

++dB47++dB52++dB64

EI 120
90
60
30

fermacell® The Specification Guide

Contents table

General information

1. Construction key 4

2. Product Specification

 fermacell® fibre gypsum board ... 6

 fermacell® Firepanel A1 7

 fermacell® flooring overlay..... 8

 fermacell® Powerpanel H₂O 9

Dry lining

1 Walls

 1.1 Partition walls

 fermacell® fibre gypsum board ... 14

 fermacell® Powerpanel H₂O 16

 1.2 Security systems

 fermacell® fibre gypsum board ... 20

2 Walls linings

 2.1 Independent linings

 fermacell® fibre gypsum board ... 22

 fermacell® Firepanel A1 22

 fermacell® Powerpanel H₂O 22

3 Walls linings - direct fix

 3.1 Steel substructure

 fermacell® fibre gypsum board ... 24

 fermacell® Powerpanel H₂O 24

 Timber substructures

 fermacell® fibre gypsum board ... 24

4 Ceilings

 4.1 Suspended ceilings

 fermacell® fibre gypsum board ... 26

 fermacell® Firepanel A1 26

 fermacell® Powerpanel H₂O 26

To access and download our specification details, including NBS documents and CAD drawings, visit www.fermacell.co.uk/en/constructions or scan the QR code with your phone.



Our specification team are available to provide tailored project support across the UK. Scan the code with your phone to contact your local manager today.



Timber Construction

1 Walls

- 1.1 Timber stud walls – non-load-bearing
fermacell® fibre gypsum board . . . 28
fermacell® Powerpanel H₂O 28
- 1.2 fermacell® fibre gypsum board – Timber stud walls – load-bearing 30
- 1.3 Multi-storey solid timber construction – Encapsulation Fire Protection 32

- 1.4 fermacell® fibre gypsum board – Cross laminated timber walls (CLT/X-LAM)
fermacell® fibre gypsum board . . . 34
fermacell® Firepanel A1 36
fermacell® - cavity wall 36
fermacell® Firepanel A1 – cavity wall 38
fermacell® fibre gypsum board – firewall 40
fermacell® fibre gypsum board – cavity firewall 40

2 Ceilings/Roofs

- 2.1 CLT/X-LAM
fermacell® fibre gypsum board . . . 42
- 2.2 Suspended ceilings
fermacell® fibre gypsum board . . . 44
fermacell® Powerpanel H₂O 44
- 2.3 Timber joist ceilings
fermacell® fibre gypsum board . . . 46
fermacell® Firepanel A1 46

Beam and Column

1 Beam and Column Encasement

- 1.1 fermacell® Firepanel A1 48
- 1.2 fermacell™ Firepanel A1
Beam encasement to 550 °C 49
- 1.3 fermacell™ Firepanel A1
Column encasement to 550 °C . . . 50

Fixings

1 Fixing centres

- 1.1 Partition Wall constructions 51
- 1.2 Ceiling constructions 53

2 Substructure Spacing

- 2.1 fermacell® fibre gypsum board and fermacell® Firepanel A1 54
- 2.2 fermacell® Powerpanel H₂O 54

Fasteners

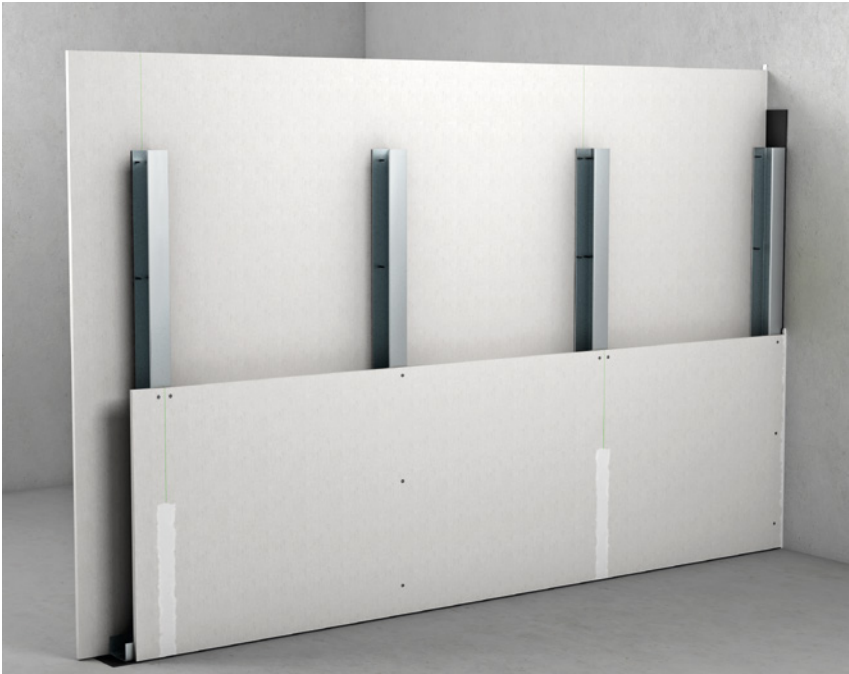
1 Load carrying capability 55

Explanation of footnotes – see page 57

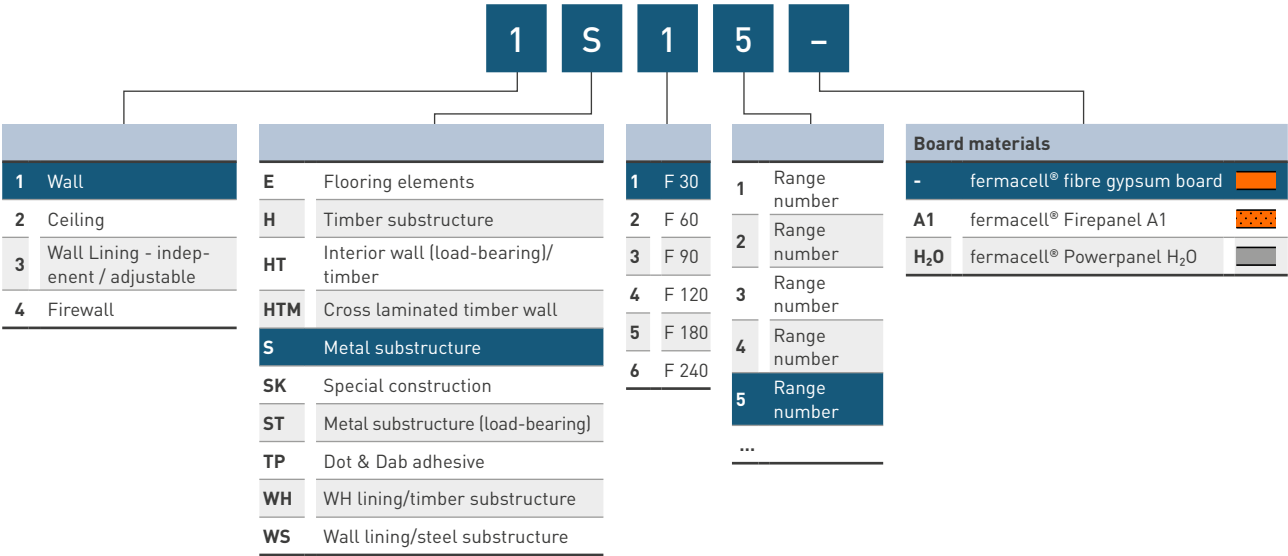


General information

1. Construction key

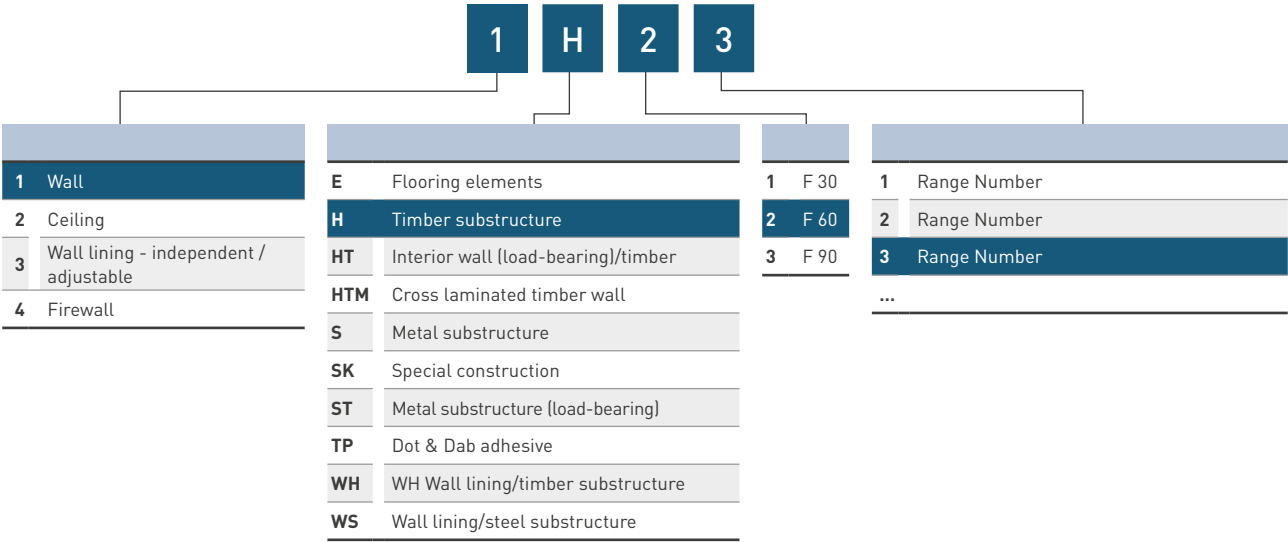


1 S 15 fermacell partition wall	
12.5 mm	fermacell® fibre gypsum board
75 mm	fermacell™ steel stud profile
12.5 mm	fermacell® fibre gypsum board





1 H 23 fermacell timber wall	
12.5 mm	fermacell® fibre gypsum boards
89×38 mm	Timber stud 90 mm glass wool
12.5 mm	fermacell® fibre gypsum boards



2. Product Specification

fermacell® fibre gypsum board



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

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



Environmental Product Declaration (EPD)

Material Characteristics

Gross density ρ_k	1 150 $\pm$ 50 kg/m ³
Water vapour diffusion resistance coefficient μ	13
Thermal conductivity λ	0.32 W/mK
Specific heat capacity c	1.1 kJ/kgK
Brinell hardness	30 N/mm ²
Thickness swelling after 24 hours of water storage	< 2 %
Thermal expansion coefficient	0.001 %/K
Extension/shrinkage at 30 % change in relative humidity (20 °C)	0.33 mm/m
Moisture content equilibrium at 65 % relative humidity and 20 °C air temperature	1.3 %
pH value	7–8
Usage class according to EN 1995-1-1	Type 1 and 2

Dimensional tolerances for standard board Sizes at constant humidity

Length, width	+0 / -2 mm
Diagonal difference	$\leq$ 2 mm
Thickness: 10/12.5/15/18	$\pm$ 0.2 mm

Approvals/Identification

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

Board thickness and weight

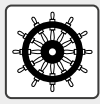
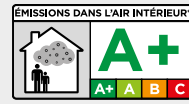
Thickness	10 mm	12.5 mm	15 mm	18 mm
Approx. weight per m ²	11.5 kg	14.5 kg	17.5 kg	21 kg

Sizes in mm *

2400 x 1200	●	●	●	●
Special cut size boards are available upon request				

* Additional Sizes and thicknesses upon request

fermacell® Firepanel A1



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

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



Material Characteristics	
Gross density ρ_k (dry)	1 200 ± 50 kg/m ³
Flexural strength (dry)	> 5.8 N/mm ²
Water vapour diffusion resistance coefficient μ according to EN ISO 12572	16
Thermal conductivity λ_R according to DIN EN 12667	0.38 W/mK
Extension/shrinkage at 30 % change in relative humidity (20 °C) according to EN 318	0.33 mm/m
Moisture content equilibrium at 65 % relative humidity and 20 °C air temperature according to EN 322	1.30 %
Compressive strength perpendicular to surface	> 18 N/mm ²
Alkalinity (pH value)	7–8
Elasticity of flexure module	> 4 500 N/mm ²

Dimensional tolerances for standard board Sizes at constant humidity		Approvals/Identification	
Length, width	+0 / -2 mm	Identification according to DIN EN 15283-2	GF-I-W2-C1
Diagonal difference	≤ 2 mm	Building material class according to DIN EN 13501-1	non-combustible. A1
Thickness	± 0.2 mm	IMO FTPC part 1	non-combustible
		Component classifications	national/European

Board thickness and weight		
Thickness	12.5 mm	15 mm
Approx. weight per m ²	15 kg	18 kg

Sizes in mm *		
2 600 × 1 200	●	●

Additional Sizes and thicknesses upon request



fermacell® flooring overlay

Made of fibre gypsum board, with and without insulation, for use as a dry screed solution.

- Quick and easy to install
- Boosts underfloor heating
- No wet screed, no lengthy drying times.

Please see the fermacell™ Flooring Systems Brochure for further details, up to date version can be found on fermacell.co.uk



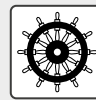
Thickness	Description Insulating material	Size [mm]	UDL / Live load (kN/m²)	Thermal resistance (m² K/W)	Building material according to DIN EN 13501
Dry screed overlay					
 20 mm	2 E 11 (EE 20)	 1500×500	0.23	0.06	A2 _{fl} -s1
25 mm	2 E 22 (EE 25)	1500×500	0.29	0.08	A2 _{fl} -s1
Acoustic overlay (WF) with wood fibre boards of 10 mm thickness					
 30 mm	2 E 31 (EE 20 WF 10)	 1500×500	0.25	0.26	B _{fl} -s1
35 mm	2 E 33 (EE 25 WF 10)	1500×500	0.25	0.28	B _{fl} -s1

¹⁾=according to EN13163 EPS DE0100 KPa

Approvals

European Technical Assessment ETA-18/0723

BBA certificate reference 98/3538

fermacell® Powerpanel H₂O

Cement bonded lightweight concrete board with laminated structure, reinforced on both sides with alkali-resistant glass fibre mesh.

- Permanently water resistant, also suitable for chemical stress.



Material Characteristics

Gross density ρ_k (dry)	1 000 kg/m ³
Flexural strength (following EN 12467)	≥ 6.0 N/mm ²
Water vapour diffusion resistance coefficient μ according to EN ISO 12572	56
Thermal conductivity λ_R according to DIN EN 12664	0.17 W/mK
Extension / shrinkage in the range between 30 % and 65 % change in relative humidity (20 °C) according to EN 318	0.15 mm/m
Extension / shrinkage in the range between 65 % and 85 % change in relative humidity (20 °C) according to EN 318	0.10 mm/m
Moisture content equilibrium at 65 % relative humidity and 20 °C air temperature according to DIN EN 322	≥ 5 %
Compressive strength according to EN 789 11.7 N/mm ²	11.7 N/mm ²
Alkalinity (pH value)	approx. 10
Elasticity of flexure module (Anlehnung EN 12467)	4 200 N/mm ²
Usage class in terms of weather resistance according to EN 12467	A, B, C, D

Dimensional tolerances for standard board sizes at constant humidity

Length, width	± 1 mm
Diagonal difference	≤ 2 mm
Thickness	± 0.5 mm

Technical Characteristics in relation to board thickness

Thickness	12.5 mm
Approx. weight per m ²	12.5 kg

Sizes in mm

2 600 × 1 200	●
---------------	---

Approvals

European Technical Assessment	ETA-07/0087
BBA certificate references	13/5044 Sheets 1 & 2
General constructional authorisation (for indoor use)	AbZ Z-31.20-163
General constructional authorisation (for outdoor use)	AbZ Z-31.4-181
Building material class according to DIN EN 13501-1	non-combustible. A1
IMO FTPC part 1	non-combustible
Component classification	national/European

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	James Hardie Europe GmbH
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-JAM-20220071-CBD1-EN
Issue date	17.10.2022
Valid to	16.10.2027

fermacell® gypsum fibre board
James Hardie Europe GmbH

www.ibu-epd.com | <https://epd-online.com>



James Hardie Europe GmbH

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-JAM-20220071-CBD1-EN

This declaration is based on the product category rules:

Plasterboard, 11.2017
(PCR checked and approved by the SVR)

Issue date

17.10.2022

Valid to

16.10.2027

gypsum fibre board

Owner of the declaration

James Hardie Europe GmbH
Bennigsen-Platz 1
40474 Düsseldorf

Declared product / declared unit

1 m² fermacell® gypsum fibre board

Scope:

This Environmental Product Declaration refers to gypsum fibre boards of James Hardie Europe GmbH. Specific data from 4 plants (Münchehof, Siglingen, Wijchen/Netherlands and Orejo/Spain) were averaged as a data basis. The LCA includes raw material and energy extraction, raw material transports, the actual manufacturing phase of the gypsum fibre boards, and the post-use phase. 1 m² of an average fermacell® gypsum fibre board with an average density of 1.18 t/m³ is considered.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as EN 15804.

Verification

The standard EN 15804 serves as the core PCR

Independent verification of the declaration and data according to ISO 14025:2011

☐ internally ☒ externally

Dipl. Ing. Hans Peters
(chairman of Institut Bauen und Umwelt e.V.)

Dr. Alexander Röder
(Managing Director Institut Bauen und Umwelt e.V.)

Dr. Stefan Diederichs
(Independent verifier)

2. Product

2.1 Product description/Product definition

fermacell® gypsum fibre boards (coated) are special building boards made of gypsum and cellulose fibres.

Regulation (EU) No. 305/2011 (CPR) applies to the placing of the product on the market in the EU/EFTA (with the exception of Switzerland). The product requires a declaration of performance under consideration of the European Technical Approval ETA-03/0050 dated 31.1.2020 and the CE marking.

2.2 Application

fermacell® gypsum fibre boards are used for planking and cladding structural components. The respective national regulations apply to their use.

2.3 Technical Data

Performance values of the product according to the Declaration of Performance in relation to its essential characteristics according to ETA-03/0050 of 31.1.2020, among others:

Technical data

Name	Value	Unit
Gross density	1180	kg/m ³
Bending strength (longitudinal)	5.8	N/mm ²
Modulus of elasticity	3000 - 4500	N/mm ²
Thermal conductivity	0.32	W/(mK)
Specific heat capacity	1.1	kJ/kgK
Water vapour diffusion resistance factor	13	-
Moisture content at 20 °C, 65% humidity	1.3	M.-%
Elongation/Vibration when humidity changes by 30% (20°C) nach EN 318	0.25	mm/m
Swelling (air-dry to water-saturated)	0 - 2	%
Brinell hardness	30	N/mm ²

5. LCA: Results

The following table shows the LCA results for the life cycle of 1 m² of gypsum boards.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² Gipsplatten

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	-4.58E-1	1.16E-1	7.21E-2	0.00E+0	5.81E-2	1.96E-1	3.44E+0	-8.57E-2
GWP-fossil	[kg CO ₂ -Eq.]	3.12E+0	1.11E-1	3.87E-3	0.00E+0	5.55E-2	1.96E-1	6.10E-2	-8.55E-2
GWP-biogenic	[kg CO ₂ -Eq.]	-3.58E+0	5.13E-3	6.83E-2	0.00E+0	2.56E-3	1.10E-4	3.38E+0	6.45E-5
GWP-luluc	[kg CO ₂ -Eq.]	1.07E-3	2.64E-6	1.31E-6	0.00E+0	1.32E-6	3.36E-5	1.79E-4	-2.27E-4
ODP	[kg CFC11-Eq.]	2.49E-14	1.17E-17	1.61E-17	0.00E+0	5.84E-18	2.21E-15	2.37E-16	-9.93E-17
AP	[mol H ⁺ -Eq.]	3.12E-3	1.04E-4	1.30E-5	0.00E+0	5.17E-5	3.17E-4	4.34E-4	-1.94E-4
EP-freshwater	[kg P-Eq.]	1.15E-6	2.38E-8	2.21E-9	0.00E+0	1.18E-8	7.89E-8	1.02E-7	-1.07E-7
EP-marine	[kg N-Eq.]	1.15E-3	3.16E-5	3.60E-6	0.00E+0	1.58E-5	8.39E-5	1.13E-4	-6.97E-5
EP-terrestrial	[mol N-Eq.]	1.27E-2	3.51E-4	6.24E-5	0.00E+0	1.75E-4	8.99E-4	1.24E-3	-7.83E-4
POCP	[kg NMVOC-Eq.]	3.32E-3	9.27E-5	9.45E-6	0.00E+0	4.62E-5	2.38E-4	3.42E-4	-1.84E-4
ADPE	[kg Sb-Eq.]	1.95E-7	3.33E-9	2.30E-10	0.00E+0	1.66E-9	2.43E-8	5.76E-9	-4.66E-9
ADPF	[MJ]	5.07E+1	1.57E+0	1.71E-2	0.00E+0	7.85E-1	4.07E+0	8.09E-1	-1.15E+0
WDP	[m ³ world-Eq deprived]	3.47E-1	2.18E-4	7.34E-3	0.00E+0	1.08E-4	1.57E-2	6.55E-3	-3.95E-3

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m² Gipsplatten

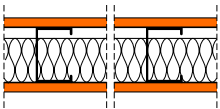
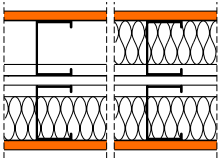
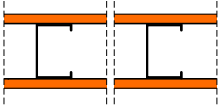
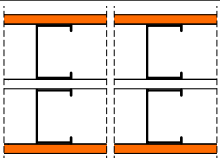
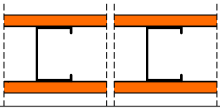
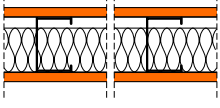
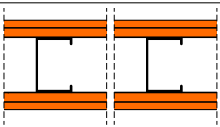
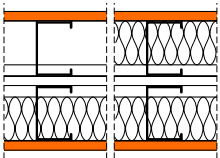
For the full EPD, please download from the website by following the QR code.



1. Walls

1.1 Partition walls

fermacell® fibre gypsum board

System reference	System drawing	Wall thickness	Substructure (max. 600 mm centres, unless shown differently)	Boarding per side	Mineral wool ⁽¹⁾ Thickness / density	
		[mm]	[Stud & Track]	[mm]	[mm]/[kg/m³]	
1 S 11		100	75×0.6	12.5	60/15	
		125	100×0.6	12.5	60/15	
		150	125×0.6	12.5	60/15	
		175	150×0.6	12.5	60/15	
1 S 13		≥ 180	2×75×0.6	12.5	40/40 or 60/15	
		≥ 230	2×100×0.6	12.5	40/40 or 60/15	
1 S 15		75	50×0.6	12.5	none	
		100	75×0.6	12.5	none	
		125	100×0.6	12.5	none	
		150	125×0.6	12.5	none	
1 S 17		≥ 180	2×75×0.6	12.5	none	
		≥ 230	2×100×0.6	12.5	none	
1 S 15/2		110	75×0.6	15	none	
		135	100×0.6	15	none	
		160	125×0.6	15	none	
1 S 21		100	75×0.6	12.5	60/35	
		125	100×0.6	12.5	60/35	
		150	125×0.6	12.5	60/35	
		175	150×0.6	12.5	60/35	
1 S 22		115	75×0.6	2×10	none	
		125	75×0.6	2×12.5	none	
		150	100×0.6	2×12.5	none	
		175	125×0.6	2×12.5	none	
1 S 25		≥ 180 ⁽¹⁰⁾	2×75×0.6	12.5	60/35	
		≥ 230 ⁽¹⁰⁾	2×100×0.6	12.5	60/35	
		≥ 280 ⁽¹⁰⁾	2×125×0.6	12.5	60/35	

All partitions shown are SEVERE DUTY RATED to BS5234:pt2

Minimum stud size for severe duty rating = 75 mm.

Maximum wall height [mm] ⁽²³⁾ Without / With Fire protection		Mass per unit area	Airborne sound insulation R_w	Flanking sound insulation $D_{n,f,w}$ ⁽¹²⁾	Fire rating (Minutes)	Fire test & classification report	
Non-Fire Rated	Fire Rated	[kg/m²]	[dB]	[dB]	Fire rating		
	EN BS				EN	BS	
5370	5370	34	52	59	EI30	F30	07-U-067 PR 18-2.022 WF 506006C
7760	5900	36	52	59	EI30	F30	
10220	5900	36	52	59	EI30	F30	
11960	5900	37	52	59	EI30	F30	
3820	-	35	60 [64 with 2 layers insulation]	59	-	F30	WF 506006C
5300	-	37	60 [64 with 2 layers insulation]	59	-	F30	
3430	3430	31	41	55	EI30	F30	Pr-18-2.168 PB 3.2/12-027-1 PG10934 WF 506006C
5370	4000	32	43	55	EI30	F30	
7760	4000	33	43	55	EI30	F30	
10220	4000	34	43	55	EI30	F30	
3820	-	33	49	55	-	F30	WF 506006C
5300	-	34	49	55	-	F30	
5370	-	44	44	55	-	F60	WF 135948
7760	-	45	44	55	-	F60	
10220	-	46	44	55	-	F60	
5370	5370	33	54	59	EI60	F60	07-U-068 PB 3.212/027-1 TNO 2006-CVB-R0043 TNO 2006-CVB-R0193 TNO 2006-CVB-R0448 WF 506006C
7760	5900	34	54	59	EI60	F60	
10220	5900	34	54	59	EI60	F60	
11960	5900	36	54	59	EI60	F60	
4000	4000	50	52	59	EI60	-	P102535
8410	4000	63	52	59	EI60	F60	WF 506006C PB 3.2/09-395
11530	4000	63	54	59	EI60	F60	
11960	4000	64	54	59	EI60	F60	
3820	-	35	60 [64 with 2 layers insulation]	59	-	F60	WF 506006C WF511907A
5300	-	37	60 [64 with 2 layers insulation]	59	-	F60	
6730	-	37	60 [64 with 2 layers insulation]	59	-	F60	

1. Walls

1.1 Partition walls

fermacell® fibre gypsum board – continued

System reference	System drawing	Wall thickness	Substructure (max. 600 mm centres, unless shown differently)	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	[UW – CW]	[mm]	[mm]/[kg/m ³]	
1 S 29		110	75 × 0.6	12.5 & 12.5 + 10 or 2 × 12.5	60/35	
		135	100 × 0.6	12.5 & 12.5 + 10 or 2 × 12.5	60/35	
		160	125 × 0.6	12.5 & 12.5 + 10 or 2 × 12.5	60/35	
1 S 29 -Twin Stud		≥ 195	2 × 75 × 0.6	12.5 & 12.5 + 10 or 2 × 12.5	60/35	
		≥ 245	2 × 100 × 0.6	12.5 & 12.5 + 10 or 2 × 12.5	60/35	
1 S 31 Versions A & B		125	75 × 0.6	2 × 12.5	50/12 glasswool (Version B)	
		150	100 × 0.6 @ 400 mm c/c	2 × 12.5	80/35 (Version A)	
		150	100 × 0.6	2 × 12.5	50/12 glasswool (Version B)	
		175	125 × 0.6 @ 400 mm c/c	2 × 12.5	80/35 (Version A)	
		175	125 × 0.6	2 × 12.5	50/12 glasswool (Version B)	
1 S 32 *		≥ 155 ⁽¹⁰⁾	2 × 50 × 0.6	2 × 12.5	50/12	
		≥ 205 ⁽¹⁰⁾	2 × 75 × 0.6	2 × 12.5	50/12 or 60/30	
		≥ 255 ⁽¹⁰⁾	2 × 100 × 0.6	2 × 12.5	50/12 or 60/30	
		≥ 305 ⁽¹⁰⁾	2 × 125 × 0.6	2 × 12.5	50/12 or 60/30	
		≥ 355 ⁽¹⁰⁾	2 × 150 × 0.6	2 × 12.5	50/12 or 60/30	
1 S 33		111 ⁽¹⁰⁾	75 × 0.6	18	50/50	
		136 ⁽¹⁰⁾	100 × 0.6	18	50/50	
1 S 36		210 ⁽¹⁰⁾	2 × 75 × 0.6	2 × 12.5	2 × 60/30	
		280 ⁽¹⁰⁾	2 × 100 × 0.6	2 × 12.5	2 × 60/30	
1 S 41		105	50 × 0.6	15 + 12.5	40/50	
		125	75 × 0.6	2 × 12.5	60/60	
		130	75 × 0.6	15 + 12.5	40/50	
		155	100 × 0.6	15 + 12.5	40/50	
		180	125 × 0.6	15 + 12.5	40/50	
1 S 42		205	150 × 0.6	15 + 12.5	40/50	
		≥ 215	2 × 75 × 0.6	15 + 12.5	40/50	
		≥ 265	2 × 100 × 0.6	15 + 12.5	40/50	

* - where no insulation is required, fire rating to 4000 mm is still valid, but sound performance will drop to $\approx R_w$ 56–58 dB

All partitions shown are SEVERE DUTY RATED to BS5234:pt2

Minimum stud size for severe duty rating = 75 mm.

	Maximum wall height [mm] ^[23] Without / With Fire protection requirements			Mass per unit area	Airborne sound insulation R _w	Flanking sound insulation D _{n.f.w} ^[12]	Fire rating (Minutes)		Fire test & classification reports
	Non-Fire rated	Fire rated		[kg/m²]	[dB]	[dB]	EN	BS	
		EN	BS						
	5370	–	5370	46	56	59	–	F 60	WF511907A&B WF 506006C
	7760	–	5900	47	57	59	–	F 60	
	10220	–	5900	47	57	59	–	F 60	
	3820	–	3820	38	≥ 62 [64 with 2 layers insula- tion]	59	–	F 60	WF 506006C WF 511907A
	5300	–	5300	40	≥ 62 [64 with 2 layrs insulation]	59	–	F 60	
	8410	4000	4000	62	62	64	EI90	F 90	WF 506006C PK2-05-19-002-E-0 PB111/B-0-137
	11530	9000	9000	64	62	64	EI90	F 90	
	11530	4000	4000	62	62	64	EI90	F 90	
	11960	9000	9000	64	62	64	EI90	F 90	
	11960	4000	4000	62	62	64	EI90	F 90	
	2910	–	–	62	64	59	–	–	WF 506006C
	4460	–	4000	64	64	59	–	F 90	
	6020	–	4000	66	64	59	–	F 90	
	7500	–	4000	67	64	59	–	F 90	
	9120	–	4000	67	64	59	–	F 90	
	5370	4000	4000	50	57	59	EI90	F 90	WF152808 WF 506006C Pr-18-2.228 PK2-05-19-001-E-0
	7760	4000	4000	50	57	59	EI90	F 90	
	4460	–	4000	74	70	64	–	F 90	WF 506006C
	6020	–	4000	74	70	65	–	F 90	
	5050	4000	4000	69	59	64	EI120	F 120	WF 506006C Pr-18-2.190 & PK2-05-18-021-E-0 LP-548/07/e & NP-548/A/07/BW PB 3.2/09-395 TR ITP LP 372_05
	8410	4000	4000	69	62	64	EI120	F 120	
	8410	4000	4000	69	62	64	EI120	F 120	
	11530	4000	4000	70	62	64	EI120	F 120	
	11960	4000	4000	70	62	64	EI120	F 120	
	11960	4000	4000	70	62	64	EI120	F 120	
	4460	–	4000	64	64	64	–	F 120	WF 605006C WF 511907A
	6020	–	4000	75	64	64	–	F 120	

1. Walls

1.1 Partition walls

fermacell® Powerpanel H₂O

System reference	System drawing	Wall thickness	Substructure (max. 600 mm centres)	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]		[mm]	[mm] / [kg/m ³]	
1 S 01 H ₂ O		75	2 × 50 × 0.6	2 × 12.5 Powerpanel H ₂ O	Optional	
1 S 12 H ₂ O		100	75 × 0.6	12.5 fibre gypsum and 12.5 Powerpanel H ₂ O	≥ 40/15 glass wool	
		125	100 × 0.6		≥ 40/15 glass wool	
1 S 13 H ₂ O		112.5	75 × 0.6	2 × 12.5 fibre gypsum and 12.5 Powerpanel H ₂ O	60/25	
		137.5	100 × 0.6		60/25	
1 S 14 H ₂ O		100	75 × 0.6	12.5 Powerpanel H ₂ O	40/15 glass wool	
		125	100 × 0.6	12.5 Powerpanel H ₂ O	40/15 glass wool	
1 S 16 H ₂ O		≥ 185	2 × 75 × 0.6	12.5 Powerpanel H ₂ O	40/15 glass wool	
		≥ 235	2 × 100 × 0.6	12.5 Powerpanel H ₂ O	40/15 glass wool	
1 S 15 H ₂ O		100	75 × 0.6	12.5 fibre gypsum and 12.5 Powerpanel H ₂ O	none	
		125	100 × 0.6		none	
1 S 17 H ₂ O		≥ 185	75 × 0.6	12.5 fibre gypsum and 12.5 Powerpanel H ₂ O	none	
		≥ 235	100 × 0.6		none	
1 S 29 H ₂ O		112.5	75 × 0.6	12.5 fibre gypsum to each side + 12.5 mm Powerpanel H ₂ O to one side only	60/35	
1 S 29 H ₂ O -Twin Wall		≥ 198	2 × 75 × 0.6	12.5 fibre gypsum to each side + 12.5 mm Powerpanel H ₂ O to one side only	60/35	
		≥ 248	2 × 100 × 0.6		60/35	
1 S 31 H ₂ O		125	75 × 0.6	2 × 12.5 Powerpanel H ₂ O	60/25	
		150	100 × 0.6	2 × 12.5 Powerpanel H ₂ O	60/25	
1 S 34 H ₂ O		≥ 210	75 × 0.6	2 × 12.5 Powerpanel H ₂ O	60/25	
		≥ 260	100 × 0.6	2 × 12.5 Powerpanel H ₂ O	60/25	

For swimming pool areas steel components must be protected with a minimum C4 corrosion protection coating.

* For EI60 fire performance the build height can be increased to 4000 mm

Maximum wall height [mm] ^[23] Without / With Fire protection		Mass per unit area		Airborne sound insulation R_w	Flanking Sound $D_{n,f,w}$ ^[12]	Fire rating (Minutes)	Fire test & classification reports	
Non-fire rated	Fire rated EN BS	[kg/m ²]		[dB]	[dB]	Fire rated EN BS		
3000	– –	29		49 (with insulation)	59	– –	–	
4150	4000 –	33		51	59	EI30 –	3420/035/07 3411/835/07	
5850	4000 –	33		>51	59	EI30 –	KR-3247/500/07-MPS-BS	
4150	4000 –	48		56	59	EI30 –	3420/035/07 3411/835/07	
5850	4000 –	48		56	59	EI30 –	K-3247/500/07-MPS-BS PB: 3813-7536-Schm PB: P-V C n° 07-U-067 (CR)	
4150	4000 4000	27		49	59	EI30 F 30	WF 506006C 3144/03414 MPA BS	
5850	4000 4000	27		49	59	EI30 F 30	KB: K-3708/608/14	
3700	– 3700	32		56–57	59	– F 30	WF 506006C & WF 511907A	
4000	– 4000	34		56–57	59	– F 30		
4000	4000 4000	29		41	59	EI30 F 30	WF 506006C 3420/035/07	
4000	4000 4000	29		41	59	EI30 F 30	3411/835/07 K-3247/500/07-MPA-BS (CR)	
3700	– 3700	33		48–49	59	– F 30	WF 506006C & WF 511907A	
4000	– 4000	35		48–49	59	– F 30		
5370	– 5370	46		56	59	– F 60	WF 511907A&B	
3820	– 3820	48		≥60	59	– F 60	WF 511097A&B & WF 506006C	
5300	– 5300	49		≥60	59	– F 60		
5550	4000 4000	55		57	64	EI90 F 90	WF 506006C 3605/4995-Ap-MPA-BSK	
8000	4000 4000	55		57	64	EI90 F 90	3419/4066-MPA-BS	
3950	– 3950	59		62	64	– F 90	WF 506006C & WF 511907A	
6000	– 4000	62		62	64	– F 90		

1. Walls

1.1 Partition walls

fermacell® Powerpanel H₂O – continued

System reference	System drawing	Wall thickness	Substructure (max. 600 mm centres)	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]		[mm]	[mm] / [kg/m ³]	
1 S 33 H ₂ O		125	75 × 0.6	12.5 fibre gypsum + 12.5 Powerpanel H ₂ O	none	
		150	100 × 0.6	12.5 fibre gypsum + 12.5 Powerpanel H ₂ O	none	
1 S 35 H ₂ O		≥ 210	75 × 0.6	12.5 fibre gypsum + 12.5 Powerpanel H ₂ O	none	
		≥ 260	100 × 0.6	12.5 fibre gypsum + 12.5 Powerpanel H ₂ O	none	
1 S 41 H ₂ O		125	75 × 0.6	12.5 fibre gypsum + 12.5 Powerpanel H ₂ O	60/25	
		150	100 × 0.6	12.5 fibre gypsum + 12.5 Powerpanel H ₂ O	60/25	
1 S 42 H ₂ O		≥ 210	75 × 0.6	12.5 fibre gypsum + 12.5 Powerpanel H ₂ O	60/25	
		≥ 260	100 × 0.6	12.5 fibre gypsum + 12.5 Powerpanel H ₂ O	60/25	

For swimming pool areas steel components must be protected with a minimum C4 corrosion protection coating.

* For EI60 fire performance the build height can be increased to 4000 mm

All partitions shown are SEVERE DUTY RATED to BS5234:pt2

Minimum stud size for severe duty rating = 75 mm.

1.1.1 Shaft Wall

System reference	System drawing	Wall thickness	Substructure (max. 400 mm centres)	Boarding per side SS = Shaft Side NS = Non-Shaft Side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]		[mm]	[mm] / [kg/m ³]	
SW1		112.5	Back-to-Back 100 × 25 × 0.7 Protektor E Studs	SS - 15 fibre gypsum NS - 12.5 fibre gypsum	60/30 Rockwool Flexi plus infill strips	
SW2		125	Back-to-Back 100 × 25 × 0.7 Protektor E Studs	SS - 15 fibre gypsum NS - 2 × 12.5 fibre gypsum	60/30 Rockwool Flexi plus infill strips	
		137.5	Back-to-Back 100 × 25 × 0.7 Protektor E Studs	SS - 15 fibre gypsum NS - 3 × 12.5 fibre gypsum	60/30 Rockwool Flexi plus infill strips	

Both the SW1 & SW2 systems are classed as Severe Duty to BS 5234:pt2

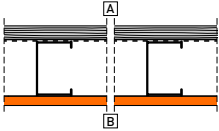
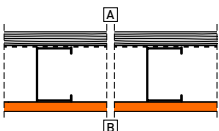
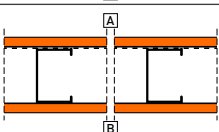
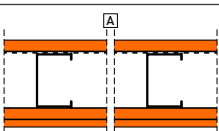
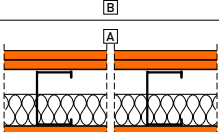
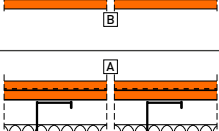
Maximum wall height [mm] ⁽²³⁾ Without / With Fire protection		Mass per unit area		Airborne sound insulation R_w	Flanking Sound $D_{n,f,w}$ ⁽¹²⁾	Fire rating (Minutes)	Fire test & classification reports	
Non-fire rated	Fire rated EN BS	[kg/m ²]		[dB]	[dB]	Fire rated EN BS		
7500	3000 3000	59		≥ 41	64	EI90* F 90	WF 506006C 3107/632/07 Schm-MPA-BSK 3265-518-07-MPA-BS	
8000	3000 3000	59		≥ 41	64	EI90* F 90		
4000	– 3000	64		58 (Interpolated)	64	– F 90	WF 506006C WF 511907A	
6000	– 3000	65		58 (Interpolated)	64	– F 90		
7500	3000 3000	60		60	64	EI120* F 120	WF 506006C 3636-5005K-3420-4076 (CR)	
8000	3000 3000	60		60	64	EI120* F 120		
4000	– 3000	65		64	64	– F 120	WF 506006C WF 511907A	
6000	– 3000	66		64	64	– F 120		

Maximum wall height [mm] ⁽²³⁾ Without / With Fire protection		Mass per unit area		Airborne sound insulation R_w	Flanking Sound $D_{n,f,w}$ ⁽¹²⁾	Fire rating (Minutes)	Fire test & classification reports	
Non-fire rated	Fire rated EN	[kg/m ²]		[dB]	[dB]	Fire rated EN		
6000	4000	37		47	57	EI60/E60. EI60 from Shaft side. E60 from Non-Shaft Side due to exposed stud flange	WF 386046	
6000	4000	47		52	64	EI120/E60 EI120 from Shaft side. E60 from Non-Shaft Side due to exposed stud flange	WF 165926 WF 173812 & 4377411	
6000	4000	62		≥ 52	64	EI120		

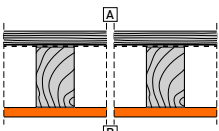
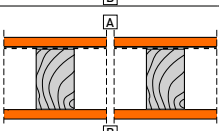
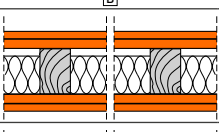
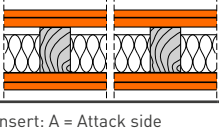
1. Walls

1.2 Security systems

fermacell® fibre gypsum board

System reference	System drawing	Wall thickness	Substructure	Substructure centres	Boarding attack side	Boarding inner side
		[mm]	[UW – CW]	[mm]	[mm]	
1 S 01-SW		107	75 × 50 × 0.6 fermacell studs	≤ 600 c/c	18 mm Plywood	12.5
1 S 02-SW		107	75 × 5 × 0.6 fermacell studs	≤ 600 c/c	18 mm Plywood	12.5
1 S 15-SW		102	75 × 50 × 0.6 fermacell studs	≤ 600 c/c	12.5	12.5
1 S 16-SW		114	75 × 50 × 0.6 fermacell studs	≤ 600 c/c	15	15 + 10
1 S 31		≥ 125	≥ 75 × 0.6	≤ 600	2 × 12.5	2 × 12.5
1 S 31		≥ 126	≥ 75 × 0.6	≤ 600	2 × 12.5	2 × 12.5

⁽¹⁾ Location of sheet steel insert: A = attack side, B = space to be protected

System reference	System drawing	Wall thickness	Substructure Timber stud head & base plates	Substructure centres	Boarding attack side	Boarding inner side
		[mm]	[UW – CW]	[mm]	[mm]	
1 H 01-SW		107	75 × 50 softwood studs	max 600 c/c - with 75 × 50 noggin at 1200 c/c	18 mm Plywood	12.5
1 H 13-SW		102	75 × 50 softwood studs	max 600 c/c - with 75 × 50 noggin at 1200 c/c	12.5	12.5
1 H 31		≥ 110	60 × 40	600	2 × 12.5	2 × 12.5
1 H 31		≥ 110	60 × 40	600	2 × 12.5	2 × 12.5

⁽¹⁾ Location of sheet steel insert: A = Attack side

Mineral wool ⁽¹⁾ Minimum thickness / density	Steel sheet / mesh Attack side	Steel sheet / mesh Inner side	Wall side	Resistance class
[mm]/[kg/m³]	[mm]			
as required	ExMesh™ Securilath™ MD1	–	–	SR1 (A1) to LPS 1175. LPCB certificate No. 731n
as required	ExMesh™ Securilath™ HD1	–	–	SR2 (B3) to LPS 1175. LPCB certificate No. 731n
as required	ExMesh™ Securilath™ HD1	–	–	SR1 (A1) to LPS 1175. LPCB certificate No. 731n
as required	ExMesh™ Securilath™ HD1	ExMesh™ Securilath™ HD1	–	SR2 (B3) to LPS 1175. LPCB certificate No. 731n
40/glass wool	–	–	–	RC2
40/glass wool	1 × 0.5 steel sheet	1 × 0.5 steel sheet	A + B	RC3

Mineral wool ⁽¹⁾ Minimum thickness / density	Steel sheet / mesh Attack side	Steel sheet / mesh Inner side	Wall side	Resistance class
[mm]/[kg/m³]	[mm]			
as required	ExMesh™ Securilath™ HD1	–	–	SR2 (B3) to LPS 1175. LPCB certificate No. 731n
as required	ExMesh™ Securilath™ HD1	–	–	SR1 (A1) to LPS 1175. LPCB certificate No. 731n
50/50	–	–	–	RC2
50/50	1 × 0.5	1 × 0.5	A	RC3

2. Walls linings

2.1 Independent linings

fermacell® fibre gypsum board

System reference	System drawing	Wall thickness	Substructure (max. 600 mm centres)	Boarding to room side ⁽¹⁷⁾	Mineral wool ⁽¹⁾ Minimum thickness / density
		[mm]		[mm]	[mm]/[kg/m³]
3 S 01		62.5	50 × 0.6 @ 400 mm c/c	12.5	50/20 / optional
		87.5	75 × 0.6	12.5	50/20 / optional
		112.5	100 × 0.6	12.5	50/20 / optional
3 S 11		68	50 × 0.6	18	40/glass wool
		93	75 × 0.6	18	
3 S 12		75(72.5)	50 × 0.6	2 × 12.5 (or 12.5 + 10)	Optional - 50/20 for better sound rating
		100 (97.5)	75 × 0.6	2 × 12.5 (or 12.5 + 10)	
3 S 21		105	75 × 0.6	2 × 15	75/45
		130	100 × 0.6	2 × 15	75/45
3 S 31		112.5	75 × 0.6	3 × 12.5	Optional
		137.5	100 × 0.6	3 × 12.5	Optional

fermacell® Firepanel A1

System reference	System drawing	Wall thickness	Substructure (max. 600 mm centres)	Sheathing one-sided ⁽¹⁷⁾	Insulation
		[mm]	[UW – CW]	[mm]	
3 S 21 A1		105	75 × 0.6	2 × 15	none
		130	100 × 0.6	2 × 15	none
3 S 31 A1		112.5	75 × 0.6	3 × 12.5	none

fermacell® Powerpanel H₂O

System reference	System drawing	Wall thickness	Substructure (max. 600 mm centres, unless otherwise shown)	Boarding room side ⁽¹⁷⁾	Mineral wool ⁽¹⁾ Minimum thickness / density
		[mm]	[UW – CW]	[mm]	[mm]/[kg/m³]
3 S 01 H ₂ O		62.5	50 × 0.6 @ 400 mm c/c	12.5 Powerpanel H ₂ O	Optional
		87.5	75 × 0.6	12.5 Powerpanel H ₂ O	Optional
3 S 12 H ₂ O		100	75 × 0.6	2 × 12.5 Powerpanel H ₂ O	60/30
		125	100 × 0.6		

All fermacell® boards and fermacell® Firepanel A1 linings shown above are SEVERE DUTY RATED to BS5234:pt2
Minimum stud size for severe duty rating = 75mm.

Maximum wall height [mm] ⁽²³⁾ Fire protection requirements				Mass per unit area	Airborne sound Improvement ΔR_w ⁽¹⁶⁾	Flanking sound insulation $D_{n.f.w}$ ⁽¹²⁾	Fire rating (mins)		Fire test & classification reports
non-fire rated		fire rated		[kg/m²]	[dB]	[dB]			
		EN	BS				EN	BS	
	3040	–	–	20	20	≥ 59 (with insulation)	–	–	–
	3820	–	–	20	20	≥ 59 (with insulation)	–	–	–
	5300	–	–	20	20	≥ 59 (with insulation)	–	–	–
	4000	4000	–	22	> 22	> 64	EI30	–	18-2.034 18-2.162
	2910	2910	–	32	> 22 (with insulation)	> 59 (with insulation)	EI30	–	3725/8503 3813/7536 K-3401/3686
	4460	4000	–	32	> 22 (with insulation)	> 59 (with insulation)	EI30	–	
	4460	3000	–	36	> 22 (with insulation)	64 (with insulation)	EI60	–	Awaiting latest Fire Test Report.
	6020	3000	–	36	> 22 (with insulation)	64 (with insulation)	EI60	–	
	5400	4000	–	53	> 22 (with insulation)	64 (with insulation)	EI90	–	072952-002-1-a(M1) 072952-002-2-a (M1)
	7030	4000	–	53	> 22 (with insulation)	64 (with insulation)	EI90	–	

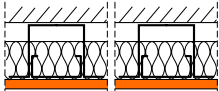
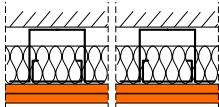
Maximum wall height [mm] ^[23] Fire protection requirements				Mass per unit area	Airborne sound Improvement measure Δ R _w ^[16] without with insulation		Flanking sound insulation D _{n,f,w} ^[12] without with insulation		Fire rating (mins)		Fire test & classification reports
non-fire rated	fire rated				[kg/m²]	[dB]	[dB]	[dB]			
	EN	BS							EN	BS	
	4 460	4 000	–	41	–	≥ 22	59	64	EI60	–	PB 3.2/10-048-1 PB 3.2/10.088-1 KB 3.2/11-035-3
	6 020	4 000	–	41	–	≥ 22	59	64	EI60	–	PB 3.2/10-048-1 PB 3.2/10.088-1 KB 3.2/11-035-3
	4 460	4 000	–	49	–	≥ 22	59	64	EI90	–	PB 3.2/10-048-3 PB 3.2/10.088-2 KB 3.2/11-035-4

Maximum wall height [mm] ⁽²³⁾ Without/With Fire protection				Mass per unit area	Airborne sound Improvement ΔR_w ⁽¹⁶⁾	Flanking sound insulation $D_{n,f,w}$ ⁽¹²⁾	Fire rating (mins)		Fire test & classification reports
non-fire rated		fire rated		[kg/m²]	[dB]	[dB]			
		EN	BS				EN	BS	
	2450	–	–	19	–	59	–	–	–
	3700	–	–	19	–	59	–	–	–
	4000	4000	–	37	21	64	EI30	–	PB 3282/2236 PB 3701/0406 K-3015/439-07 (CR)

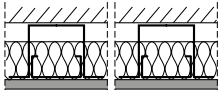
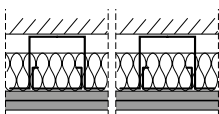
3. Walls linings - direct fix

3.1 Wall linings

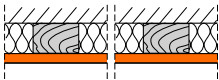
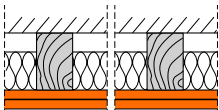
fermacell® fibre gypsum board – Steel substructure

System reference	System drawing	Wall covering thickness	Substructure steel (max. 600 mm centres, unless otherwise stated)	boarding room side ⁽¹⁷⁾	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]		[mm]	[mm]/[kg/m ³]	
3 WS 01		42.5–137.5	CD 60 × 27 section	12.5	20/20	
		42.5–162.5	fermacell adjustable wall liner system	12.5	50/20	
3 WS 02		55–143	CD 60 × 27 section	2 × 12.5	20/20	
		55–175	fermacell adjustable wall liner system	2 × 12.5	50/20	

fermacell® Powerpanel H₂O – Steel substructure

System reference	System drawing	Wall covering thickness	Substructure	Boarding room side ⁽¹⁷⁾	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]		[mm]	[mm]/[kg/m ³]	
3 WS 01 H ₂ O		42.5–137.5	CD 60 × 27 section	12.5	20/20	
		42.5–162.5	fermacell adjustable wall liner system	12.5	50/20	
3 WS 02 H ₂ O		55–150	CD 60 × 27 section	2 × 12.5	20/20	
		55–175	fermacell adjustable wall liner system	2 × 12.5	50/20	

fermacell® fibre gypsum board – Timber substructures

System reference	System drawing	Wall covering thickness	Substructure timber batten	Boarding room side ⁽¹⁷⁾	Insulation	
		[mm]	(mm)	[mm]	[mm]/[kg/m ³]	
3 WH 01		37.5	25/50	12.5	optional	
		50.5	38/50	12.5	optional	
		62.5	50/50	12.5	optional	
3 WH 02		48.5	25/50	12.5 + 10	optional	
		60.5	38/50	12.5 + 10	optional	
		72.5	50/50	12.5 + 10	optional	

Mass per unit area		Thermal resistance ⁽²⁰⁾	Flanking sound insulation R _{Lw,R} ⁽¹²⁾
[kg/m²]		[m² K/W]	[dB]
	17	0.53	57
	20	1.28	57
	32	0.57	62
	35	1.31	62

Mass per unit area		Thermal resistance	Flanking sound insulation R _{Lw,R}
[kg/m²]		[m² K/W]	[dB]
	14.5	n/a	57
	17.5	n/a	57
	27	n/a	62
	30	n/a	62

Mass per unit area		Flanking sound insulation R _{Lw,R}
[kg/m²]		[dB]
	16	57
	16	57
	17	57
	32	61
	33	61
	34	61

4. Ceilings

4.1 Suspended ceilings (Unless stated, fire performance is from below only)

fermacell® fibre gypsum board

System reference		System drawing	Independent Ceiling structure	Fire exposure side		Substructure Material, sections*	Construction height		Suspension height	
						[mm]	[mm]		[mm]	
2 S 11			Suspended ceiling system	from below	from below or from above	Steel CD 60×0.6	75	130	varies	
U (from below)	U0 (from above)									

fermacell® Firepanel A1

System reference	System drawing	Ceiling structure ⁽⁴⁷⁾	Fire exposure side		Substructure Material, sections*	Construction height	Suspension height
					[mm]	[mm]	[mm]
2 S 21 A1		Suspended ceiling	from below		Steel CD 60 x 0.6	85	varies
2 S 31 A1		Suspended ceiling	from below		Steel CD 60 x 0.6	95	varies

fermacell® Powerpanel H₂O

System reference		System drawing	Ceiling structure	Fire exposure		Substructure Material, sections*	Construction height ^[44]		Suspension height	
						[mm]	[mm]		[mm]	
2 S 01 H ₂ O			Suspended ceiling	N/A		Steel CD 60×0.6	approx. 70		varies	
2 S 11 H ₂ O			Suspended ceiling	from below	from below as well as from above	Steel CD 60×0.6	80	136	varies	
U (from below)	U0 (from above)									
2 S 12 H ₂ O			Suspended ceiling	from below		Steel CD 60×0.6 (K400 system)	136		varies	

For swimming pool areas steel components must be protected with a minimum C4 corrosion protection coating. All joints must be supported, e.g. flat strap must be used on horizontal joints. A full face alkali resistant glass fibre mesh must be used with Powerpanel Surface Finish prior to painting.

* ceiling support system must be suitable for the application and area of use in accordance to EN 13964 : 2004 table 7 & 8.
Corrosion resistant treated CD60 system is available to suit. A standard MF system is not usually suitable for these applications.
Standard MF ceiling support systems of 0.5 mm gauge must not be used.

For CD ceiling system max load = 50kg/m², based on support layout of primary and secondary bearers. Always check these details as part of the ceiling design.

Boarding	Board support spacing (max)	Mineral wool Thickness / density		Mass per unit area		Fire protection EN	Fire test reports
[mm]	[mm]	[mm]/[kg/m³]		[kg/m²]			
2×10	≤330	without or at least A 2 insulating materials	40/30 (for fire from above)	27	28	EI30	PR-04-1-1.02.161 3590/205/07 07-H-049

Boarding	Board support spacing (max)	Mineral wool Thickness / density		Mass per unit area		Fire protection EN	Fire test & classification reports ^[42]
[mm]	[mm]	[mm]/[kg/m³]		[kg/m²]			
2×15 Firepanel A1	< 625	none		39		EI60	Pr-14-2.051
2×12.5+15 Firepanel A1	< 415	none		51		EI90	Pr-17-2.006.En PK2-07-17-001-E-0

Boarding	Supporting Substructure spacing ^[46]	Mineral wool Thickness / density ^[41]		Mass per unit area ^[49]		Fire protection EN	Fire test & classification reports
[mm]	[mm]	[mm]/[kg/m³]		[kg/m²]			
12.5 Powerpanel H ₂ O	< 500	Optional. must be an A2 product if used.		16		–	–
12.5 fibre gypsum + 12.5 Powerpanel H ₂ O	≤ 500	Optional. must be an A2 product if used.	40/30 + 200 mm mineral wool strips [40/30]	32	34	EI45	3369/3266 3329/6686 K-3248/0546-MPA-BS K-3186/9926-MPA-BS
2×12.5 Power-panel H ₂ O	< 500	40/25 +150 mm mineral wool strips [40/25]		30		EI30	KB: PK2-07-17-004-E-0 Pr-17-2.0160-En

1. Walls

1.1 Timber stud walls – non-load-bearing

fermacell® fibre gypsum board with insulation

System reference	System drawing	Wall thickness	Substructure		Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	Timber stud (max. 600 mm centres)	Head & Base plates	[mm]	[mm]/[kg/m³]	
1 H 13		114	89 × 38	89 × 38	12.5	none	
		100	70 × 44 (Horizontal joints must be nogged)	70 × 44	15		
1 H 17		213	2 × 89 × 38 ≥ 10 mm air gap	2 × 89 × 38	12.5	none	
		275	2 × 70 × 44 ≥ 10 mm air gap	2 × 70 × 44	12.5		
1 H 21		≥ 139	89 × 38	89 × 38	2 × 12.5	90/10	
1 H 22		114	89 × 38	89 × 38	12.5	70/35	
1 H 24		≥ 213	2 × 89 × 38 ≥ 10 mm air gap	2 × 89 × 38	12.5	70/35 Twin layer insulation may be used	
		≥ 175	2 × 70 × 44 ≥ 10 mm air gap	2 × 70 × 44	12.5		
1 H 26		≥ 200	2 × 70 × 44 ≥ 10 mm air gap	2 × 70 × 44	12.5 + 10 or 2 × 12.5	90/10	
		≥ 238	2 × 89 × 38 ≥ 10 mm air gap	2 × 89 × 38	2 × 12.5	90/10	
1 H 29		127	89 × 38	89 × 38	12.5 + 2 × 12.5	70/35	

fermacell® Powerpanel H₂O

System reference	System drawing	Wall thickness	Substructure		Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	Timber stud	Head & Base plate	[mm]	[mm]/[kg/m³]	
1 H 21 H ₂ O		85	60 × 40	60 × 40	12.5 Powerpanel H ₂ O	60/25	
		95	70 × 44	70 × 44	12.5 Powerpanel H ₂ O	60/25	

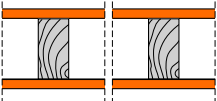
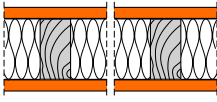
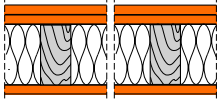
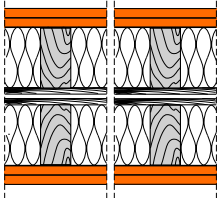
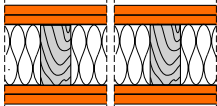
Maximum wall height [mm] ⁽²³⁾		Mass per unit area	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,W}^{(12)}$	Fire protection (minutes)		Fire test & classification reports
		[kg/m ²]	[dB]	[dB]	EN	BS	
	4 000	36	41	55	EI30	–	WR 174181 WF 506005
	4 000	42	41	55	–	F 60	WF 385716 WF 506005 Refer to Spandrel Panel Datasheet
	4 000	41	49	55	EI30	–	WF 14777A & B WF 506005
	4 000	47	49	55	EI30	–	
	4 000	68	51	63	EI60		WF 174182 WF 506005 WF 14777A&B
	4 000	38	44	59	EI60	–	WF 14777A & B WF 506005
	4 000	43	57	63	EI60	–	WF 14777A & B WF 506005
	4 000	43	57	63	EI60	–	
	4 000	64	64	63	EI60	–	WF 14777A & B WF 174182 WF 506005
	4 000	64	64	63	EI60	–	
	4 000	53	46	59	EI60	–	WF 1477A & B WF 506005

Maximum wall height [mm] ⁽²³⁾		Mass per unit area	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,W}^{(12)}$	Fire protection		Fire test & classification reports
fire rated		[kg/m ²]	[dB]	[dB]	EN	BS	
	4 000	33	42	59	EI60	–	3455/1485 K-3421.4086 ENG Classification Report
	4 000	35	42	59	EI60	–	

1. Walls

1.2 Timber stud walls – load-bearing

fermacell® fibre gypsum board

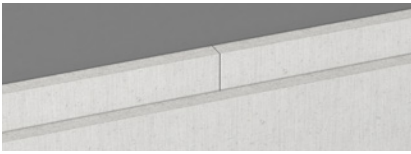
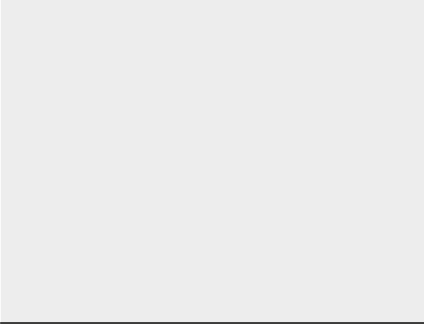
System reference	System drawing	Wall thickness	Substructure		Boarding per side	Mineral wool ⁽¹⁾	
			Timber stud	Head & base plate		Minimum thickness / density	
		[mm]	[mm]	[mm]	[mm]	[mm]/[kg/m³]	
1 HT 14		114	89 × 38	89 × 38	12.5	none	
1 HT 22		170	140 × 38	140 × 38	15	140/30	
		150	120 × 45	120 × 45	15	120/30	
1 HT 23		127	89 × 38	89 × 38	2 × 12.5 mm (REI 60 fire side) & 12.5 mm (REI30 fire side)	90/10	
1 HT 23 – Twin Wall		≥ 258	2 × 89 × 38	2 × 89 × 38 ≥ 10 mm air gap	2 × 12.5 mm Inner cavity single layer may be timber based product.	90/10	
1 HT 24		139	89 × 38	89 × 38	2 × 12.5 mm	90/10	

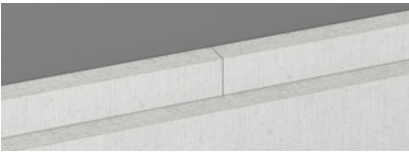
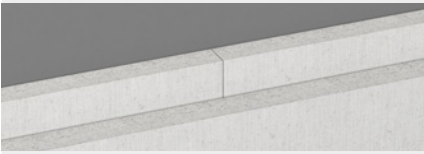
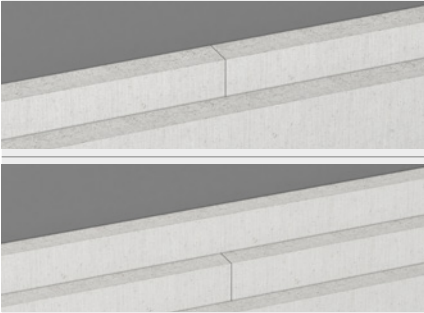
Partition load		Maximum Wall Height	Mass per unit area	Airborne sound insulation $R_w^{[3]}$	Flanking sound insulation $D_{n,f,w}^{[12]}$	Fire protection (minutes)		Board Fixing Method	Fire test & classification reports
		[mm]	[kg/m²]	[dB]	[dB]	EN	BS		
	5.56 kN/Stud	2 600	35	41	55	REI30	–	staple	WF 174181 PR 06-2.043
	10.75 kN/stud	2 700	48	≥46	59	REI60		staple	RF11175 + CR11175
	10.8 kN/stud	3 000	48	≥46	59	REI60		staple	PG 10936
	5.56 kN/stud	2 600	57	≥46	≥59	REI60-30 60 mins from double layer side, 30 mins from single layer side)	–	staple/nail	WF 174182 WF 370292
	5.56 kN/stud	2 600	112	≥66	63	REI60		staple/nail	WF 174182 WF 175387
	5.56 kN/stud	2 600	66	≥51	≥59	REI60	–	staple/nail	WF 174182 WF 370292

1. Walls

1.3 Multi-storey solid timber construction – Encapsulation Fire Protection

fermacell® fibre gypsum board

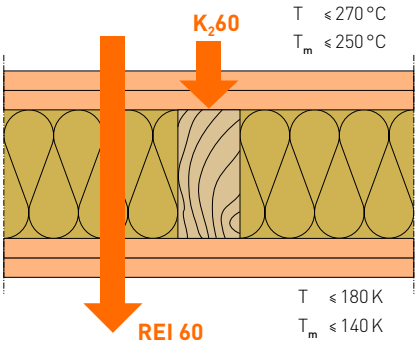
Encapsulation Fire criterion according to EN 13501-2	K ₂ 10	K ₂ 30	
Boarding thickness	10 mm	2 × 10 or 18 mm	
			
			

K ₂ 45*	K ₂ 60
2 × 15	15 + 18 mm or 2 × 18 mm or 3 × 12.5 mm
	
	

The introduction of Building Class 4 to the UK Building Regulations allowed for multi-storey properties to be made from solid-timber construction.

The performance requirement here, set by UK Building Regulations, specify that the supporting timber structure must not ignite during a defined period of time. In this context the cladding gives an effect term of fire protection.

The encapsulation performance is shown as (K₂60). The minimum performance temperatures that may be accepted will be determined by National Building regulations. Guidance on performance should always be clarified to ensure compliance.

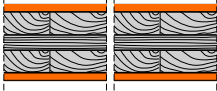
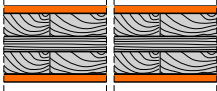
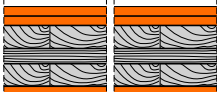
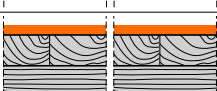
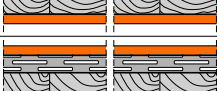
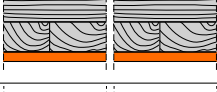
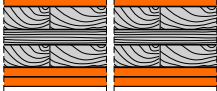
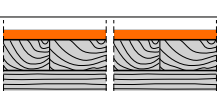
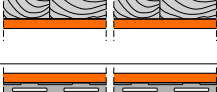
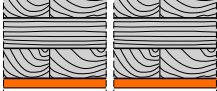
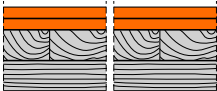


Example of Timber wall construction to (REI 60/K₂60)

1. Walls

1.4 Cross laminated timber walls (CLT/X-LAM)

fermacell® fibre gypsum board

System reference	System drawing	Wall thickness	Substructure Timber construction	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
1 HTM 11		≥ 100	≥ 80	10	–	
1 HTM 23		≥ 100	≥ 80	10	–	
1 HTM 24		≥ 130	≥ 80	2 × 12.5	–	
1 HTM 21		≥ 145	≥ 120	12.5	–	
1 HTM 22		≥ 172	≥ 120	12.5 (one side on resilient Top Hat - 27 mm × 60 mm)	Glass wool	
1 HTM 34		≥ 130	≥ 80	2 × 12.5	–	
1 HTM 32		≥ 145	≥ 120	12.5	–	
1 HTM 33		≥ 172	≥ 120	12.5 (one side on resilient Top Hat - 27 mm × 60 mm)	Glass wool	
1 HTM 31		≥ 180	≥ 120	2 × 15	–	
1 HTM 41		≥ 156	≥ 120	18	–	
1 HTM 42		≥ 180	≥ 120	2 × 15	–	

* calculated acc. Soundinsulationsoftware NSUL, Version v 8 0 3

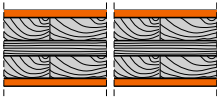
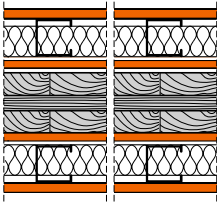
** calculated acc. EN12354-1:2000, S 143

Applied load	Mass per unit	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,w}^{(12)}$	Fire protection (minutes)		Test reports & certification
				EN	BS	
[kN/m]	[kg/m ²]	[dB]	[dB]			
160	≥ 60	$R_w \geq 37$ [-1;-3]* Pb.- Nr.: 04-001031	–	REI30		KB 3.2/19-354-3 · Encapsulation: K ₂ 10 · PC10069 · T _{max. 10 minutes} : 112 °C
40	≥ 60	$R_w \geq 37$ [-1;-3]* Pb.- Nr.: 04-001030	–	REI60		KB 3.2/19-354-3 · Encapsulation: K ₂ 10 · PC10069 · T _{max. 10 minutes} : 112 °C
160	≥ 96	$R_w \geq 41$ [-1;-3]* Pb.- Nr.: 04-001029	–	REI60		KB 3.2/19-354-4 · Encapsulation: K ₂ 30 · PCA10402A · T _{max. 30 minutes} : 115 °C
200	≥ 87	≥ 40 [-1;-3]* Pb.- Nr.: 04-001028	–	REI60		KB 3.2/16-279-3 · Encapsulation: K ₂ 10 · PC10069 · T _{max. 10 minutes} : 112 °C
200	≥ 89	$R_w \geq 53$ [-4;-11]* Pb.- Nr.: 04-001027	–	REI60		KB 3.2/16-388-2 · Encapsulation: K ₂ 10 · PC10069 · T _{max. 10 minutes} : 112 °C
40	≥ 96	$R_w \geq 41$ [-1;-3]* Pb.- Nr.: 04-001026	–	REI90		KB 3.2/19-354-4 · Encapsulation: K ₂ 30 · PCA10402A · T _{max. 30 minutes} : 115 °C
120	≥ 87	≥ 40 [-1;-3]* Pb.- Nr.: 04-001024	–	REI90		KB 3.2/16-279-3 · Encapsulation: K ₂ 10 · PC10069 · T _{max. 10 minutes} : 112 °C
120	≥ 89	$R_w \geq 53$ [-4;-11]* Pb.- Nr.: 04-01023	–	REI90		KB 3.2/16-388-2 · Encapsulation: K ₂ 10 · PC10069 · T _{max. 10 minutes} : 112 °C
200	≥ 129	≥ 44 [-1;-3]* Pb.- Nr.: 04-001021	–	REI90		KB 3.2/15-369-4 · Encapsulation: K ₂ 45**
120	≥ 100	≥ 41 [-1;-2]* Pb.- Nr.: 04-001022	–	REI120		KB 3.2/15-369-3 · Encapsulation: K ₂ 30 · PCA10168 · T _{max. 30 minutes} : 153 °C
150	≥ 129	≥ 44 [-1;-32]* Pb.- Nr.: 04-001021	–	REI120		KB 3.2/15-369-4 (· Encapsulation: K ₂ 45**

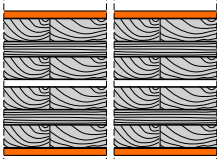
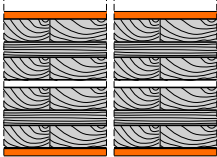
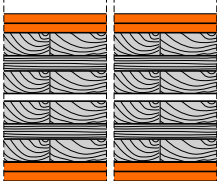
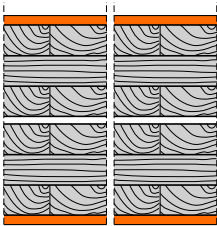
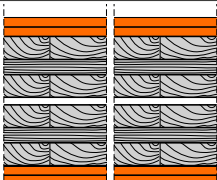
1. Walls

1.4 Cross laminated timber walls (CLT/X-LAM)

fermacell® Firepanel A1

System reference	System drawing	Wall thickness	Substructure Timber construction	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	[mm]	[mm]	[mm]/[kg/m ³]	
1 HTM 21 A1		≥ 100	≥ 80 mm	10	–	
1 HTM 41 A1		≥ 235	≥ 80 mm	12.5 (CW50) 10	40/40	

fermacell® fibre gypsum board - cavity wall

System reference	System drawing	Wall thickness	Substructure ⁽¹³⁾ Timber construction	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	[mm]	[mm]	[mm]/[kg/m ³]	
1 HTM 12		≥ 190	≥ 2 × 80 mm 10 mm cavity 100 mm cavity	10	– 80/10	
1 HTM 25		≥ 190	≥ 2 × 80 mm 10 mm cavity 100 mm cavity	10	– 80/10	
1 HTM 26		≥ 220	≥ 2 × 80 mm 10 mm cavity 100 mm cavity	2 × 12.5	– 80/18	
1 HTM 27		≥ 275	≥ 2 × 120 mm 10 mm cavity 100 mm cavity	12.5	– 80/10	
1 HTM 35		≥ 220	≥ 2 × 80 mm 10 mm cavity 100 mm cavity	2 × 12.5	– 80/18	

* calculated acc. Soundinsulationsoftware INSUL, Version v.8.0.3

Applied load	Mass per unit	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,W}^{(12)}$	Fire protection (minutes)		Test reports & certification
[kN/m]	[kg/m ²]	[dB]	[dB]	EN	BS	
45	≥ 61	$R_w \geq 37$ [-1;-3]* Pb.- Nr.: 04-01020	–	REI60		N° CSI1958FR · Encapsulation: K ₂ 10 · PC10080 · T _{max. 10 minutes} : 135 °C
45	≥ 95	$R_w \geq 71$ [-6;-14]* Pb.- Nr.: 04-01019	–	REI120		N° CSI1959FR

Applied load	Mass per unit	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,W}^{(12)}$	Fire protection (minutes)		Test reports & certification
[kN/m]	[kg/m ²]	[dB]	[dB]	EN	BS	
160 each wall side	≥ 96	$R_w \geq 49$ [-3;-11]* Pb.- Nr.: 04-01017 $R_w \geq 69$ [-2;-6]* Pb.- Nr.: 04-01018	–	REI30		KB 3.2/19-354-3 · Encapsulation: K ₂ 10 · PC10069 · T _{max. 10 minutes} : 112 °C
40 each wall side	≥ 96	$R_w \geq 49$ [-3;-9]* Pb.- Nr.: 04-01015 $R_w \geq 69$ [-2;-6]* Pb.- Nr.: 04-01016	–	REI60		KB 3.2/19-354-3 · Encapsulation: K ₂ 10 · PC10069 · T _{max. 10 minutes} : 112 °C
160 each wall side	≥ 132	$R_w \geq 54$ [-3;-11]* Pb.- Nr.: 04-01014 $R_w \geq 74,5$ [-2;-4] Pb.- Nr.: 04-00961	–	REI60		KB 3.2/19-354-4 · Encapsulation: K ₂ 30 · PCA10402A · T _{max. 30 minutes} : 115 °C
200 each wall side	≥ 143	$R_w \geq 55$ [-5;-12]* Pb.- Nr.: 04-01012 $R_w \geq 75$ [-2;-6]* Pb.- Nr.: 04-01013	–	REI60		KB 3.2/16-279-3 · Encapsulation: K ₂ 10 · PC10069 · T _{max. 10 minutes} : 112 °C
40 each wall side	≥ 132	$R_w \geq 54$ [-4;-11]* Pb.- Nr.: 04-01011 $R_w \geq 74,5$ [-2;-4] Pb.- Nr.: 04-0961	–	REI90		KB 3.2/19-354-4 · Encapsulation: K ₂ 30 · PCA10402A · T _{max. 30 minutes} : 115 °C

1. Walls

1.4 Cross laminated timber walls (CLT/X-LAM)

fermacell® fibre gypsum board - cavity wall

System reference	System drawing	Wall thickness	Substructure Timber construction	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
1 HTM 36		≥ 275	≥ 2 × 120 mm 10 mm cavity 100 mm cavity	12.5	– 80/10	
1 HTM 37		≥ 310	≥ 2 × 120 mm 10 mm cavity 100 mm cavity	2 × 15	– 80/18	
1 HTM 43		≥ 286	≥ 2 × 120 mm 10 mm cavity 100 mm cavity	18	– 80/18	
1 HTM 44		≥ 310	≥ 2 × 120 mm 10 mm cavity 100 mm cavity	2 × 15	– 80/18	

* calculated acc. Soundinsulationsoftware INSUL, Version v.8.0.3

fermacell® Firepanel A1 - cavity wall

System reference	System drawing	Wall thickness	Substructure Timber construction	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
1 HTM 22 A1		≥ 100	≥ 2 × 80 mm 10 mm cavity 100 mm cavity	10	– 80/10	

* calculated acc. Soundinsulationsoftware INSUL, Version v.8.0.3

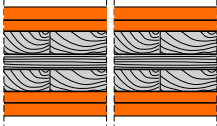
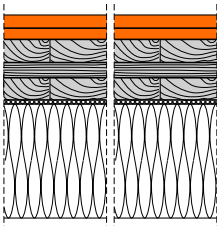
Applied load	Mass per unit	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,w}^{(12)}$	Fire protection (minutes)		Test reports & certification
				EN	BS	
120 each wall side	≥ 143	$R_w \geq 55$ [-5;-12]* Pb.- Nr.: 04-01008 $R_w \geq 75$ [-2;-6]* Pb.- Nr.: 04-01009	–	REI90		KB 3.2/16-279-3 · Encapsulation: $K_2 10$ · PC10069 · $T_{max. 10 \text{ minutes}}: 112 \text{ } ^\circ\text{C}$
200 each wall side	≥ 185	$R_w \geq 60$ [-5;-13]* Pb.- Nr.: 04-01007 $R_w \geq 74,5$ [-2;-4]* Pb.- Nr.: 04-00961	–	REI90		KB 3.2/15-369-4 (Encapsulation: $K_2 45$)**
120 each wall side	≥ 100	$R_w \geq 57$ [-5;-12]* Pb.- Nr.: 04-01006 $R_w \geq 77$ [-2;-6]* Pb.- Nr.: 04-01010	–	REI120		KB 3.2/15-369-3 (Encapsulation: $K_2 30$) · Encapsulation: $K_2 30$ · PCA10168 · $T_{max. 30 \text{ minutes}}: 153 \text{ } ^\circ\text{C}$
150 each wall side	≥ 185	$R_w \geq 60$ [-6;-15]* Pb.- Nr.: 04-01003 $R_w \geq 74,5$ [-2;-4] Pb.- Nr.: 04-00961	–	REI120		KB 3.2/15-369-4 (Encapsulation: $K_2 45$)**

Applied load	Mass per unit	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,w}^{(12)}$	Fire protection (minutes)		Test reports & certification
				EN	BS	
45 each wall side	≥ 97	$R_w \geq 49$ [-3;-9]* Pb.- Nr.: 04-01004 $R_w \geq 69$ [-2;-15]* Pb.- Nr.: 04-01005	–	REI60		N° CSI1958FR · Encapsulation: $K_2 10$ · PCA10080 · $T_{max. 10 \text{ minutes}}: 135 \text{ } ^\circ\text{C}$

1. Walls

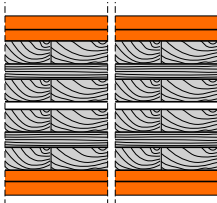
1.4 Cross laminated timber walls (CLT/X-LAM)

fermacell® fibre gypsum board - firewall

System reference	System drawing	Wall thickness	Substructure Timber construction	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
4 HTM 32		≥ 146	≥ 80	15 + 18	–	
4 HTM 33		≥ 280	≥ 80	inside 15 + 18 outside 160 mm STEICOprotect L dry + 6 mm STEICOsecure base	–	

*calculated acc. EN12354-1:2000, S. 28

fermacell® fibre gypsum board - cavity firewall

System reference	System drawing	Wall thickness	Substructure Timber construction	Boarding per side	Mineral wool ⁽¹⁾ Minimum thickness / density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
4 HTM 31		≥ 236	≥ 2 × 80 mm 10 mm cavity 100 mm cavity	18 + 15	– 80/18	

*calculated acc. Soundinsulationsoftware INSUL, Version v.8.0.3

Applied load max. Stress sc,0,d,R90	Mass per unit	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,W}^{(12)}$	Fire protection (minutes)		Test reports & certification
[N/mm ²]	[kg/m ²]	[dB]	[dB]	EN	BS	
3.0	≥ 117	$R_w \geq 42$ (-1;-2) Pb.- Nr.: 04-01002	≥ 61	REI 90-M		KB 3.2/16-325-1 · Encapsulation: $K_2 60$ · PC10082 · $T_{\text{max. 60 minutes}}$: 104 °C
2.5	≥ 123	$R_w \geq 36$ (-1;-5) Pb.- Nr.: 04-00879	≥ 61	REI 90-M		KB 3.2/15-222-2 (Encapsulation from inside: $K_2 60$) · Encapsulation: $K_2 60$ · PC10082 · $T_{\text{max. 60 minutes}}$: 104 °C

Applied load max. Stress sc,0,d,R90	Mass per unit	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,W}^{(12)}$	Fire protection (minutes)		Test reports & certification
[N/mm ²]	[kg/m ²]	[dB]	[dB]	EN	BS	
3 each wall side	≥ 152	$R_w \geq 56$ (-5;-13)* $R_w \geq 74,5$ (-2;-4) Pb.- Nr.: 04-00961	–	REI 90-M		KB 3.2/16-325-1 (Encapsulation: $K_2 60$) · Encapsulation: $K_2 60$ · PC10082 · $T_{\text{max. 60 minutes}}$: 104 °C

2. Ceilings/Roofs

2.1 CLT/X-LAM

fermacell® Flooring Elements



CLT/X-LAM

REI 60 (b→a)**

CLT 140 C5s

Load: 5 kN/m²

Span: 5 m

REI 90 (b→a)**

CLT 160 C5s

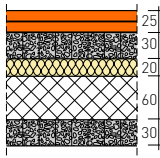
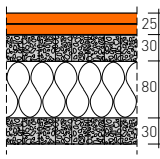
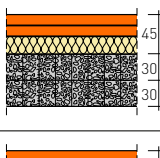
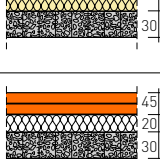
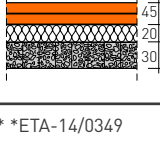
Load: 6 kN/m²

Span: 5 m



Bare floor

 $R_w = 39 \text{ dB}$ $L_{n,w} = 85 \text{ dB}$

System drawing	Construction	Constr. height	Sound insulation Impact $L_{n,w}$ ($C_{L,100-2500}$ $C_{L,50-2500}$)	Airborne R_w ($C_{100-3150}$ $C_{1r,100-3150}$ $C_{50-3150}$ $C_{1r,50-2500}$)	Area of application
		[mm]	[dB]	[dB]	
	2 E 22 (2 × 12,5 mm fermacell® Gypsum Fibreboards) on 30 mm fermacell™ Honeycomb Insulation on 20 mm Floorrock GP on 60 mm EPS 150 kPa on 30 mm fermacell™ Honeycomb Insulation	305	46,0 (+2 +8)	67,8 [-4 -12 -9 -21]	1
	2 E 22 (2 × 12,5 mm fermacell® Gypsum Fibreboards) on 30 mm fermacell™ Honeycomb Insulation on 80 mm Schneider 140 kPa on 30 mm fermacell™ Honeycomb Insulation	305	48,4 (+1 +5)	68,3 [-4 -11 -9 -22]	1
	2 E 35 (2 × 12,5 mm fermacell® Gypsum Fibreboards + 20 mm Mineralwolle) on 2 × 30 mm fermacell™ Honeycomb Insulation	245	50,2 (+0 +3)	66,9 [-3 -10 -8 -20]	1
	2 E 35 (2 × 12,5 mm fermacell® Gypsum Fibreboards + 20 mm Mineral Wool) on 30 mm fermacell™ Honeycomb Insulation	215	51,8 (+1 +4)	64,2 [-4 -11 -9 -20]	1
	2 E 22 (2 × 12,5 mm fermacell® Gypsum Fibreboards) on 20 mm Steico Therm sd on 30 mm fermacell™ Honeycomb Insulation	215	53,6 (+1 +3)	64,1 [-4 -11 -9 -20]	1

* *ETA-14/0349

fermacell® Flooring Elements

CLT/X-LAM
suspended ceilingBare floor
No ascertainable
output value

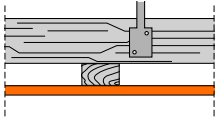
System drawing	Construction	Constr. height	Sound insulation		Area of application
			Impact $L_{n,w}$ ($C_{1,100-2500}$ $C_{1,50-2500}$)	Airborne R_w ($C_{100-3150}$ $C_{1,100-3150}$ $C_{50-3150}$ $C_{1,50-2500}$)	
		[mm]	[dB]	[dB]	
	2 E 35 (2 × 12,5 mm fermacell® Gypsum Fibreboards + 20 mm Mineral Wool) on 2 × 30 mm fermacell™ Honeycomb Insulation with 140 mm CLT with 27 mm Top Hat Profile + Mineral Wool on 3 × 12,5 mm fermacell® Gypsum Fibreboard	309,5	38,7 (+2 +21)	75,8 [-7 -16 -22 -35]	1
	2 E 35 (2 × 12,5 mm fermacell® Gypsum Fibreboards + 20 mm Mineral Wool) on 2 × 30 mm fermacell™ Honeycomb Insulation with 140 mm CLT with 27 mm Top Hat Profile + Mineral Wool on 2 × 12,5 mm fermacell® Gypsum Fibreboard	297	41,3 (+2 +18)	74,2 [-9 -18 -21 -34]	1
	2 E 35 (2 × 12,5 mm fermacell® Gypsum Fibreboards + 20 mm Mineral Wool) on 2 × 30 mm fermacell™ Honeycomb Insulation with 140 mm CLT with 27 mm Top Hat Profile + Mineral Wool on 2 × 12,5 mm fermacell® Gypsum Fibreboard	284,5	50,0 (+4 +10)*	74,2 [-9 -18 -21 -34]*	1

* internal review and investigation

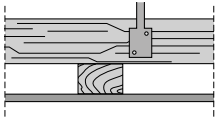
2. Ceilings/Roofs

2.2 Suspended ceilings

fermacell® fibre gypsum board

System reference	System drawing	Ceiling structure	Substructure Material, sections	Construction height ⁽⁴⁴⁾
				[mm]
2 H 01		Suspended ceiling	Timber 50 × 25 battens to supporting structure	47

fermacell® Powerpanel H₂O

System reference	System drawing	Ceiling group Ceiling structure	Substructure Material, sections	Construction height ⁽⁴⁴⁾
				[mm]
2 H 01 H ₂ O		Suspended ceiling	Timber 50 × 40 battens	113

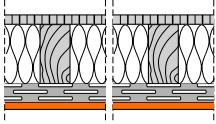
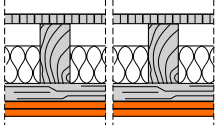
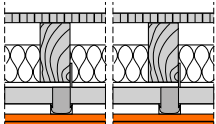
Boarding	Substructure support span	Insulation	Mass per unit area ⁽⁴⁹⁾	Fire protection	Fire protection
[mm]	[mm]	[mm]/[kg/m ³]	[kg/m ²]		
12.5	≤ 400	Optional	28	–	–

Boarding	Substructure structure span	Mineral wool Minimum thickness / density ⁽⁴¹⁾	Mass per unit area ⁽⁴⁹⁾	Fire protection	Fire protection
[mm]	[mm]	[mm]/[kg/m ³]	[kg/m ²]		
12.5 Powerpanel H ₂ O	< 500	without or at least A 2 insulating materials	18	–	–

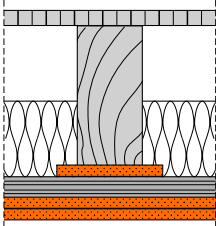
2. Ceilings/Roofs

2.3 Timber joist ceilings

fermacell® fibre gypsum board

System reference	System drawing	Ceiling structure	Fire exposure ^[48]	Substructure Material, sections ^[43]	System height ^[44]	
					[mm]	
2 H 11		Timber joists 170×70 @max 610 mm c/c. With 18 mm T&G chipboard structural floor deck	from below	Resilient bar 20 mm×20 mm× 45 mm×0.6 mm gauge	≥ 218 ≥ 221	
2 H 21		Timber joists 225×50 @max 600 mm c/c. With 18 mm T&G chipboard structural floor deck Timber joists 254×45 @ max 625 mm c/c. With 18 mm T&G chipboard structural floor deck	from below	Timber battens 50×30	293 318	
2 H 23		Timber joists 200×50 @max 600 mm c/c. With 20 mm T&G chipboard structural floor deck	from below	MF steel ceiling system	345	

fermacell® Firepanel A1

System reference	System drawing	Ceiling structure	Fire exposure ^[48]	Substructure Material, sections	System height ^[44]	
					[mm]	
2 H 35 A1		Timber joists 170×60 @max 600 mm c/c with heat sink 15 mm Firepanel A1 to underside of joist. With 15 mm T&G chipboard overlay	from below	Steel CD 60×27×06 Supported by suitable ceiling hangers- 150 mm×30 mm×1 mm; in grid at 925 mm along joists, at 600 mm c/c to match joist centres. CD 60×27×0.6 mm @400 mm c/c max	≥ 57	

Boarding	Board support span ⁽⁴⁶⁾	Cavity insulation	Mass per unit area ⁽⁴⁹⁾	Fire protection		Fire test & classification certification
				EN	BS	
[mm]	[mm]	[mm]/[kg/m ³]	[kg/m ²]			
1 × 10	≤ 400	50/16 glasswool	16	EI30	–	R0156a + R0156b
1 × 12.5	≤ 400	50/16 glasswool	21	EI30	–	
2 × 10	≤ 333	50/60	42	–	F60	TE 81278
2 × 12.5	500	140/30	49	REI60	–	PG11550
2 × 10	≤ 400	100/33	42	–	F60	WF 160810

Boarding	Board support span ⁽⁴⁶⁾	Mineral wool Minimum thickness / density ⁽⁴¹⁾	Mass per unit area ⁽⁴⁹⁾	Fire protection EN	Fire test & classification certification
[mm]	[mm]	[mm]/[kg/m ³]	[kg/m ²]		
2 × 15 Firepanel A1 - max board size 1200 × 1000. N.B. Heat sink strip 15mm Firepanel A1 (150mm wide) fixed to underside of joists	600	70/67 & 100/67 (both required)	45	REI120	16397A & B

1. Beam and Column Encasement

1.1 fermacell® Firepanel A1

GENERAL INFORMATION

DRY LINING

TIMBER CONSTRUCTION

BEAM AND COLUMN

FIXINGS

FASTENERS

Advantages

single-layer/multi-layer boarding

simple assembly

Component

Fire protection	R 30, R 60, R 90 & R 120
• GA 2100/086/17 MPA BS	
Critical steel temperature	550 °C
• EN 13381-4:2013-8	
Board thicknesses	12.5 mm to 15 mm Firepanel A1 (single-/multi-layer)
Section types	UB & UC

Building material

Building material class (EN)	A1,s1-d0
Material (manufacturing standard)	EN 15283-2



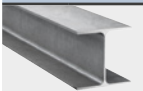
fermacell™ Firepanel A1 fibre gypsum boards Beam Encasment - Three sided – example solution

Fire resistance classes	Minimum boarding thickness in mm
	$H_p/A \leq 300 \text{ m}^{-1}$
R 30	12.5
R 60	12.5 + 15
R 90	3 × 12.5
R 120	3 × 12.5

fermacell™ Firepanel A1 column encasement - Four sided – example solution

Fire resistance classes	Minimum boarding thickness in mm
	$H_p/A \leq 300 \text{ m}^{-1}$
R 30	12.5
R 60	12.5 + 15
R 90	3 × 12.5
R 120	3 × 12.5

1.2 fermacell™ Firepanel A1 Beam encasement to 550 °C

Universal Beam Encasement																											
	127 x 76 x 13	152 x 89 x 16	178 x 102 x 19	203 x 102 x 23	203 x 133 x 25	203 x 133 x 30	254 x 102 x 22	254 x 102 x 25	254 x 102 x 28	254 x 102 x 31	254 x 146 x 37	254 x 146 x 43	305 x 102 x 25	305 x 102 x 28	305 x 102 x 33	305 x 127 x 37	305 x 127 x 42	305 x 127 x 48	305 x 165 x 40	305 x 165 x 46	305 x 165 x 54	356 x 127 x 33	356 x 127 x 39	356 x 171 x 45	356 x 171 x 51	356 x 171 x 57	356 x 171 x 67
UB Depth	127	152	178	203				254							305							356					
Section Factor (m ³)	200	194	188	173	169	143	218	192	173	164	140	122	225	200	174	155	138	122	150	133	115	195	167	152	136	122	105
R 30	12.5																										
R 60	15 + 12.5		2 x 12.5		15 + 12.5		2 x 12.5		15 + 12.5		2 x 12.5		15 + 12.5		2 x 12.5		15 + 12.5		2 x 12.5		15 + 12.5		2 x 12.5				
R 90	3 x 12.5								2 x 15		3 x 12.5		2 x 15		3 x 12.5		2 x 15		3 x 12.5		2 x 15		3 x 12.5		2 x 15		
R 120	3 x 12.5																										

Universal Beam Encasement																					
	406 x 140 x 39	406 x 140 x 46	406 x 178 x 54	406 x 178 x 60	406 x 178 x 67	406 x 178 x 74	406 x 178 x 74	457 x 152 x 60	457 x 152 x 67	457 x 152 x 74	457 x 152 x 82	457 x 191 x 67	457 x 191 x 74	457 x 191 x 82	457 x 191 x 89	457 x 191 x 98	533 x 210 x 82	533 x 210 x 92	533 x 210 x 101	533 x 210 x 109	533 x 210 x 122
UB Depth	406						457										533				
Section Factor (m ⁻¹)	189	162	143	129	117	106	158	139	125	114	104	128	117	106	98	90	121	109	100	93	84
R 30	12.5																				
R 60	15+ 12.5	2 x 12.5																			
R 90	3 x 12.5			2 x 15				3 x 12.5	2 x 15												
R 120	3 x 12.5																				



1.3 fermacell™ Firepanel A1 column encasement to 550 °C

GENERAL INFORMATION

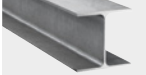
DRY LINING

TIMBER CONSTRUCTION

BEAM AND COLUMN

FIXINGS

FASTENERS

Universal Column encasment																					
	152 x 152 x 23	152 x 152 x 30	152 x 152 x 37	203 x 203 x 46	203 x 203 x 52	203 x 203 x 60	203 x 203 x 71	203 x 203 x 86	254 x 254 x 73	254 x 254 x 89	254 x 254 x 107	254 x 254 x 132	254 x 254 x 167	305 x 305 x 97	305 x 305 x 118	305 x 305 x 137	305 x 305 x 158	305 x 305 x 198	305 x 305 x 240	305 x 305 x 283	
UB Depth		152				203					254						305				
Section Factor (m ²)	208	162	134	139	124	109	93	79	109	91	77	64	52	99	83	72	63	52	44	38	
R 30	12.5																				
R 60	15+ 12.5	2 x 12.5																12.5			
R 90	3 x 12.5		2 x 12.5										15 + 12.5		2 x 15			15 + 12.5		2 x 12.5	
R 120	3 x 12.5																				

Universal Column encasment											
	356x368x129	356x368x153	356x368x177	356x368x202	356x406x235	356x406x287	356x406x340	356x406x393	356x406x467	356x406x551	356x406x634
UB Depth						356					
Section Factor (m ²)	88	75	66	58	52	43	37	33	29	25	22
R 30						12.5					
R 60	2 × 12.5			12.5							
R 90	2 × 15	15 + 12.5				2 × 12.5					
R 120	3 × 12.5										



Fixings

1. Fixing centres

1.1 Partition Wall constructions

Check fixings specification in the NBS for fire rated systems, as these may differ from the standard tables below

Partition wall constructions

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

* Bracketed values apply to boarding with fermacell® Firepanel A1

Note:

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

Partition Wall constructions – Board to board fixing

(Fixing of the 1st board layer as described for a single layer in the adjacent table. 1.1)

Board thickness/Structure	Diverging staples (galvanized and resin-coated) d ≥ 1.5 mm, row spacing ≤ 400 mm			fermacell™ Drywall screws d ≥ 3.9 mm, row spacing ≤ 400 mm		
	Length	Spacing	Use	Length	Spacing	Use
	[mm]	[mm]	[No./m²]	[mm]	[mm]	[No./m²]
Wall area per m² dividing wall						
10 mm fermacell® on 10 or 12.5 mm fermacell®	18–19	150	43	30	250	26
12.5 mm fermacell® on 12.5 or 15 mm fermacell®	21–22	150	43	30	250	26
15 mm fermacell® on 15 mm fermacell®	25–28	150	43	30	250	26
18 mm fermacell® on 18 mm fermacell®	31–34	150	43	40	250	26

Partition Wall constructions lined with fermacell® Powerpanel H₂O

Board thickness/Structure	Substructure	Powerpanel screw *	Spacing [mm]	Use [No./m²]
Metal – 1-layer				
12.5 mm	fermacell™ studs [0.6 mm]	3.9 × 35 mm	250	20
12.5 mm	SFS [0.7–2 mm]	3.9 × 40 mm Drill tip **	250	20
Metal – 2-layer (2nd layer screwed into the substructure)				
1 st layer: 12.5 mm	fermacell™ studs [0.6 mm]	3.9 × 35 mm	400	12
2 nd layer: 12.5 mm	fermacell™ studs [0.6 mm]	3.9 × 50 mm	250	20
1 st layer: 12.5 mm	SFS [0.7–2 mm]	3.9 × 40 mm Drill tip **	400	12
2 nd layer: 12.5 mm	SFS [0.7–2 mm]	3.9 × 40 mm Drill tip **	250	20
Timber – 1-layer				
12.5 mm	≥ 40 × 60 mm	3.9 × 35 mm	250	20
Timber – 2-layer (2nd layer screwed into the substructure)				
1 st layer: 12.5 mm	≥ 40 × 60 mm	3.9 × 35 mm	400	12
2 nd layer: 12.5 mm	≥ 40 × 60 mm	3.9 × 50 mm	250	20

* Corrosion protection: All 3 screw types meet corrosion protection category C4 and can therefore be used for rooms with high humidity loads such as e.g. laundries, breweries, dairies or indoor swimming pools according to EN ISO 12944-2. Verified by salt spray and condensation water constant climate testing to EN ISO 12944-6.

** Powerpanel drill-tip screw

N.B. fermacell™ Steel stud systems must have a C4 corrosion resistance coating for use in swimming pool areas

1.2 Ceiling constructions

Check fixings specification in the NBS for fire rated systems, as these may differ from the standard tables below

Ceiling constructions*

Board thickness/ Sub-Structure	Staples (galvanized and resin-coated) d ≥ 1.5 mm, head width /crown ≥ 10 mm			fermacell™ Drywall screws d = 3.9 mm		
	Length [mm]	Spacing [mm]	Use [No./m²]	Length [mm]	Spacing [mm]	Use [No./m²]
Metal – 1-layer						
10 mm	–	–	–	30	200	22
12.5 mm	–	–	–	30	200	19
15 mm	–	–	–	30	200	17
18 mm	–	–	–	40	200	15
Metal – 2-layer / 2nd layer fixed into the substructure						
1 st layer: 10 mm	–	–	–	30	300	16 [14]*
2 nd layer: 10 mm	–	–	–	40	200	22 [19]*
1 st layer: 12.5 mm	–	–	–	30	300	14
2 nd layer: 12.5 mm	–	–	–	40	200	19
1 st layer: 15 mm	–	–	–	30	300	13
2 nd layer: 12.5 mm or 15 mm	–	–	–	40	200	17
1 st layer: 18 mm	–	–	–	40	300	11
2 nd layer: 15 mm or 18 mm	–	–	–	55	200	15
Metal – 3-layer / 3rd layer fixed into the substructure						
1 st layer: 15 mm	–	–	–	30	300	12
2 nd layer: 12.5 mm	–	–	–	40	300	12
3 rd layer: 12.5 mm	–	–	–	55	200	16
Timber – 1-layer						
10 mm	≥30	150	30	30	200	22
12.5 mm	≥35	150	25	30	200	19
15 mm	≥44	150	21	40	200	17
18 mm	≥50	150	19	40	200	15
Timber – 2-layer / 2nd layer fixed into the substructure						
1 st layer: 10 mm	≥30	300	16	30	300	16
2 nd layer: 10 mm	≥44	150	30	40	200	22
1 st layer: 12.5 mm	≥35	300	14	30	300	14
2 nd layer: 12.5 mm	≥50	150	25	40	200	19
1 st layer: 15 mm	≥44	300	13	40	300	13
2 nd layer: 12.5 mm or 15 mm	≥60	150	23	40	200	17
1 st layer: 18 mm	≥44	300	11	40	300	11
2 nd layer: 15 mm or 18 mm	≥60	150	21	55	200	15
Timber – 3-layer / 1st or 3rd layer fixed into the substructure						
1 st layer: 15 mm	–	–	–	40	300	12
2 nd layer: 12.5 mm	–	–	–	40	300	12
3 rd layer: 12.5 mm	–	–	–	55	200	16

* Bracketed values apply to boarding with fermacell® Firepanel A1

Note:

- For 4-layer constructions with 10 mm fermacell® gypsum fibre board sheathed wall constructions, the last board layer can be fixed directly in the substructure with the fermacell™ drywall screw 3.9 × 55 mm.
- For ceiling constructions with specific fire protection requirements, refer to the fixing centres stated in the respective test certificates.
- For fixing the 10 mm, 12.5 mm or 15 mm fermacell® gypsum fibre boards to reinforced metal substructures of up to 2 mm material thickness, fermacell™ drill tip screws 3.5 × 30 mm can be used. The use is approx. 5 screws per linear meter of steel section.
N.B for double layer requirements use the 40 mm Powerpanel drill tip screws for the outer layer - maximum fixing spacing 200 mm.

Ceiling constructions – Board-to-board fixing*

Fix the 1st layer of board as described for a single layer solution in the table above.

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

Ceiling constructions with fermacell® Powerpanel H₂O

Board thickness/Sub- Structure	Substructure (gauge in mm)	Powerpanel screw *	Spacing [mm]	Use [No./m ²]
Metal – 1-layer				
12.5 mm	CD [0.6 mm]	3.9 × 35 mm	200	19
Metal – 2-layer (2nd layer fixed into the substructure)				
1 st layer: 12.5 mm	CD [0.6 mm]	3.9 × 35 mm	300	14
2 nd layer: 12.5 mm	CD [0.6 mm]	3.9 × 50 mm	200	19
Timber – 1-layer				
12.5 mm	≥48 × 24 mm	3.9 × 35 mm	200	19
Timber – 2-layer (2nd layer fixed into the substructure)				
1 st layer: 12.5 mm	≥48 × 24 mm	3.9 × 35 mm	300	14
2 nd layer: 12.5 mm	≥48 × 24 mm	3.9 × 50 mm	200	19

* Corrosion protection: All 3 screw types meet corrosion protection category C4 and can therefore be used for rooms with high humidity loads such as e.g. laundries, breweries, dairies or indoor swimming pools according to EN ISO 12944-2. Verified by salt spray and condensation water constant climate tests to EN ISO 12944-6.

N.B. Steel ceiling systems must have a C4 corrosion resistance coating for use in in swimming pool areas

Fixings

2. Substructure Spacing

2.1 fermacell® fibre gypsum or fermacell® Firepanel A1 boards

Area of application/ Construction type	Max. spacing centres of the substructure in mm for different thicknesses of fermacell® fibre gypsum boards or Firepanel A1 boards				
	10 mm	2 × 10 mm	12.5 mm	15 mm	18 mm
Vertical surfaces (partition walls, wall linings)	500	500	625	750	900

Area of application/ Construction type	Installation situation Usage class: relative humidity	Max. spacing centres support joists / battens / section in mm for different thicknesses of fermacell® fibre gypsum boards or Firepanel A1 boards			
		10 mm	12.5 mm	15 mm	18 mm
Ceilings, roofs and suspended ceiling linings ³⁾	Rooms for normal domestic use ¹⁾	420	500	550	625
	Areas subject to temporary higher humidity ²⁾	335	420	500	550

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

²⁾ e.g. when applying wet screed or plaster or when exceeding the aforementioned installation condition, N.B. not for use in 'wet rooms'

³⁾ The specified centre spans apply regardless of the fixing direction.

Ceiling linings must not be subjected to additional loads (e.g. insulating materials).

2.2 fermacell® Powerpanel H₂O

Area of application/ Construction type	Max. spacing centres of the substructure in mm for fermacell® Powerpanel H ₂ O	
	12.5 mm	
Vertical surfaces (Partition walls, wall linings)	625	
Horizontal surfaces and roof pitches (Suspended ceilings, ceiling linings)	500	

1. Load carrying capability

fermacell® can also be used as a Pattress for dead loads, please see the separate fermacell data-sheet for this information.

Light and medium weight dead loads *

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

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

** Follow installation instructions of toggle bolt manufacturer.

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

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

Lightweight wall-mounted loads

Picture hook with nail fixing *	Permissible load per fixing in kg for different fermacell® fibre gypsum board thicknesses ** (100 kg = 1 kN)				
	10 mm	12.5 mm	15 mm	18 mm	10 + 12,5 mm
	15	17	18	20	20
	25	27	28	30	30

* Failure load of hooks depends on make.

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

Fixing to ceilings*

Loads fixed to ceilings with tilting or spring-loaded toggles		Permissible load per single suspension in kg for different fermacell® fibre gypsum board thicknesses *** (100 kg = 1 kN)					
		10 mm	12.5 mm	15 mm	10 mm + 10 mm	12.5 mm + 12.5 mm	12.5 mm H ₂ O
Spring-loaded toggle**							
Tilting anchor**		20	22	23	24	25	22

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

** Follow installation instructions of toggle manufacturer.

*** Maximum support centres = ≤ 35 × board thickness.

Ensure any additional loads have been taken into account with the substructure.
Ensure fixings do not interfere with any fire protection requirements.

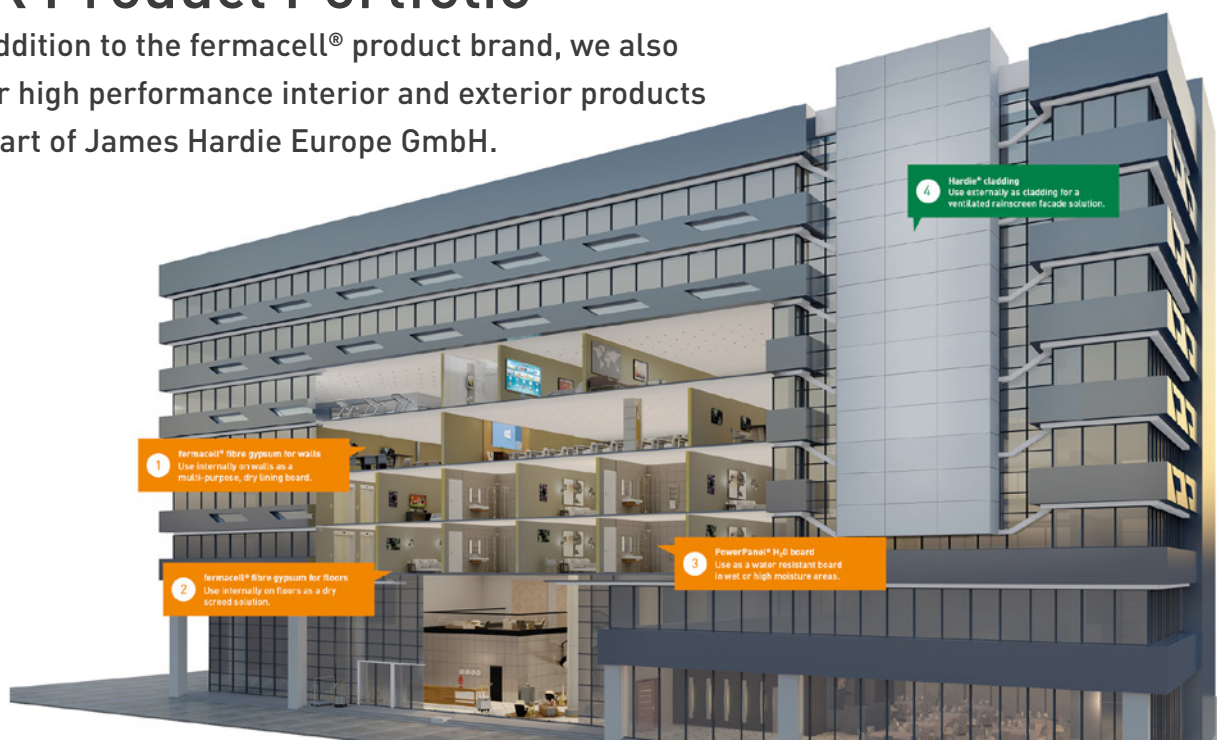
Maximum tile weights

Maximum recommended tiles weight	
	kg/m ²
fermacell® Gypsum Fibreboards	35
fermacell® Powerpanel H ₂ O	50

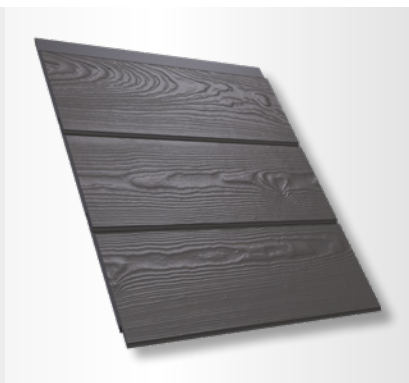
* Reduce stud centres as required, dependant on tile substrate requirements.

UK Product Portfolio

In addition to the fermacell® product brand, we also offer high performance interior and exterior products as part of James Hardie Europe GmbH.



Hardie® Panel fibre cement cladding is a non-combustible A2 rainscreen cladding. The product comes in a smooth texture with 5 colours available and custom colour – making it a smart solution for any project.



Hardie® VL Plank cladding epitomises architectural modern design, perfect for both horizontal and vertical installation. The clip-less system is 20 % faster to install than comparable interlock solutions.



fermacell™ dry flooring systems offer a quick and easy to install, twin layered interlocked floating floor which can be used in a variety of applications.



fermacell® Powerpanel H2O is ideal for use in spas and swimming pool areas to protect tiles and grout, as well as a render carrier board to external walls, cladding and soffits.



Hardie® Backer tile backer board is the strongest tile backer board in the market, with a tile hanging weight of 100 kg/m². From granite to stone, even the largest format tiles are secure on our engineered substrate.

For more information or to book a RIBA accredited CPD, visit our website:
www.fermacell.co.uk
www.jameshardie.co.uk



Explanation of footnotes

Important general notice:

All load-bearing parts of the structures specified in this overview (e.g. vertical wall members for load-bearing walls, ceiling girders, upper sheathing of timber beam ceilings, etc.) must be structurally verified. Approvals Z-9.1-434 and ETA 03/0050 are available for the static use of fermacell® gypsum fibre boards. For all components (walls and roofs) used as outer building envelopes, the absence of condensation must be verified.

Walls and wall claddings

1. Mineral wool with length-related flow resistance according to DIN EN 29053 $\geq 5 \text{ kPa} \cdot \text{s/m}$ may also be used for sound insulation only.
 4. R_w Evaluated sound reduction index based on a measurement in a test without flank transmission.
 6. The specified values apply to two identical walls fixed at a distance of approx. 30 mm apart.
 9. Wall thicknesses, height specifications and physical characteristic properties apply to steel twin stud walls whose CW/UW sections are installed parallel to each other and acoustically decoupled with isolation strips (e.g. self-adhesive felt strips).
 10. Wall thicknesses, height specifications and physical characteristic properties apply to steel twin stud walls whose CW/UW sections are installed separately and parallel to each other, i.e. have no connection with each other.
 11. Wall thicknesses, heights and physical characteristic properties apply to twin stud walls whose CW/UW sections are arranged parallel to each other and whose CW stud sections are braced at $\leq 1/3$ wall height through suitable brackets or plate strips.
 12. The evaluated standard flank sound level difference $D_{n,w}$ in dB characterizes the sound transmission of this lightweight wall as a flanking component. The specified values apply to continuous sheathing. If the sheathing is interrupted, improvement in the longitudinal sound insulation level of approx. 4 dB can be achieved with single-layer sheathing and approx. 3 dB with double-layer sheathing. If two values are given, the larger value applies if the separating component is arranged on the side with the most sheathing layers.
 16. The listed airborne sound improvement figures ΔR_w of the individual constructions apply to independent wall linings and are singular figures for showing the airborne sound improvement of rigid solid walls.
 17. The mineral wool is installed with the board to one side or the room side of the free-standing steel substructure. Otherwise, design according to the test certificate or assessment report.
- The values were calculated on the basis of DIN EN ISO 10140 - Part 1 and Part 5 in front of a "solid wall" (density $350 \pm 50 \text{ kg/m}^3$) kg/m^2 .
18. Support of console /dead loads in kN with cavity/rear engaging anchors or screws at any point (neutral under construction) directly on the sheathing. N.B. Live loads require additional pattressing/support.
 19. Independent linings, shaft walls and free-standing constructions that have an F-classification from both sides, act independently in terms of fire protection and can serve to improve the airborne sound insulation of the existing sub-structure. They are fixed from the room side. If the substructure is tied back to the main structure (e.g. direct bracing by brackets or angles), greater build heights can be achieved depending on the type and design. However, changes in sound and fire protection properties must be taken into account.
 20. The specified thermal resistance ($\text{m}^2\text{K/W}$) applies exclusively to the wall linings. The structure to be clad is not taken into account for this value.
 21. The heights of the wall linings are not limited. This requires the lining support frame to be fixed back with suitable fasteners that meet the structural loading requirements of the component to be clad. A guidance limitation of the maximum installation of height 8000 mm is used to coincide with the expansion guidance of 8 linear meters.
 23. Unless otherwise indicated, the specified heights apply to a substructure with a stud spacing of max 600 mm, with all board layers fixed directly into the substructure. Greater heights with reduced stud centres are possible upon request.

Roof constructions and suspended ceilings

41. Insulating layers are not permitted for ceiling/roof constructions that must be installed without mineral wool in regard to fire protection. For ceiling/roof constructions which can be installed without or with at least a B 2 insulating materials, insulating layers to improve sound and heat insulation without impairing the fire protection properties (F 30-F 120) are allowed.
44. The information on the respective construction height of the suspended ceiling or ceiling cladding applies to the sheathing layers incl. substructure of base and supporting sections (without suspension) as well as to the insulation layers - with the exception of the wooden beam ceilings (Section 9.5, 9.6) and roof constructions (Section 9.7). The height indicated from/to lower edge of beams or rafters applies here.
46. The maximum allowable span of the sheathing applies to the centre spacing of the supporting sections or supporting lathing/battens to which the sheathing is mechanically fixed.
48. Fire protection requirements can be achieved from above by means of fermacell dry flooring layers - refer to fermacell Flooring® Guide.
49. Values apply to lower ceiling/roof cladding incl. supporting sections and required insulation layer.

Floors

61. The increase in the allowable single point load is achieved by gluing and fixing an additional "3rd layer" of 10 mm thick fermacell® gypsum fibre boards over the flooring elements. Details can be found in the corresponding fermacell installation instructions.
62. For fire protection requirements, mineral wool edge isolation strips with a melting point of $\geq 1000^\circ\text{C}$ must be installed.
63. The fermacell® flooring elements floor constructions listed are classified in the corresponding fire resistance class in accordance with DIN 4102 and offer this for 5 different floor types. This needs to be considered with a subfloor installed in accordance with fermacell® flooring elements installation instructions.
64. If the basic fermacell® flooring elements are installed directly to load-bearing subfloors, the permissible single point load increases to 3.0 kN for 2 E 11 and to 4.0 kN for 2 E 22. Accordingly, the scope of application is extended to area 3 for 2 E 11 and area 4 for 2 E 22.
65. If the thickness of the insulating layer needs to be increased due to higher thermal insulation requirements, this can be achieved with appropriate insulating materials according to the fermacell® flooring elements installation instructions.
68. Single loads (with a surface bearing area $\geq 20 \text{ cm}^2$) may be set out at intervals of at least 500 mm. The distance from corners must be $\geq 250 \text{ mm}$ or the load area must be increased to 100 cm^2 . The sum of the single loads must not exceed the maximum allowable surface load capacity.

Note:

The respective verifications must be observed for all system. If anything is unclear, please check with our Technical Department for clarification.

Abbreviations

- ABP: General constructional test certificate
- ABZ: General constructional authorisation
- PB: Test report
- KB/CR: Classification report
- GA: Expert report
- ETA: European Technical Assessment
- European Technical Approval

You can find the latest version of this digital brochure on our website. Subject to technical modifications.
As at 07/2023

For further support, please contact the UK specification team or our technical specialists via the contact form on our website.

© 2023 James Hardie Europe GmbH.
™ and ® denote registered and unregistered trademarks of James Hardie Technology Limited and James Hardie Europe GmbH.

James Hardie Building Products Ltd.

7 The Priory
Old London Road
Canwell
Sutton Coldfield
B75 5SH
Tel: 0121 311 3480
Email: info@jameshardie.co.uk and
Technical Support on technical-uk@jameshardie.com
www.fermacell.co.uk

fer-090-00032/07.23/m

