

# fermacell at a glance

Products and solutions

Last updated March 2014

**fermacell®**



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# 1 The dry lining market

## 1.1 Dry lining is the future!

We're convinced of that. This method is used for construction and refurbishment projects throughout Europe and far beyond its borders.

The demands on modern building materials are increasing and becoming more and more diverse. The market is dominated by fast, high-quality solutions that meet—or, better still, exceed—all the current safety regulations and energy efficiency requirements.

Like other sectors, the construction industry is undergoing a process of globalisation. Internationally active construction companies and retail chains, as well as international tendering procedures, confirm this trend.

Construction work needs to be completed efficiently in short time frames, without unnecessarily long drying times and without too much dirt, using easy-to-handle products and time-saving processing techniques.



## 1.2 No limits

In order to maintain and further expand this position, we are continuously developing new user-friendly products and innovative solutions geared towards market requirements. With its tested designs, which can be implemented efficiently, fermacell offers maximum stability, reliable fire protection, and good sound and thermal insulation. The European Technical Approval (ETA) puts fermacell ahead of the field, and the CE marking allows free trade within Europe.

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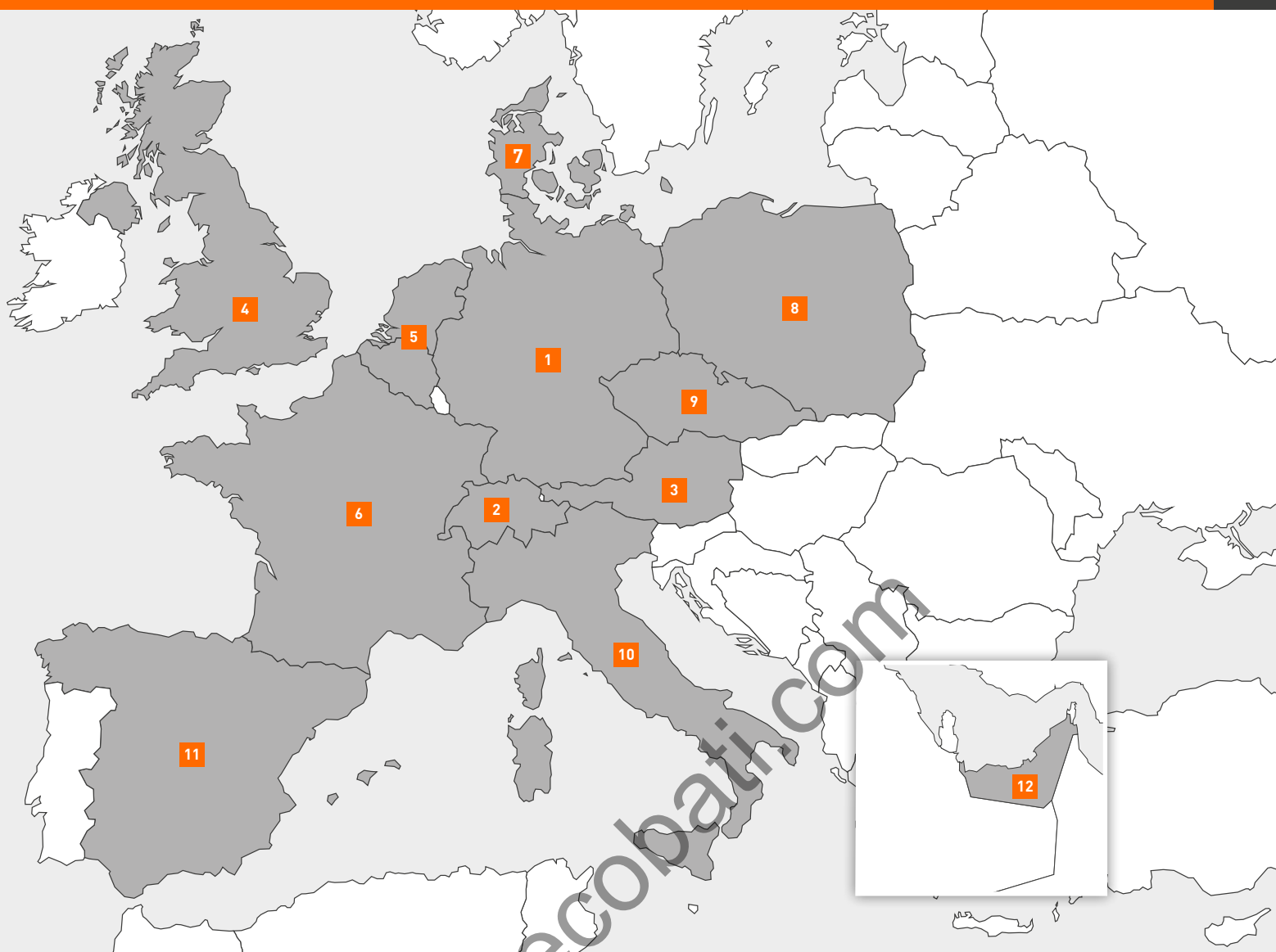
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## 2 Comprehensive product range

### 2.1 fermacell Gypsum Fibreboard

fermacell—the original—was the first gypsum fibreboard on the market. The brand has stood for high-quality dry lining for more than 40 years.

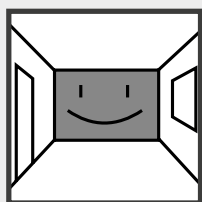
fermacell is made from gypsum and recycled paper fibres. These two natural raw materials are mixed with water, without any other binders being added. The mixture is then pressed into stable boards under high pressure, dried, coated with a water repellent, and cut to the required sizes. The gypsum reacts with the water, penetrating and enveloping the fibres. This produces high stability and non-combustibility.

Because of its material composition, fermacell boards are suitable for general construction, fire protection, and wet rooms.



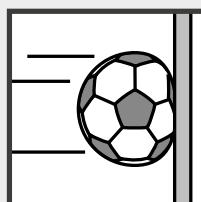
Hotel bathrooms, for example, often require moisture resistance with acoustic insulation and fire protection. Hospitals will add impact resistance and flexibility in accepting wall mounted fittings to this. These criteria often result in solutions involving compromises. They can then only be achieved by using specialist boards and composite layers, often with costly and time consuming consequences.

This in turn creates the potential for confusion, both at detailed drawing stage and on site. Additionally, multiple layering inevitably means thicker walls. fermacell offers a unique, single-point solution to these problems, combining high levels of fire resistance, acoustic insulation, and impact strength with exceptional screw holding ability and inherent moisture resistance.



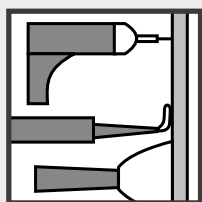
#### Comfortable indoor climate

**fermacell** Gypsum Fibreboards are made of gypsum and paper fibres, without any other binders. The breathing and insulating material ensures a comfortable indoor climate.



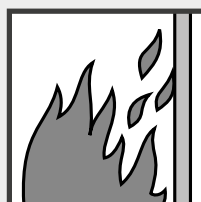
#### Impact resistant

**fermacell** Gypsum Fibreboard reduces double layering or use of sheathing ply. The homogeneous board structure makes it sturdy and able to withstand mechanical loading.



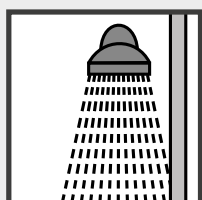
#### Easy to install

Drilling, cutting, jointing, filling, milling, sawing, grinding. Installation is easy and practical.



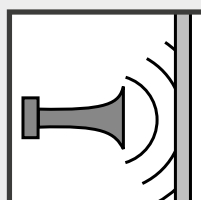
#### Fire resistant

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



#### Suitable for wet rooms

**fermacell** Gypsum Fibreboards are extremely suitable for rooms with variable humidity, e.g. domestic bathrooms.



#### Best sound insulation

Tests conducted by various worldwide institutes confirm outstanding sound insulating properties.

Want to construct curved walls, trapezoidal room dividers, or suspended ceilings with modern lighting effects? Not a problem with fermacell.

#### **fermacell for dry lining**

Dry lining techniques are prevalent in modern construction. And intelligent designs require innovative building materials. **fermacell** Gypsum Fibreboards certainly fulfil this requirement.

They offer architects and planners maximum freedom in the design of floor plans, as well as allowing creative implementation.

#### **fermacell for timber frame constructions**

Successful timber construction companies have used **fermacell** Gypsum Fibreboards for over 40 years to ensure professional yet cost-effective construction.

Timber construction techniques reduce construction times significantly in comparison with solid masonry construction, in both new build and modernisation projects, partly because they allow long drying times to be avoided. The streamlined designs also save space and make it possible to implement economic solutions.

Please find here a large selection of international fermacell project case studies:

■ [www.fermacell.com](http://www.fermacell.com)



## 2.2 fermacell Flooring Elements

Besides panels for wall and ceiling linings, fermacell also offers top-quality flooring elements that fulfil a variety of floor requirements with their different systems configurations.

fermacell flooring solutions are designed for use as floating floors in a wide variety of applications. Manufactured from **fermacell** Gypsum Fibreboards or Powerpanel H<sub>2</sub>O, they give a dry, robust, and simple solution for your flooring requirements. Used in conjunction with fermacell to the ceiling, the flooring elements provide a wide variety of solutions as a complete floor/ceiling specification. There are five main areas of use for fermacell flooring, and the constructions vary slightly according to the specific application.

All systems share the same basic technology, which involves a continuous floating membrane that can be installed and used within 24 hours, and which is ready to accept a wide range of floor finishes.

- Improving acoustic insulation: types 2 E 31 and 2 E 32
- Floor heating: types 2 E 22
- Levelling uneven floors: a range of solutions is available from 0+2,000 mm.
- Improving thermal insulation: types 2 E 13 and 2 E 14
- Wet-room floors: **fermacell** Powerpanel TE



Please find here our latest installation video for fermacell flooring elements:  
 ■ [www.fermacell.com](http://www.fermacell.com)



### Convenient format

**fermacell** Flooring Elements can be installed by one person.



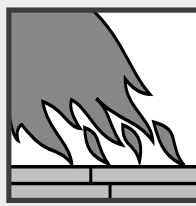
### Best sound insulation

Impact sound insulation can be improved considerably with **fermacell** Flooring Elements.



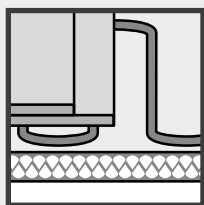
### Rapid useability

The flooring elements can be walked on and covered as soon as the floor glue has hardened. They can even withstand chair rollers.



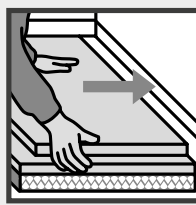
### Safe fire protection

The proven construction means that fire protection is no problem either.



### Ideal for underfloor heating

**fermacell** Flooring Elements are also ideal for underfloor heating.



### Fast installation

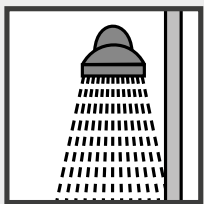
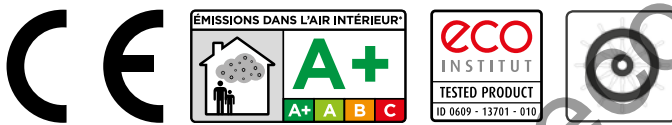
The proven overlap creates a reliable joint and makes installation fast, easy, and flexible.



## 2.3 fermacell Powerpanel

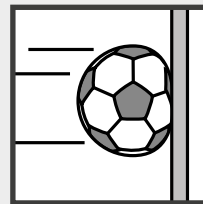
The cement-bonded construction panels with exceptional resistance for both inside and outside.

Our Powerpanel product family is used wherever building materials are exposed to considerable strain—particularly from water or mechanical stress, in interior construction, on exterior facades, or in industrial applications. Cement-bonded panels, optionally reinforced with a glass fibre mesh, create the required strength. Thanks to the individual formulations, these panels can be given very specific properties for special applications.



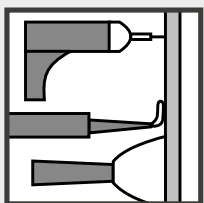
### Suitable for wet rooms

Hard-wearing and resistant against water in interior and exterior areas. Particularly suitable for domestic and public rooms, e. g. bathrooms, kitchens, and swimming pools.



### Light and impact resistant

fermacell Powerpanel boards have low weight, are sturdy, and able to withstand mechanical loading.



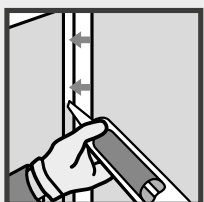
### Easy to install

fermacell Powerpanel can be installed without any special tools.



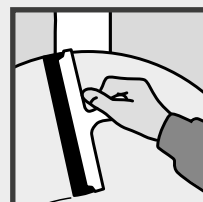
### Easy to fix

Powerpanel H<sub>2</sub>O boards can be screwed or stapled to the substructure.



### Unique jointing system

Glued, square-edge Powerpanel H<sub>2</sub>O boards produce a continuous membrane.



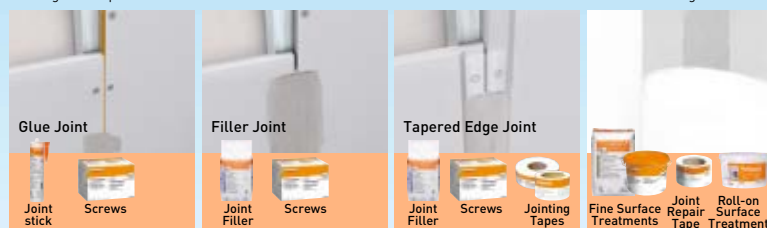
### Rapid finish

fermacell Powerpanel FST (FINE SURFACE TREATMENT) produces a high-quality finish.

## 2.4 Products at a glance

### Gypsum Fibreboards

Joining Techniques



### Gypsum Fibreboards & Flooring Elements

For Moisture Affected Areas – Domestic or Standard Use



### Powerpanel H<sub>2</sub>O

For Wall Areas Subject to High Levels of Humidity/Moisture



### Powerpanel TE & Showertray Element

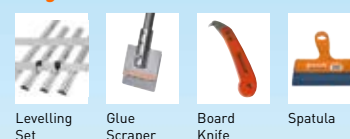
For Floor Areas Subject to High Levels of Humidity/Moisture



### Levelling Compounds/Infills



### Original fermacell Tools



### Powerpanel HD

External Wall System



### greenline

Gypsum Fibreboard



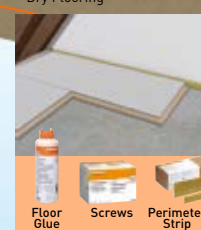
### greenline

Flooring Element



### Flooring Elements

Dry Flooring



## 3 Key advantages

### 3.1 Reliable fire protection

With fermacell, the increasing fire safety requirements for both private and public buildings can be fulfilled economically and reliably.

**fermacell** Gypsum Fibreboards, approved under ETA 03/0050, are classified as A2-s1, d0 in accordance with EN 13501-1 (non-combustible). Fire-resistant constructions (30 to 120 minutes) can therefore be produced even with 10 mm thick fermacell board. These products have been awarded test certificates by European and international material testing agencies for wall and ceiling constructions.

Safety for hallways, staircases, attic conversions, and any spaces where building regulations require fire protection, complete reconstruction with fermacell, with no need to change the material used. fermacell even offers ideal solutions for multi-storey timber frame construction, which is gaining in popularity.

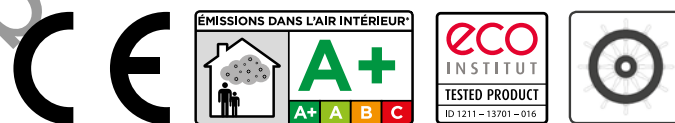
#### fermacell Firepanel A1

Because fire protection testing for building materials has been harmonised across Europe, certain building elements in a variety of application areas can, in many countries, only be produced with non-combustible materials A1. The national classes were superseded by the European classification

system. The new **fermacell** Firepanel A1 fulfils these stringent requirements, offering a safe solution for preventive structural fire protection in Europe.

#### fermacell AESTUVER

Lastly, fermacell's fire protection expertise also includes one of the leading brands in structural fire protection. Besides fire protection systems solutions, fermacell AESTUVER carries a wide choice of products for bulkheads, fire protection coatings, and fire protection joints.



For additional information please visit  
the fermacell AESTUVER website:

■ [www.fermacell-aestuver.com](http://www.fermacell-aestuver.com)





### 3.2 Effective sound insulation

fermacell offers effective protection against surrounding noise and improves acoustic comfort.

Tests conducted by various institutes confirm the outstanding sound-insulating properties of **fermacell** Gypsum Fibre-boards and Powerpanel products, which from their homogeneous board structures. Constructions using fermacell prefabricated walls with cavity-free insulation, tested in accordance with established standards, achieve sound insulation values ranging from 43 dB  $R_w$  to 64 dB  $R_w$

depending on the position of the room within the building. With their streamlined design, these walls also help to save space, have a low weight, and easily accommodate changes in the floor plan.

These advantages play a significant role, particularly in the construction of offices, hotels, schools, clinics, and private homes.



### 3.3 Stability and impact strength

#### Stability

Both professionals and DIY enthusiasts appreciate the special resilience of **fermacell** Gypsum Fibreboards. Wall cupboards, shelves, and many other items can be fixed firmly without having to be connected to the substructure. In property construction, this also makes fitting handrails, brackets for heavy equipment, or information boards much easier.

A screw with a cavity dowel in a 12.5 mm thick **fermacell** Gypsum Fibreboards can support a bracket weighing up to 50 kg. When fixing items to ceilings, such as heavy lamps, fermacell can bear a weight of up to 22 kg per screw with the same board thickness and using a kipp handle or spring toggle bolt.

#### Impact strength

The special manufacturing process ensures that the gypsum reacts with the water, penetrating and enveloping the recycled paper fibres. This produces the high stability of the **fermacell** Gypsum Fibreboards. The high mechanical resilience of fermacell is particularly evident in buildings such as schools, sports halls, kindergartens, hospitals, and hotels—wherever impact stress can be caused by people or objects.

#### Impact resistance

In areas with particularly stringent requirements in terms of stability, e. g. sports halls, the use of impact-resistant designs with **fermacell** Gypsum Fibreboards or Powerpanel H<sub>2</sub>O allows surfaces to remain functional over the long term.



### 3.4 Healthy living

**fermacell** greenline is a revolutionary building board manufactured by fermacell that absorbs and neutralises for good volatile organic compounds (VOCs) from the air. It considerably improves the quality of the air in buildings and constructions and brings us one step closer to the dream of a zero-emissions home. **fermacell** greenline is manufactured without compromise to the renowned properties of the fermacell multi-purpose building board—retaining its superior impact, acoustic, and moisture-resistant qualities whilst answering the call for an environmentally friendly and sustainable product.

Environmentally friendly production methods and products are fermacell's primary business objectives.



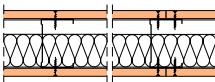
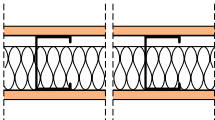
Its unique manufacturing techniques produce a building board of great quality, flexibility, and strength, which is made completely from recycled materials, making it a totally sustainable product that is ideal for walls, ceilings, or floors.

Both the product and the process have been awarded the coveted Rosenheim Institute of Construction Biology and Ecology certificate.

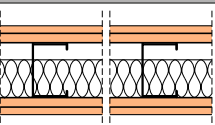
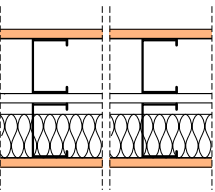
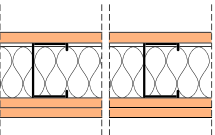
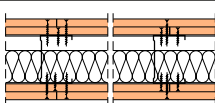
At the end of the board's manufacturing process the panel surfaces are coated with keratin. It possesses properties, which embed harmful substances in its molecular structure, so that they become insoluble, and the harmful substances are thus neutralised.

The purifying properties of the board remain active and **fermacell** greenline was tested and certified in a comprehensive study by the independent eco-institute of Cologne.



			Wall thickness	Fire rating	Sound insulation	Wall height (without fire rating)	Wall height (with fire rating)	Wall weight
			mm	mins	R <sub>w</sub>	m	m	kg/m <sup>2</sup>
1 S 11								
	Studs	50 mm DIN standard studs @ 500 mm centres	70	30	48	4	3	27
	Facings	1 layer 10 mm fermacell each side						
	Insulation	40 mm mineral wool, density 40 kg/m <sup>3</sup>						
	Studs	75 mm DIN standard studs @ 500 mm centres	95	30	48	4.5	4.5	28
	Facings	1 layer 10 mm fermacell each side						
	Insulation	40 mm mineral wool, density 40 kg/m <sup>3</sup>						
	Studs	100 mm DIN standard studs @ 500 mm centres	120	30	48	6.3	5	28
	Facings	1 layer 10 mm fermacell each side						
	Insulation	40 mm mineral wool, density 40 kg/m <sup>3</sup>						
	Studs	50 mm DIN standard studs @ 600 mm centres	75	30	48	3.7	3	34
	Facings	1 layer 12.5 mm fermacell each side						
	Insulation	40 mm mineral wool, density 40 kg/m <sup>3</sup>						
	Studs	75 mm DIN standard studs @ 600 mm centres	100	30	52	4.5	4.5	34
	Facings	1 layer 12.5 mm fermacell each side						
	Insulation	60 mm mineral wool, density 20 kg/m <sup>3</sup>						
Studs	100 mm DIN standard studs @ 600 mm centres	125	30	52	6	5	35	
Facings	1 layer 12.5 mm fermacell each side							
Insulation	60 mm mineral wool, density 20 kg/m <sup>3</sup>							
Studs	125 mm DIN standard studs @ 600 mm centres	150	30	54	7.9	5	37	
Facings	1 layer 12.5 mm fermacell each side							
Insulation	100 mm mineral wool, density 20 kg/m <sup>3</sup>							
1 S 21								
	Studs	75 mm DIN standard studs @ 600 mm centres	100	60	52	5	4	35
	Facings	1 layer 12.5 mm fermacell each side						
	Insulation	40 mm mineral wool, density 45 kg/m <sup>3</sup>						
	Studs	75 mm DIN standard studs @ 600 mm centres	100	60	54	5	4	35
	Facings	1 layer 12.5 mm fermacell each side						
	Insulation	60 mm mineral wool, density 30 kg/m <sup>3</sup>						
	Studs	100 mm DIN standard studs @ 600 mm centres	125	60	52	6	5	35
	Facings	1 layer 12.5 mm fermacell each side						
	Insulation	40 mm mineral wool, density 45 kg/m <sup>3</sup>						
Studs	100 mm DIN standard studs @ 600 mm centres	125	60	54	6	5	35	
Facings	1 layer 12.5 mm fermacell each side							
Insulation	60 mm mineral wool, density 30 kg/m <sup>3</sup>							

## Steel studs with insulation

				Wall thickness	Fire rating	Sound insulation	Wall height (without fire rating)	Wall height (with fire rating)	Wall weight
				mm	mins	R <sub>w</sub>	m	m	kg/m <sup>2</sup>
1 S 24									
	Studs	50 mm DIN standard studs @ 600 mm centres	95	60	59	4	4	58	
	Facings	1 layer 12.5 mm fermacell each side plus 1 layer 10 mm fermacell each outer side							
	Insulation	40 mm mineral wool, density 20 kg/m <sup>3</sup>							
1 S 25									
	Studs	2×75 mm DIN standard studs @ 600 mm centres	≥ 180	60	60	3.5 <sup>2)</sup> , 4 <sup>1)</sup> , 5 <sup>3)</sup>	3.5 <sup>2)</sup> , 4 <sup>1)</sup> , 5 <sup>3)</sup>	38	
	Facings	1 layer 12.5 mm fermacell each side							
	Insulation	60 mm mineral wool, density 30 kg/m <sup>3</sup>	≥ 180	60	57	3.5 <sup>2)</sup> , 5 <sup>1)</sup> , 6 <sup>3)</sup>	3.5 <sup>2)</sup> , 5 <sup>1)</sup> , 6 <sup>3)</sup>	38	
	Studs	2×75 mm DIN standard studs @ 600 mm centres							
	Facings	1 layer 12.5 mm fermacell each side							
	Insulation	40 mm mineral wool, density 45 kg/m <sup>3</sup>							
1 S 29									
	Studs	50 mm DIN standard studs @ 600 mm centres	85	60	54	4	3	46	
	Facings	1 layers 12.5 mm fermacell each side plus 1 layer 10 mm fermacell outer side							
	Insulation	40 mm mineral wool, density 40 kg/m <sup>3</sup>							
	Studs	75 mm DIN standard studs @ 600 mm centres	110	60	56	5	5	46	
	Facings	1 layers 12.5 mm fermacell each side plus 1 layer 10 mm fermacell outer side							
	Insulation	70 mm mineral wool, density 30 kg/m <sup>3</sup> or 60 mm mineral wool, density 35 kg/m <sup>3</sup>							
	Studs	100 mm DIN standard studs @ 600 mm centres	135	60	57	6.65	5	46	
	Facings	1 layers 12.5 mm fermacell each side plus 1 layer 10 mm fermacell outer side							
	Insulation	70 mm mineral wool, density 30 kg/m <sup>3</sup> or 60 mm mineral wool, density 35 kg/m <sup>3</sup>							
1 S 31									
	Studs	50 mm DIN standard studs @ 500 mm centres	90	90	52	4.1	4	57	
	Facings	2 layers 10 mm fermacell each side							
	Insulation	40 mm mineral wool, density 100 kg/m <sup>3</sup>							
	Studs	75 mm DIN standard studs @ 500 mm centres	115	90	60	6.4	4	57	
	Facings	2 layers 10 mm fermacell each side							
	Insulation	60 mm mineral wool, density 30 kg/m <sup>3</sup>							
	Studs	100 mm DIN standard studs @ 500 mm centres	140	90	60	8.6	4	58	
	Facings	2 layers 10 mm fermacell each side							
	Insulation	60 mm mineral wool, density 30 kg/m <sup>3</sup>							

<sup>1)</sup> Wall thickness, heights, and construction properties quoted are for separated steel stud partitions with U channels and C studs fixed parallel to each other and jointed with an insulation strip (for example a self-adhesive insulation strip). No mechanical bracing across studs.

<sup>2)</sup> Wall thickness, heights, and construction properties quoted are for separated steel stud partitions with U channels and C studs fixed parallel to each other without any jointing between the two separated stud sections.

<sup>3)</sup> Wall thickness, heights, and construction properties quoted are for separated steel stud partitions with U channels and C studs fixed parallel to each other and connected to each other at <1/3 height with a fillet of board or an off-cut of steel stud.

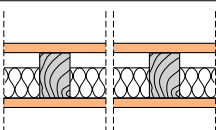
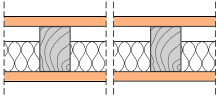
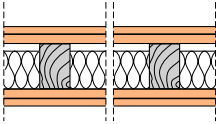






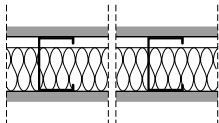
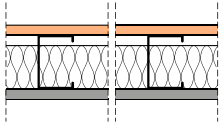
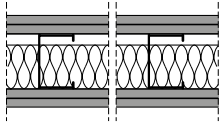
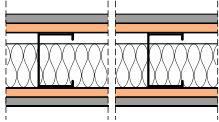
### Steel studs without insulation

## Timber walls with insulation—non-load-bearing

			Wall thickness	Fire rating	Sound insulation	Wall height	Wall weight
			mm	mins	R <sub>w</sub>	m	kg/m <sup>2</sup>
1 H 11							
	Battens	60×40 mm @ 600 mm centres	85	30	44	3.1	38
	Facings	1 layer 12.5 mm fermacell each side					
	Insulation	40 mm mineral wool, density 30 kg/m <sup>3</sup>					
	Battens	80×40 mm @ 600 mm centres	105	30	44	4.1	40
	Facings	1 layer 12.5 mm fermacell each side					
	Insulation	40 mm mineral wool, density 30 kg/m <sup>3</sup>					
	Battens	75×50 mm @ 600 mm centres	100	30	47	4.1	41
	Facings	1 layer 12.5 mm fermacell each side					
	Insulation	70 mm mineral wool, density 30 kg/m <sup>3</sup>					
	Battens	89×38 mm @ 600 mm centres	114	30	44	4.1	40
	Facings	1 layer 12.5 mm fermacell each side					
	Insulation	40 mm mineral wool, density 30 kg/m <sup>3</sup>					
1 H 22							
	Battens	75×50 mm @ 600 mm centres	100	60	44	4.1	40
	Facings	1 layer 12.5 mm fermacell each side					
	Insulation	40 mm mineral wool, density 45 kg/m <sup>3</sup> or 60 mm mineral wool, density 30 kg/m <sup>3</sup>					
	Battens	75×50 mm @ 600 mm centres	100	60	47	4.1	40
	Facings	1 layer 12.5 mm fermacell each side					
	Insulation	70 mm mineral wool, density 30 kg/m <sup>3</sup>					
	Battens	89×38 mm @ 600 mm centres	114	60	44	4.1	41
	Facings	1 layer 12.5 mm fermacell each side					
	Insulation	40 mm mineral wool, density 45 kg/m <sup>3</sup> or 60 mm mineral wool, density 30 kg/m <sup>3</sup>					
	Battens	89×38 mm @ 600 mm centres	114	60	47	4.1	41
	Facings	1 layer 12.5 mm fermacell each side					
	Insulation	70 mm mineral wool, density 30 kg/m <sup>3</sup>					
1 H 31							
	Battens	60×40 mm @ 600 mm centres	105	90	51	3.1	62
	Facings	1 layer 12.5 mm fermacell each side plus 1 layer 10 mm fermacell each outer side					
	Insulation	50 mm mineral wool, density 50 kg/m <sup>3</sup> or 70 mm mineral wool, density 30 kg/m <sup>3</sup>					
	Battens	80×40 mm @ 600 mm centres	125	90	51	4.1	64
	Facings	1 layer 12.5 mm fermacell each side plus 1 layer 10 mm fermacell each outer side					
	Insulation	40 mm mineral wool, density 30 kg/m <sup>3</sup>					
	Battens	75×50 mm @ 600 mm centres	120	90	51	4.1	64
	Facings	1 layer 12.5 mm fermacell each side plus 1 layer 10 mm fermacell each outer side					
	Insulation	70 mm mineral wool, density 30 kg/m <sup>3</sup>					
	Battens	89×38 mm @ 600 mm centres	134	90	51	4.1	64
	Facings	1 layer 12.5 mm fermacell each side plus 1 layer 10 mm fermacell each outer side					
	Insulation	40 mm mineral wool, density 30 kg/m <sup>3</sup>					



### Steel walls—Powerpanel H<sub>2</sub>O

			Wall thickness	Fire rating	Sound insulation	Wall height (without fire rating)	Wall height (with fire rating)	Wall weight
			mm	mins	R <sub>w</sub>	m	m	kg/m <sup>2</sup>
1 S 11 H <sub>2</sub> O								
	Studs	75 mm DIN standard studs @ 600 mm centres	100	30	49	4	4	30
	Facings	1 layer 12.5 mm Powerpanel H <sub>2</sub> O each side						
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>						
	Studs	100 mm DIN standard studs @ 600 mm centres	125	30	49	4.5	4.5	30
	Facings	1 layer 12.5 mm Powerpanel H <sub>2</sub> O each side						
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>						
1 S 12 H <sub>2</sub> O								
	Studs	50 mm DIN standard studs @ 600 mm centres	75	30	49	3.7	3	33
	Facings	1 layer 12.5 mm fermacell one side plus 1 layer 12.5 mm Powerpanel H <sub>2</sub> O other side						
	Insulation	40 mm mineral wool, density 50 kg/m <sup>3</sup>						
	Studs	75 mm DIN standard studs @ 600 mm centres	100	30	51	4.2	4.2	33
	Facings	1 layer 12.5 mm fermacell one side plus 1 layer 12.5 mm Powerpanel H <sub>2</sub> O other side						
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>						
	Studs	100 mm DIN standard studs @ 600 mm centres	125	30	51	6	5	33
	Facings	1 layer 12.5 mm fermacell one side plus 1 layer 12.5 mm Powerpanel H <sub>2</sub> O other side						
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>						
1 S 41 H <sub>2</sub> O								
	Studs	75 mm DIN standard studs @ 600 mm centres	125	90	57	4	4	55
	Facings	2 layers 12.5 mm Powerpanel H <sub>2</sub> O each side						
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>						
	Studs	100 mm DIN standard studs @ 600 mm centres	150	90	57	5.85	5.85	55
	Facings	2 layers 12.5 mm Powerpanel H <sub>2</sub> O each side						
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>						
1 S 42 H <sub>2</sub> O								
	Studs	75 mm DIN standard studs @ 600 mm centres	125	120	60	4.85	4.85	60
	Facings	1 layer 12.5 mm fermacell each side plus 1 layer 12.5 mm Powerpanel H <sub>2</sub> O each outer side						
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>						
	Studs	100 mm DIN standard studs @ 600 mm centres	150	120	60	7.45	6.5	60
	Facings	1 layer 12.5 mm fermacell each side plus 1 layer 12.5 mm Powerpanel H <sub>2</sub> O outer side						
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>						

## Timber walls—Powerpanel H<sub>2</sub>O


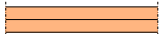
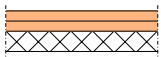
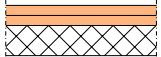
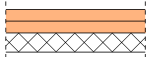
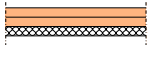

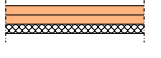
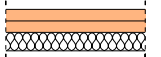

				Wall thickness	Fire rating	Sound insulation	Wall height (without fire rating)	Wall height (with fire rating)	Wall weight
				mm	mins	R <sub>w</sub>	m	m	kg/m <sup>2</sup>
1 H 21 H <sub>2</sub> O									
	Battens	60×40 mm @ 600 mm centres		85	60	42	3.1	3.1	33
	Facings	1 layer 12.5 mm Powerpanel H <sub>2</sub> O each side							
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>							
	Battens	75×50 mm @ 600 mm centres		100	60	42	4.1	4.1	35
	Facings	1 layer 12.5 mm Powerpanel H <sub>2</sub> O each side							
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>							
	Battens	89×38 mm @ 600 mm centres		114	60	42	4.1	4.1	36
	Facings	1 layer 12.5 mm Powerpanel H <sub>2</sub> O each side							
	Insulation	60 mm mineral wool, density 25 kg/m <sup>3</sup>							

## Steel walls—Firepanel A1

				Wall thickness	Fire rating DIN 4102 (EN 13501)	Sound insulation (without insulation)	Sound insulation (with insulation) <sub>η</sub>	Wall height (without fire rating)	Wall height (with fire rating)	Wall weight
				mm	mins	R <sub>w</sub>	R <sub>w</sub>	m	m	kg/m <sup>2</sup>
1 S 31 A1										
	Studs	50 mm DIN standard studs @ 600 mm centres		90	90	≥ 48	56	4	3	50
	Facings	2 layers 10 mm Firepanel A1 each side								
	Studs	75 mm DIN standard studs @ 600 mm centres		115		≥ 48	60	5	3	50
	Facings	2 layers 10 mm Firepanel A1 each side								
	Studs	100 mm DIN standard studs @ 600 mm centres		140		≥ 48	60	5	3	50
	Facings	2 layers 10 mm Firepanel A1 each side								
	Studs	125 mm DIN standard studs @ 600 mm centres		165		≥ 48	60	5	3	51
	Facings	2 layers 10 mm Firepanel A1 each side								
1 S 41 A1										
	Studs	75 mm DIN standard studs @ 600 mm centres		125	120	54	62	4	3	64
	Facings	2 layers 12.5 mm Firepanel A1 each side								
	Studs	100 mm DIN standard studs @ 600 mm centres		150		56	62	4	3	64
	Facings	2 layers 12.5 mm Firepanel A1 each side								
	Studs	125 mm DIN standard studs @ 600 mm centres		175		56	62	4	3	64
	Facings	2 layers 12.5 mm Firepanel A1 each side								

<sup>1)</sup> Mineral wool thickness ≥ 40 mm

## fermacell Flooring Elements

		Thickness mm	Fire rating from above mins	Thermal performance [1/Λ] (m <sup>2</sup> ·K/W)	Admissible point loading kN	Areas of application	Element weight kg/m <sup>2</sup>
2 E 11							
	20 mm flooring element	20	30	0.06	2	1 + 2	0.23
2 E 22							
	25 mm flooring element	25	60	0.08	3	1 + 2 + 3	0.29
2 E 13							
	20 mm flooring element plus 20 mm rigid foamed polystyrene	40	30	0.56	2	1 + 2	0.23
2 E 14							
	20 mm flooring element plus 30 mm rigid foamed polystyrene	50	30	0.81	2	1 + 2	0.24
2 E 23							
	25 mm flooring element plus 20 mm rigid foamed polystyrene	45	60	0.58	3	1 + 2 + 3	0.29
2 E 31							
	20 mm flooring element plus 10 mm wood fibre insulating slab	30	90	0.26	3	1 + 2 + 3	0.25
2 E 33							
	25 mm flooring element plus 10 mm wood fibre insulating slab	35	90	0.28	3	1 + 2 + 3	0.31
2 E 32							
	20 mm flooring element plus 10 mm mineral wool insulating slab	30	90	0.28	1	1	0.25
2 E 35							
	25 mm flooring element plus 20 mm mineral wool insulating slab	45	90	0.31	1	1	0.33
Powerpanel TE							
	25 mm Powerpanel flooring element for wet areas	25	30	0.14	3	1 + 2 + 3	0.25

Areas of application		Category in Accordance to DIN EN 1991-1-1/NA:2010-12	Admissible Point Loading kN	Admissible Surface Load kN/m <sup>2</sup>
1	Rooms and hallways in residential buildings and hotel rooms, including associated kitchens and bathrooms.	A2/A3	1.0	1.5/2.0
2	Hallways in office buildings, office spaces, doctors' practices without heavy equipment, hospital wards, and lounges including hallways.	B1	2.0	2.0
	Salesroom areas with floor surfaces of up to 50 m <sup>2</sup> in residential, office, and similar buildings.	D1	2.0	2.0
3	Hallways and kitchens in hotels and retirement homes without heavy equipment, hallways in boarding schools, etc. Treatment rooms in hospitals including operating theatres without heavy equipment; cellar rooms in residential buildings.	B2	3.0	3.0
	Surfaces with tables, e.g. school rooms, cafés, restaurants, dining rooms, reading rooms, reception rooms, day nurseries, crèches, and staff rooms.	C1	3.0	4.0
		(deviating from DIN EN 1991-1-1)	(4.0)	(3.0)
4	Hallways in hospitals (deviating from DIN EN 1991-1-1) as well as all examples from B1 and B2, but with heavy equipment.	B3	4.0	5.0
	Surfaces in churches, theatres or cinemas, conference rooms, lecture rooms, and waiting rooms.	C2	4.0	4.0
	Freely accessible surfaces, e.g. museum areas, exhibition areas, entrance areas in public buildings and hotels, as well as hallways belonging to categories C1 to C3.	C3	4.0	5.0
	Surfaces for large gatherings of people, e.g. in buildings such as concert halls.	C5	4.0	5.0
	Surfaces in retail shops and department stores.	D2	4.0	5.0

## 4.2 Board dimensions

fermacell Gypsum Fibreboards				
Format	Thickness			
	10 mm	12.5 mm	15 mm	18 mm
	Basis weight			
	11.5 kg/m <sup>2</sup>	15 kg/m <sup>2</sup>	18 kg/m <sup>2</sup>	21 kg/m <sup>2</sup>
1000×1500 mm	●	●	●	●
1200×2000 mm	●			
1200×2500 mm	●	●	●	●
1200×2600 mm	●	●	●	●
1200×3000 mm	●	●	●	●
Specially cut sizes on request				

fermacell Gypsum Fibreboards tapered edge on 2 sides			
Format	Thickness		
	10 mm	12.5 mm	15 mm
	Basis weight		
	11.5 kg/m <sup>2</sup>	15 kg/m <sup>2</sup>	18 kg/m <sup>2</sup>
1200×2500 mm	●	●	
1200×2600 mm	●	●	●
1200×3000 mm	●	●	●
fermacell Gypsum Fibreboards—tapered edge on 4 sides			
1200×1200 mm	on request	●	●

fermacell greenline—naturally neutralises VOCs			
Format	Thickness		
	10 mm	12.5 mm	15 mm
	Basis weight		
	11.5 kg/m <sup>2</sup>	15 kg/m <sup>2</sup>	18 kg/m <sup>2</sup>
1500×1000 mm	●	●	●
1200×3000 mm	●	●	●
fermacell greenline—tapered edge on 2 sides			
1200×2600 mm	●	●	●
fermacell greenline—tapered edge on 4 sides			
1200×2000 mm	●	●	●

fermacell Firepanel A1			
Format	Thickness		
	10 mm	12.5 mm	15 mm
	Basis weight		
	11.5 kg/m <sup>2</sup>	15 kg/m <sup>2</sup>	18 kg/m <sup>2</sup>
1200×2000 mm	●	●	●
1200×2600 mm	●	●	●
Other cut sizes and delivery date on request			



### 4.3 Board data

fermacell Flooring Elements		
Type	Construction	Thickness
2 E 11	2 × 10 mm fermacell	20 mm
2 E 13	2 × 10 mm fermacell + 20 mm rigid foamed polystyrene	40 mm
2 E 14	2 × 10 mm fermacell + 30 mm rigid foamed polystyrene	50 mm
2 E 22	2 × 12.5 mm fermacell	25 mm
2 E 23	2 × 12.5 mm fermacell + 20 mm rigid foamed polystyrene	45 mm
2 E 31	2 × 20 mm flooring element + 10 mm wood fibre insulating slab	30 mm
2 E 32	2 × 10 mm fermacell + 10 mm mineral wool	30 mm
2 E 33	2 × 25 mm flooring element + 10 mm wood fibre insulating slab	35 mm
2 E 35	2 × 12.5 mm fermacell + 20 mm mineral wool	45 mm

Dimensions: 1.50 × 0.50 m = 0.75 m<sup>2</sup>

fermacell greenline Flooring Elements—naturally neutralises VOCs		
Type	Construction	Thickness
2 E 11gl	2 × 10 mm greenline	20 mm
2 E 22gl	2 × 12.5 mm greenline	25 mm
2 E 31gl	2 × 10 mm greenline + 10 mm wood fibre insulating slab	30 mm

fermacell Flooring Elements Powerpanel TE		
Format	Construction	Thickness
500 × 1 250 mm	2 × 12.5 mm Powerpanel H <sub>2</sub> O	25 mm

Dimensions: 1.25 × 0.50 m = 0.625 m<sup>2</sup>

fermacell Powerpanel H <sub>2</sub> O	
Format	Thickness
1 200 × 1 000 mm	12.5 mm
1 200 × 2 000 mm	12.5 mm
1 200 × 3 010 mm	12.5 mm
Other cut sizes and delivery date on request	

Weight: 12.5 kg/m<sup>2</sup>

fermacell Powerpanel HD	
Format	Thickness
1 250 × 1 000 mm	15 mm
1 200 × 2 600 mm	15 mm
1 200 × 3 000 mm	15 mm
Other cut sizes and delivery date on request	

Weight: 15 kg/m<sup>2</sup>

fermacell Gypsum Fibreboards and fermacell greenline	
Certificates	
European Technical Approval	ETA-03/0050

Dimensional tolerances at constant humidity—board dimensions	
Length, width	± 0 to -2 mm
Diagonal difference	≤ 2 mm
Thickness	± 0.2 mm

Data	
Reaction to fire (according to EN 13501-1)	non-combustible, A2
Marking according to DIN EN 15283-2	GF-I-W2-C1
Nominal density (production target) $\rho_k$	1 150 ± 50 kg/m <sup>3</sup>
Vapour resistance $\mu$	13
Thermal conductivity $\lambda$	0.32 W/mK
Specific heat capacity	1.1 kJ/kgK
Brinell hardness	30 N/mm <sup>2</sup>
Swelling after 24 hrs saturation	< 2%
Thermal coefficient of expansion	0.001%/K
Expansion/shrinkage on alteration of the relative humidity of 30% (20°C)	0.25 mm/m
Moisture content at 65% relative air humidity and 20°C air temperature	1.3%
pH value	7–8

Characteristic stiffness values of **fermacell** Gypsum Fibreboards, **fermacell** greenline and **fermacell** Vapor in N/mm<sup>2</sup>

Perpendicular to the board surface	
E-modulus bending $E_{m,mean}$	3800
Shearing modulus $G_{mean}$	1600

Slab stress	
E-modulus bending $E_{m,mean}$	3800
E-modulus tension $E_{t,mean}$	3800
E-modulus compression $E_{c,mean}$	3800
Shearing modulus $G_{mean}$	1600

Characteristic strength values of **fermacell** Gypsum Fibreboards, **fermacell** greenline, and **fermacell** Vapor in N/mm<sup>2</sup> for design calculations according to DIN 1052 or EN 1995-1-1

Perpendicular to the plane of the board	Thickness of board			
	10	12.5	15	18
Bending $f_{m,k}$	4.6	4.3	4.0	3.6
Shear $f_{v,k}$	1.9	1.8	1.7	1.6

Slab stress				
Bending $f_{m,k}$	4.3	4.2	4.1	4.0
Tension $f_{t,k}$	2.5	2.4	2.4	2.3
Compression $f_{c,k}$	8.5	8.5	8.5	8.5
Shear $f_{v,k}$	3.7	3.6	3.5	3.4

fermacell Vapor	
Dimensional tolerances at constant humidity—board dimensions	
Length, width	± 0 to -2 mm
Diagonal difference	≤ 2 mm
Thickness	± 0.2 mm

Data	
Reaction to fire (according to EN 13501-1)	non-combustible, A2
Marking according to DIN EN 15283-2	GF-I-W2-C1
Nominal density	1 150 ± 50 kg/m <sup>3</sup>
Sd value (according to installation situation)	3.1 or 4.5 m
Thermal conductivity $\lambda$	0.32 W/mK
Brinell hardness	30 N/mm <sup>2</sup>
Specific heat capacity	c = 1.1 kJ/kgK
Swelling after 24 hrs saturation	< 2%
Thermal coefficient of expansion	0.001%/K
Expansion/shrinkage on alteration of the relative humidity of 30% (20°C)	0.25 mm/m
Moisture Content at 65% relative air humidity and 20°C air temperature	1.3%
pH value	7–8

fermacell Firepanel A1	
Dimensional tolerances at constant humidity—board dimensions	
Length, Width	± 0 to -2 mm
Diagonal Difference	< 2 mm
Thickness	± 0.2 mm

Data	
Reaction to fire (according to EN 13501-1)	non-combustible, A1
Marking according to DIN EN 15283-2	GF-I-W2-C1
IMO FTPC part 1	non-combustible
Building material classification	national/European
Nominal density	1 200 ± 50 kg/m <sup>3</sup>
Bending strength	> 5.8 N/mm <sup>2</sup>
Vapour resistance $\mu$	16
Thermal conductivity $\lambda$	0.38 W/mK
Expansion/shrinkage on alteration of the relative humidity of 30% (20°C)	0.25 mm/m
Moisture Content at 65% relative air humidity and 20°C air temperature	1.3%
pH value	7–8

fermacell Powerpanel H <sub>2</sub> O	
Certificates	
European Technical Approval	ETA-07/0087

Dimensional tolerances at constant humidity—board dimensions	
Length, width	± 1 mm
Diagonal difference	≤ 2 mm
Thickness	± 0.5 mm

Data	
Reaction to fire (according to EN 13501-1)	non-combustible, A1
Nominal density (production target) $\rho_k$	1 000 kg/m <sup>3</sup>
Vapour resistance $\mu$	56 according to DIN EN 12572
Thermal conductivity $\lambda_{10, tr}$	0.173 W/mK according to DIN EN 12664
Specific heat capacity $c_p$	1.0 kJ/kgK
Moisture content at 65% relative air humidity and 20°C air temperature	approx. 5%
pH value	approx. 10

Characteristic stiffness values of 12.5 mm **fermacell** Powerpanel H<sub>2</sub>O in N/mm<sup>2</sup>

Perpendicular to the board surface	
E-modulus bending $E_{m, mean}$	5 500
E-modulus compression $E_{c, mean}$	6 500

Characteristic strength values of 12.5 mm **fermacell** Powerpanel H<sub>2</sub>O in N/mm<sup>2</sup>

Perpendicular to the board surface	
Bending $f_{m, k}$	6.0
Compression $f_{c, k}$	11.7

fermacell Powerpanel HD	
Certificates	
European Technical Approval	ETA-13/0609

Dimensional tolerances at constant humidity—board dimensions	
Length, width, thickness	± 1 mm
Diagonal difference	≤ 2 mm

Data	
Reaction to fire (according to EN 13501-1)	non-combustible, A1
Nominal density (Production target) $\rho_K$	approx. 1 000 kg/m <sup>3</sup>
Basis weight	approx. 15 kg/m <sup>2</sup>
Vapour resistance $\mu^*$	40
Thermal conductivity $\lambda$	0.30 W/mK
Specific heat capacity $c_p$	1.0 kJ/kgK
Coefficient of thermal expansion (air temperature: -20°C to +75°C)	$11.0 \cdot 10^{-6}$ 1/K
Moisture content at room temperature	ca. 7%
Frost-resistant	

\* Powerpanel HD board with proven jointing technology and HD rendering system

Characteristic strength values of 15 mm fermacell Powerpanel HD, in N/mm <sup>2</sup> for design calculations according to EN 1995-1-1	
Perpendicular to the plane of the board	
Bending $f_{m,k}$	2.1
Shear $f_{v,k}$	1.3
Slab stress	
Bending $f_{m,k}$	2.1
Tension $f_{t,k}$	0.7
Compression $f_{c,k}$	9.7
Shear $f_{v,k}$	3.0

AESTUVER fire protection boards	
Certificates	
European Technical Approval	ETA-11/0458

Dimensional tolerances at constant humidity—board dimensions	
Length, width, thickness	± 1 mm
Diagonal difference	≤ 2 mm

Data	
Reaction to fire (according to EN 13501-1)	non-combustible, A1
Nominal density (dry)	approx. 700 kg/m <sup>3</sup> <sup>1)</sup>
Value calculated for thermal conductivity	surface layer 0.136 W/(mK)
Moisture content (20°C, 65% rel. humidity)	approx. 7 weight -%
Moisture absorption (20°C, 65% rel. humidity)	± 5 weight -%
E-modulus	≥ 3 000 N/mm <sup>2</sup> <sup>1)</sup>
Flexural strength	≥ 3.5 N/mm <sup>2</sup>
Compressive strength (according to DIN 18555)	≥ 9 N/mm <sup>2</sup> <sup>1)</sup>
Alkalinity (pH value)	approx. 12

<sup>1)</sup> Sample Value exemplarily for 20 mm boards

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