry flooring element (2x10mm)</p>	20	23	1.5	0.06	F30
2E22	Under-floor heating	 <p>FERMACELL dry flooring element (2x12.5mm)</p>	25	30	2.5	0.075	F60
78011	Levelling uneven floors	 <p>FERMACELL Dry levelling compound</p>	10-100	4*	-	0.11 @ 10mm thick	-
79036 78013	Honeycomb and infill for sound insulation	 <p>30mm honeycomb element and infill</p>	30/layer	45	-	0.04 @ 30mm thick	-

*based on 10mm thickness

Acoustic flooring

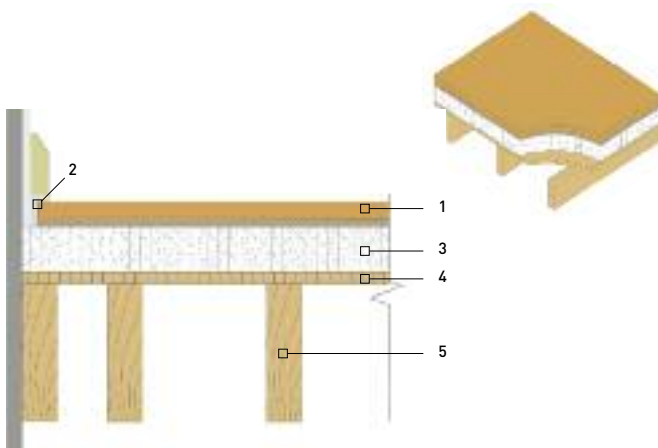
Open Timber Joists – Part E



For existing buildings where the decorative timber beams are exposed.

This solution combines the 60mm high performance FERMACELL acoustic honeycomb system with 30mm FERMACELL flooring element – 2E32 or 2E31.

This solution meets Part E requirements and ensures decorative beams are not concealed.



1. Flooring type	30mm FERMACELL floor element – 2E32 or 2E31
2. Edge isolation	Suitable edge isolation material
3. Mass acoustic element	60mm FERMACELL honeycomb flooring
4. Existing floor type	Thick solid flooring nominally 75mm deep For thinner types, contact Technical Department
5. Sub-floor type	75 x 225mm [3" x 9"] timber joists @ centres designed for deflection
Note:	Fire rating of joists need to be considered. Weight of acoustic flooring must be considered on beams (up to 130Kg)

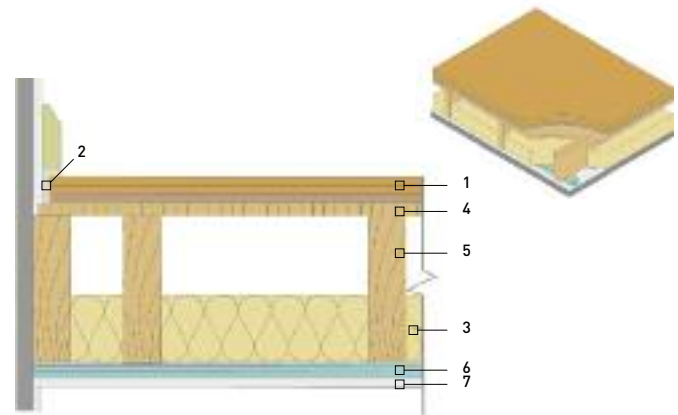
Timber Joists – Part E



For existing or new build to reduce sound transmission between floors.

This solution combines the 30mm FERMACELL 2E32 or 2E31 flooring element, mineral insulation between joists and resilient bars with FERMACELL boards on the ceiling.

This solution meets Part E requirements and ensures sound insulation between floors.



1. Flooring type	30mm FERMACELL floor element – 2E32 or 2E31
2. Edge isolation	Suitable edge isolation material
3. Insulation	100mm x 33kg/m ³ insulation between joists
4. Existing floor type	Existing 25mm floor boards or 18mm OSB or 22mm chipboard
5. Sub-floor type	225mm [9"] Min timber joists @ 400mm c/c or designed for deflection
6. Resilient Bar	Protector TPS25 or 50 x 30mm timber battens @ 400 c/c
7. Ceiling type	Ceiling – 2 x 10mm FERMACELL, or gypsum board minimum 20kg/m ² . (If alternative gypsum board is used, the fire rating must be considered.)

Acoustic flooring

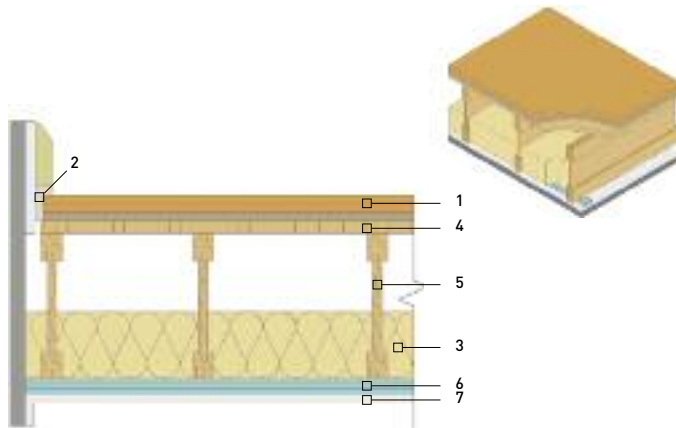


Engineered Beams – Part E

For existing or new build to reduce sound transmission between floors.

This solution combines the 30mm FERMACELL 2E32 or 2E31 flooring element, mineral insulation between joists, resilient bar with FERMACELL board on the ceiling.

This solution meets Part E requirements and ensures sound insulation between floors.



1. Flooring type	30mm FERMACELL floor element – 2E32 or 2E31
2. Edge isolation	Suitable edge isolation material
3. Insulation	100mm x 33kg/m ³ insulation between joists
4. Existing floor type	Existing 25mm floor boards or 18mm OSB or 22mm chipboard
5. Sub-floor type	240mm min. Engineered joists @ centres to suit deflection design
6. Resilient Bar	Protektor TPS25 or 50 x 30mm timber battens @ 400 c/c
7. Ceiling type	2 x 12.5mm FERMACELL, or gypsum board minimum 24kg/m ² . [If alternative gypsum board is used, the fire rating must be considered.]



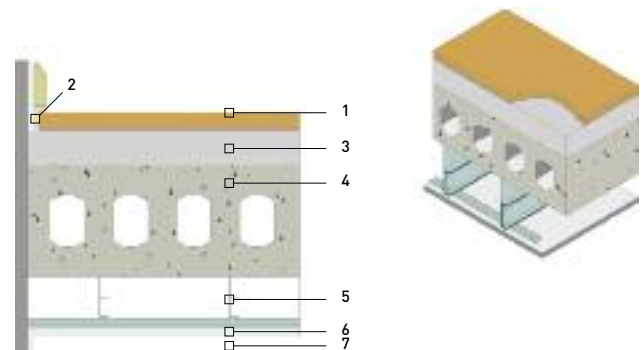
Hollow core Concrete Slab – Part E & RD E-FC-1, FFT 4

For existing or new build to reduce sound transmission through concrete hollow core floors slab.

This solution combines the 30mm FERMACELL 2E32 or 2E31 flooring element, over cement screed with hangers to underside of slab and FERMACELL board on the ceiling.

This solution meets Part E and Robust detail requirements and ensures sound insulation between floors.

Note: If floor is uneven FERMACELL levelling compound to be used to provide even and sound substrate.



1. Flooring type	FFT4-30mm FERMACELL floor element – 2E32 or 2E31
2. Edge isolation	Suitable edge isolation material
3. Screed	40mm x 80kg/m ² screed over
4. Existing floor type	200mm core depth – 300kg/m ³ density
5. Sub-floor type & resilient bar	Ceiling treatment options CT1 to CT4. e.g. CT3 – 75mm minimum void to underside with MF ceiling at @ 400 c/c
6. Ceiling	1 x 10mm FERMACELL, or gypsum board minimum 10kg/m ² . [If alternative gypsum board is used, the fire rating must be considered.]

Acoustic flooring



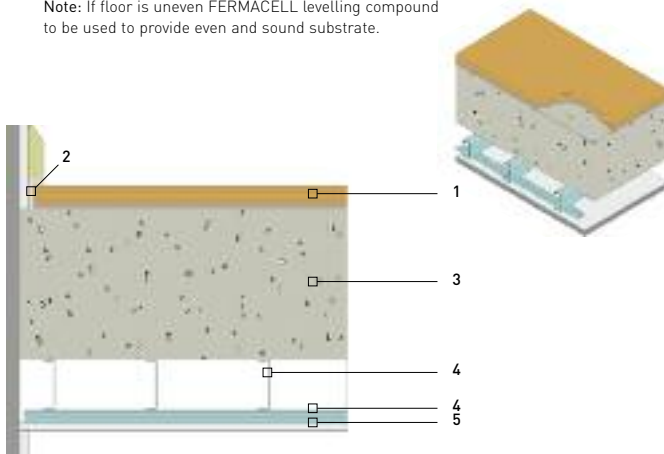
Concrete Slab- Part E & RD E-FC-2, FFT 4

For existing or new build to reduce sound transmission through concrete floors slab.

This solution combines the 30mm FERMACELL 2E32 or 2E31 flooring element with hangers to underside of slab and FERMACELL board on the ceiling.

This solution meets Part E and Robust detail requirements and ensures sound insulation between floors.

Note: If floor is uneven FERMACELL levelling compound to be used to provide even and sound substrate.



1. Flooring type	FFT4-30mm FERMACELL floor element – 2E32 or 2E31
2. Edge isolation	Suitable edge isolation material
3. Existing floor type	250mm concrete slab – 2400kg/m ³ density
4. Ceiling treatment type	Any suitable ceiling system set @ 400mm c/c giving a 75mm void. e.g. Steel MF ceiling system.
5. Ceiling board	1 x 10mm FERMACELL, or gypsum board minimum 8kg/m ²
Note:	Fire rating of gypsum board must be considered



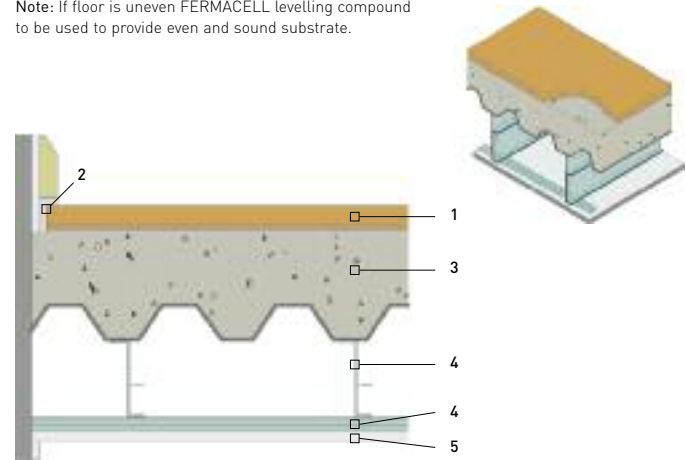
Rib Deck - Part E & RD E-FS-1, FFT 4

For existing or new build to reduce sound transmission through concrete/ steel ribdeck floor slab.

This solution combines the 30mm FERMACELL 2E32 or 2E31 flooring element with hangers to underside of slab and FERMACELL board on the ceiling.

This solution meets Part E and Robust detail requirements and ensures sound insulation between floors.

Note: If floor is uneven FERMACELL levelling compound to be used to provide even and sound substrate.



1. Flooring type	FFT4-30mm FERMACELL floor element – 2E32 or 2E31
2. Edge isolation	Suitable edge isolation material
3. Existing floor type	Rib Deck 80mm minimum x 130mm min maximum dimension – 2200kg/m ³ density
4. Ceiling treatment type	Suitable MF system to suit boards nominally at 400mm c/c – 300mm minimum from slab top to ceiling underside.
5. Ceiling board	1 x 10mm FERMACELL, or gypsum board minimum 8kg/m ²
Note:	Fire rating of gypsum board must be considered

Acoustic flooring

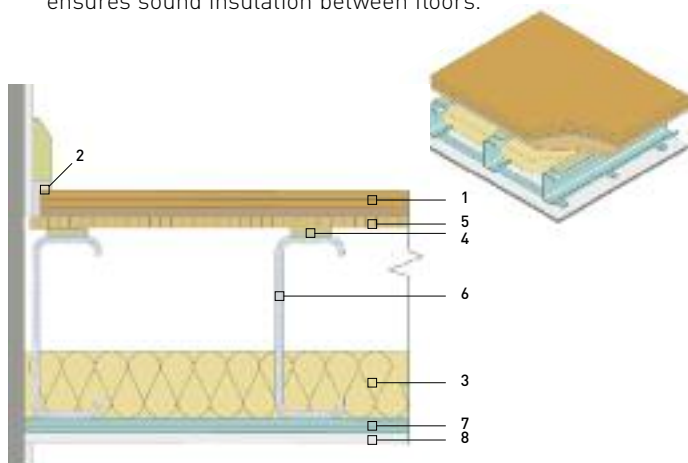
Steel Frame floor deck- Part E



For existing or new build to reduce sound transmission through steel floors deck.

This solution combines the 30mm FERMACELL 2E32 or 2E31 flooring element, mineral insulation between steels with resilient bar and FERMACELL board on the ceiling.

This solution meets Part E requirements and ensures sound insulation between floors.



1. Flooring type	30mm FERMACELL floor element – 2E32 or 2E31
2. Edge isolation	Suitable edge isolation material
3. Insulation	100mm x 33kg/m ³ insulation between steel
4. Beam isolation	Acoustic felt strips on steel beams
5. Existing floor type	18mm OSB or 22mm chipboard
6. Sub-floor type	225mm minimum steel depth – centres to suit deflection design
7. Resilient Bar	Protektor TPS25 or suitable resilient bar @ 400 c/c
8. Ceiling type	2 x 10mm FERMACELL, or gypsum board minimum 24kg/m ² . [If alternative gypsum board is used, the fire rating must be considered.]

Beam & Block – Part E

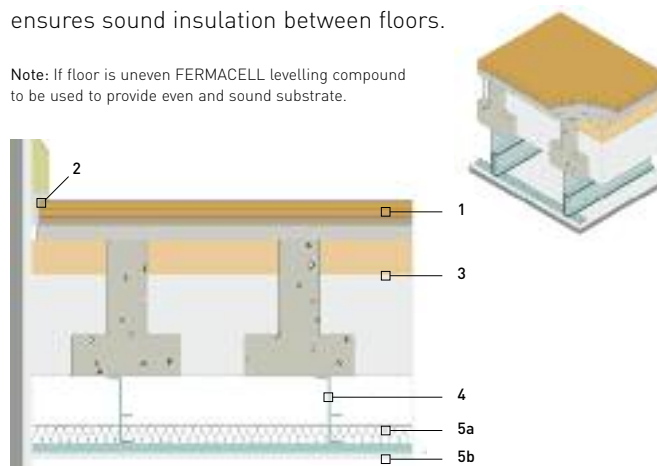


For existing or new build to reduce sound transmission through beam and block floor slabs.

This solution combines the 30mm FERMACELL 2E32 or 2E31 flooring element, with 20mm minimum levelling screed overlay with hangers to underside of slab and FERMACELL board on the ceiling.

This solution meets Part E requirements and ensures sound insulation between floors.

Note: If floor is uneven FERMACELL levelling compound to be used to provide even and sound substrate.



1. Flooring type	30mm FERMACELL floor element – 2E32 or 2E31
2. Edge isolation	Suitable edge isolation material
3. Existing floor type	Beam and Block element – 100mm thick infill block, 50mm concrete topping minimum strength class C20. Minimum 300kg/m ² combined mass per unit
4. Ceiling treatment type	Hangers to underside – 300mm minimum from slab top to ceiling underside @ 400 c/c
5a&b. Clarify type	1 x 10mm FERMACELL board and 25mm x 10kg/m ² insulation above, or 2 x 10mm FERMACELL (without 25mm insulation), or gypsum board minimum 10kg/m ² and 25mm x 10kg/m ² insulation [If alternative gypsum board is used, the fire rating must be considered.]

Acoustic and thermal flooring

Ground Floor – Part L

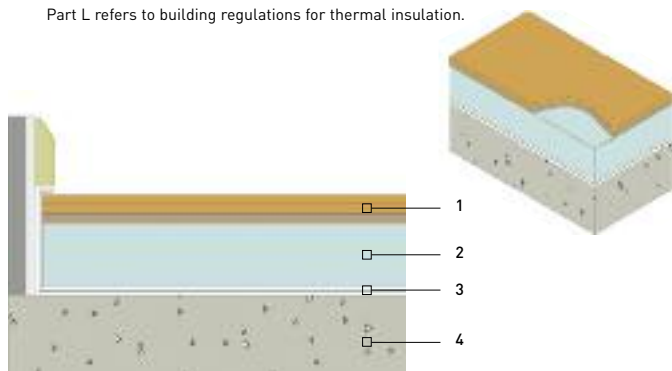
For existing or new builds to reduce impact sound transmission and provided thermal insulation through ground floor and perimeter walls.

This solution combines the 25mm FERMACELL 2E22 flooring element, over Kingspan Kooltherm insulation element over a suitable DPM or DPC.

This solution meets Part L requirements and ensures thermal insulation at ground floor level.

Note: If floor is uneven FERMACELL levelling compound to be used to provide even and sound substrate.

Part L refers to building regulations for thermal insulation.



1. Flooring type	25mm FERMACELL floor element – 2E22
2. Insulation/ acoustic element	Kingspan Kooltherm – thickness depends on site dimensions
3. DPC/DPL	Damp proof membrane/damp proof course to provide moisture barrier
4. Existing floor type	Concrete slab
Note:	Contact Kingspan Technical Department for suitable thermal insulation specific for site conditions on 0870 850 8333 or techline.uk@insulation.kingspan.com



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.

Levelling compounds continued

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) – please refer to Technical Helpline 0870 6090306.

- 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 (0.2mm thick) should be spread over the entire surface of the floor, taking care to leave a minimum of 200mm 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 over by 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 10mm 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 principal, 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 lapjoint (e.g. FERMACELL floor elements) this precaution is unnecessary.

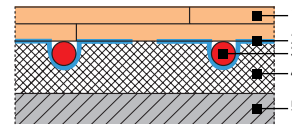
For use over underfloor heating

For under-floor heating systems using warm water, the 25mm (2E22) or 20mm (2E11) 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.

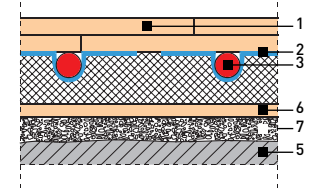


Note:
Detailed information is available in the document "FERMACELL Dry Flooring Elements – Instruction Manual".

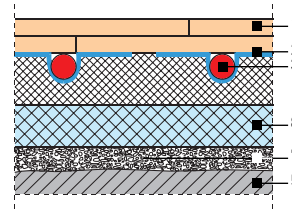
Typical Basic System



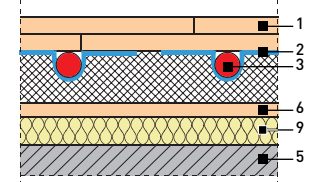
Basic System with additional Levelling Compound



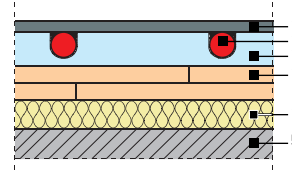
Basic System with additional Insulation (Part L Compliant)



Basic System with additional Mineral Wool Insulation



System with structural floor covering (Timber or ceramic Tiling)



- 1 FERMACELL dry flooring element 2E22 or 2E11 (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 (10mm)
- 7 FERMACELL dry levelling compound
- 8 Expanded polystyrene foam up to 120mm
- 9 Suitable mineral wool board
- 10 Floor covering
- 11 Climatic Flooring
- 12 Suitable insulation

Accessories

For all FERMACELL flooring systems, FERMACELL glue, screws, perimeter strips and joint filler are required. Dry levelling and honeycomb acoustic infill should be used where required.



FERMACELL Floor glue

Coverage: 25 m²– 30m² per bottle
Packaging: Special 1kg bottle



FERMACELL Countersunk flooring screws.

Usage: 15 screws per m² approx.
Packaging: 3.9 x 19mm (boxes of 250 or 1000) 3.9 x 22mm (boxes of 250 or 1000)



FERMACELL Joint filler

For stopping screw heads and fine filling joints.
Usage: 0.1kg per m² approx.
Packaging: 5kg bag



FERMACELL Dry Levelling compound

Usage: 5m² per bag at 10mm thickness
Packaging: 50l bag (approx. weight: 18.5kg)



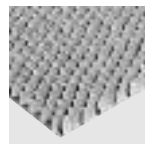
FERMACELL Perimeter strip

Dimensions: Depth 30mm and Depth 50mm
Packaging: 60 lm in 1m lengths



FERMACELL Honeycomb acoustic infill

Usage: 2 bags/m² for 30mm Honeycomb
4 bags/m² for 60mm Honeycomb
Pack size: 15 l/sack = 22.5kg – 42 per pallet



FERMACELL Honeycomb flooring

Usage: 1 Honeycomb sheet = 1.5m²
Sheet size: 1500 x 1000 x 30mm
1500 x 1000 x 60mm
Pack size: 30 per pallet (45m²) for 30mm thick sheet
15 per pallet (22.5m²) for 60mm sheet

Certification

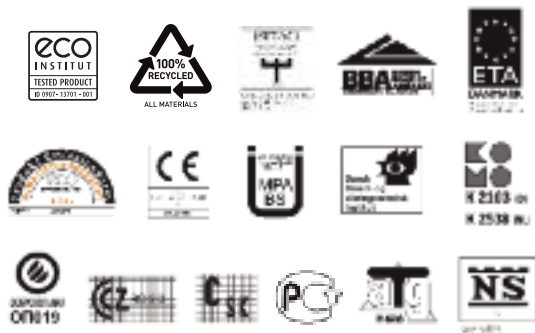
Testing – and approval documents

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 application and adaptability of FERMACELL Gypsum Fibreboards 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.



Other FERMACELL publications available



FERMACELL Dry Flooring Elements Instruction Manual

Quick Reference Installation Guide. For use onsite – including installation details & material consumption.



Dry Acoustic & Thermal Floor Solutions

Clear pictures showing step by step installation of flooring solutions. Selection guide to aid with flooring selection.



The Environment & Sustainability

Providing information on FERMACELL – 100% recycled, recycling solution & FERMACELL as a Healthy Living Building Material.



DVD

Guide explaining installation of FERMACELL Flooring, Attic Conversion & General FERMACELL Partitions.

For further information on any of the FERMACELL product range, or to order your copy of the above publications, please contact Xella on: **0870 6090306** alternatively visit www.xella.co.uk or www.fermacell.co.uk

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Version: UK/07.08/FS01. 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.