

++dB47++dB52++dB64

EI 120
90
60
30

fermacell® Orange Book

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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

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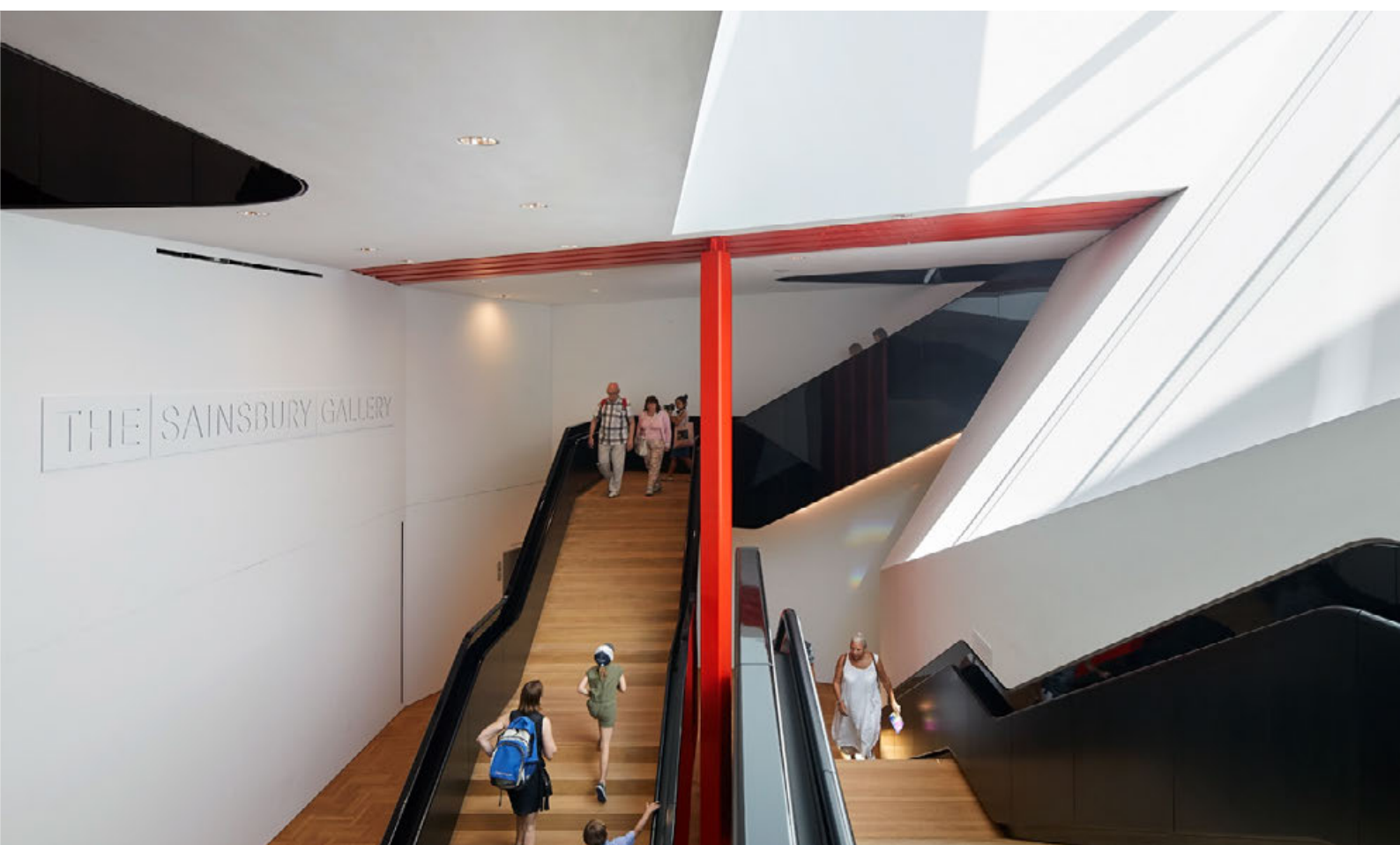
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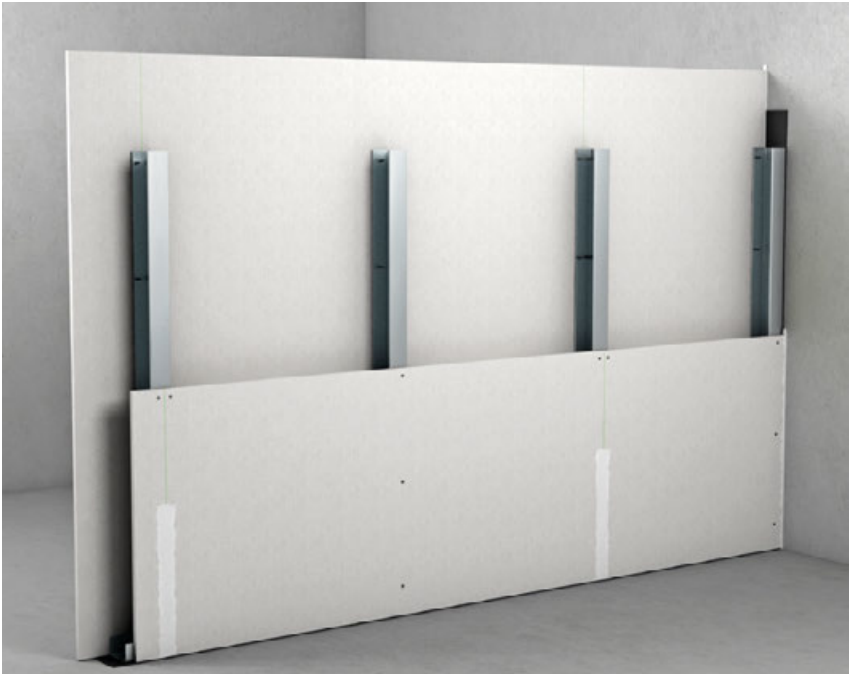
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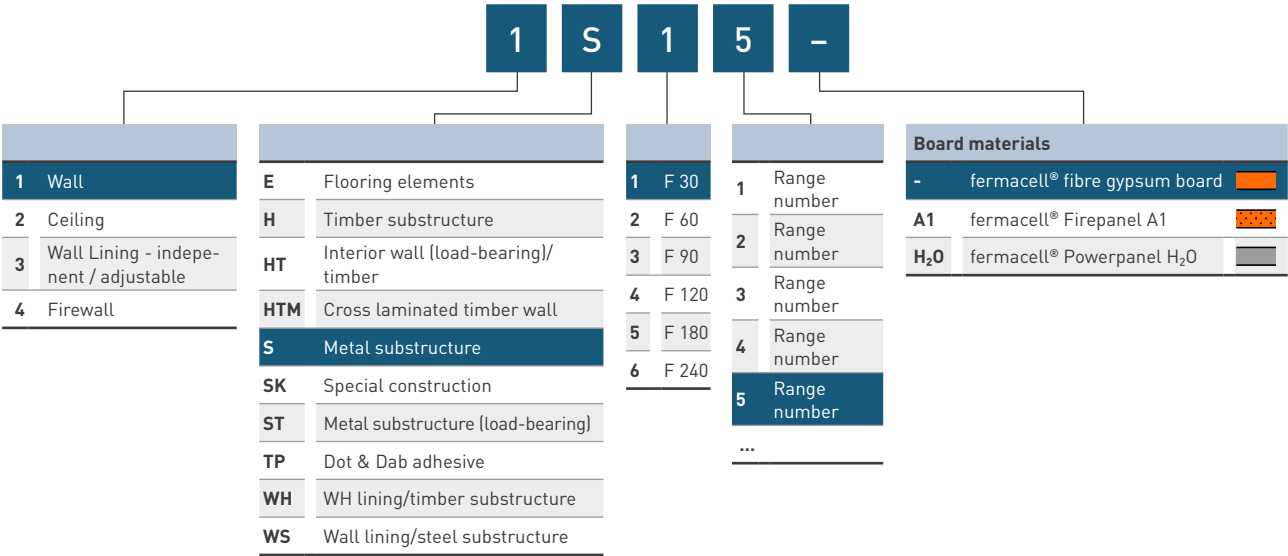


General information

1. Construction key

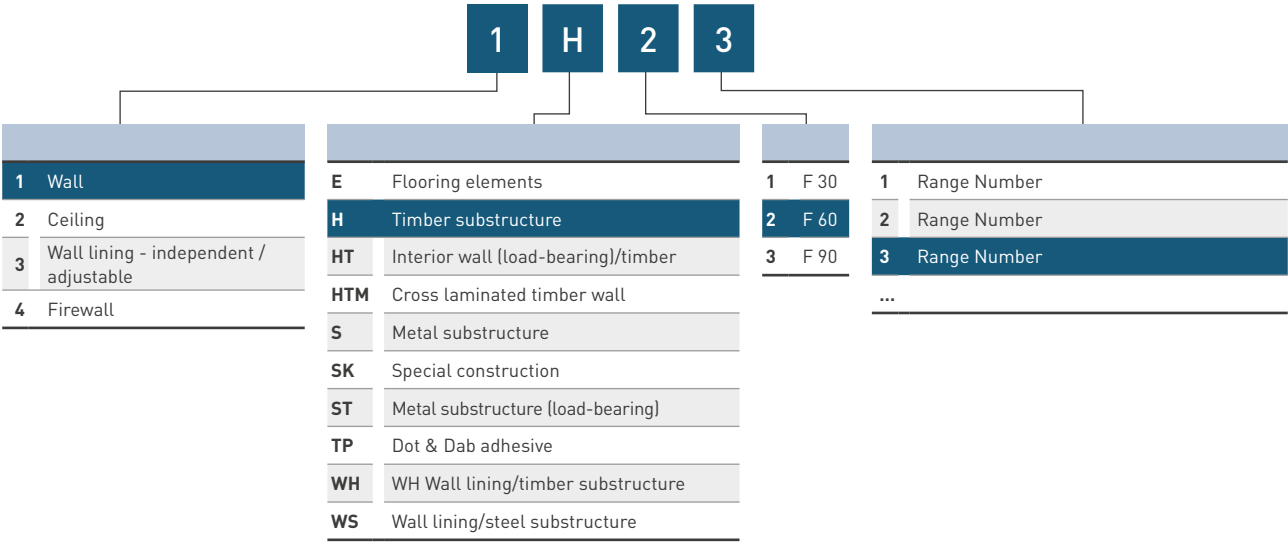


1 S 15 fermacell partition wall	
12.5 mm	fermacell® fibre gypsum board
75 mm	fermacell™ steel stud profile
12.5 mm	fermacell® fibre gypsum board





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)	0.25 mm/m
Moisture content equilibrium at 65 % relative humidity and 20 °C air temperature	1.3 %
pH value	7–8
Usage class according to EN 1995-1-1	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 *

1 200 × 800	●	●		
1 500 × 1 000	●		●	●
2 400 × 1 200	●	●	●	●
2 500 × 1 200	●	●	●	●
2 600 × 1 200	●	●	●	●
2 700 × 1 200	●	●	●	●
3 000 × 1 200	●	●	●	●

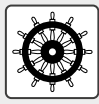
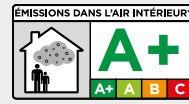
Special cut size boards are available upon request

Tapered edge Size in mm

2 400 × 1 200	●	●	●	
3 000 × 1 200	●	●	●	

* 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	0.25 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	10 mm	12.5 mm	15 mm
Approx. weight per m ²	12 kg	15 kg	18 kg

Sizes in mm *			
1500 × 1000		●	
2000 × 1250	●	●	●

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



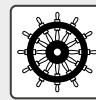
Thickness	Description	Size	UDL / Live load	Thermal resistance	Building material
	Insulating material	[mm]	(kN/m ²)	(m ² K/W)	according to DIN EN 13501
Dry screed overlay					
 20 mm	2 E 11 (EE 20)	 1 500 × 500	0.23	0.06	A ₂ _{fl} -s1
25 mm	2 E 22 (EE 25)	1 500 × 500	0.29	0.08	A ₂ _{fl} -s1
Acoustic overlay (WF) with wood fibre boards of 10 mm thickness					
 30 mm	2 E 31 (EE 20 WF 10)	 1 500 × 500	0.25	0.26	B _{fl} -s1
35 mm	2 E 33 (EE 25 WF 10)	1 500 × 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
Nutzungskategorie in Bezug auf Witterungsbeständigkeit gemäß EN 12467	A, B, C, D

Technical Characteristics in relation to board thickness

Thickness	12.5 mm
Approx. weight per m ²	12.5 kg

Sizes in mm *

1 200 × 1 000	●
2 600 × 1 250	●
3 010 × 1 250	●

* Additional Sizes and thicknesses upon request

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

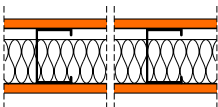
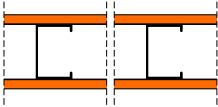
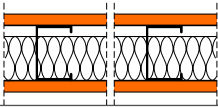
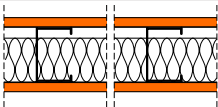
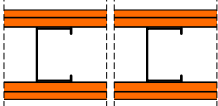
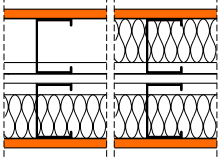
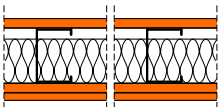
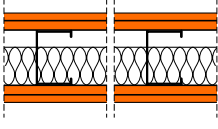
Dimensional tolerances for standard board sizes at constant humidity

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

1. Walls

1.1 Partition walls

fermacell® fibre gypsum board

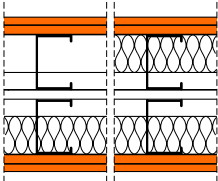
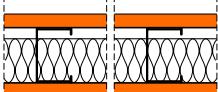
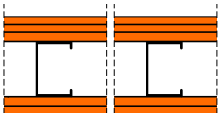
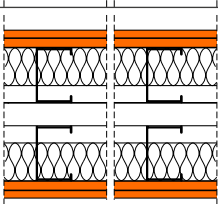
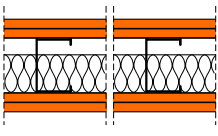
System reference	System drawing	Wall thickness	Substructure (max. 600 mm centres, unless shown differently)	Boarding per side	Mineral wool ⁽¹⁾ Thickness / density	
		[mm]	[Stud & Track]	[mm]	[mm]/[kg/m ³]	
1 S 11		75	50×0.6	12.5	40/40	
		100	75×0.6	12.5	40/40, 60/30, 70/30	
		125	100×0.6	12.5	40/40, 60/30, 70/30	
		150	125×0.6	12.5	40/40, 60/30, 70/30	
		175	150×0.6	12.5	40/40	
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 15/2		110	75×0.6	15	60/20	
		135	100×0.6	15	60/20	
		160	125×0.6	15	60/20	
1 S 21		75	50×0.6	12.5	40/45	
		100	75×0.6	12.5	40/45 or 60/30	
		125	100×0.6	12.5	40/45 or 60/30	
		150	125×0.6	12.5	40/45 or 60/30	
		175	150×0.6	12.5	60/30	
1 S 22		125	75×0.6	12.5 + 10	none	
		150	100×0.6	12.5 + 10	none	
		175	125×0.6	12.5 + 10	none	
1 S 25		≥ 180 ⁽¹⁰⁾	2×75×0.6	12.5	2×60/30	
		≥ 180 ⁽¹⁰⁾	2×75×0.6	12.5	70/30	
		≥ 230 ⁽¹⁰⁾	2×100×0.6	12.5	2×60/30	
		≥ 280 ⁽¹⁰⁾	2×125×0.6	12.5	2×60/30	
1 S 29		85	50×0.6	12.5 & 12.5 + 10	40/45 or 60/30	
		110	75×0.6	12.5 & 12.5 + 10	40/45 or 60/30	
		135	100×0.6	12.5 & 12.5 + 10	40/45 or 60/30	
		160	125×0.6	12.5 & 12.5 + 10	40/45 or 60/30	
1 S 31		100	50×0.6	2×12.5	50/12 glasswool	
		120(125)	75×0.6	12.5 + 10 or 2×12.5	40/50	
		125	75×0.6	2×12.5	50/12 glasswool	
		145	100×0.6	2×12.5	80/30	
		150	100×0.6	2×12.5	50/12 glasswool	
		170	125×0.6	2×12.5	80/30	
		175	125×0.6	2×12.5	50/12 glasswool	

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/m ²]	[dB]	[dB]				
	EN BS				EN	BS		
3430	4000 3320	34	48	59	EI30	F 30	PGA10341	PG10934 ISIB20011-A-116 07-U-067 PB 3.2/12-027-1 PR 18-2.022 WF 306268
5370	4000 4650	34	52-54	59	EI30	F 30		
7760	4000 5890	36	52-54	59	EI30	F 30		
10220	4000 6840	36	52-54	59	EI30	F 30		
11960	4000 8070	37	52-54	59	EI30	F 30		
3430	- 3420	31	41	55	-	F30	Pr-18-2.168	ISIB 2011-A-116 PG10934 WF 306268
5370	4000 4750	32	43	55	EI30	F30		
7760	4000 5980	33	43	55	EI30	F30		
10220	4000 7030	34	43	55	EI30	F30		
5370	- 3700	44	49-with insulation	55	-	F60	WF 306268	WF 306268
7760	- 4750	45	49-with insulation	55	-	F60		
10220	- 5600	46	49-with insulation	55	-	F60		
3430	- 2750	33	48	59	EI60	F 60	TNO 2006-CVB-R0043	TNO 2006-CVB-R0195 TNO 2006-CVB-R0448 ISIB 2011-A-116 WF 306268
5370	4000 3890	33	52-54	59	EI60	F 60		
7760	4000 5030	34	52-54	59	EI60	F 60		
10220	4000 5980	34	52-54	59	EI60	F 60		
11960	4000 7030	36	52-54	59	EI60	F 60		
5370	4000 3800	63	52	59	E60	F60	P102535	WF 306268
8000	4000 4840	63	54	59	E60	F60		
11000	4000 5600	64	54	59	E60	F60		
3820	4000 3820	35	64	59	EI60	F 60	TNO 2005-CVB-R0408	WF 306268
3820	4000 3820	34	60	59	EI60	F 60		
5300	4000 5030	37	68	59	EI60	F 60		
6730	4000 5980	37	68	59	EI60	F 60		
3430	- 2470	46	50	59	-	F 60	PGA10341	PG10934 ISIB20011-A-116 07-U-067 PB 3.2/12-027-1 PR 18-2.022 WF 306268
5370	4000 3510	46	56	59	EI60	F 60		
7760	4000 4560	47	57	59	EI60	F 60		
10220	4000 5410	47	57	59	EI60			
5050	4000 -	62	59	64	EI90	-	PK2-05-19-002-E-0	PG 11026 & WF 306268 PK2-05-19-002-E-0 & WF 306268 PB111/B-0-137 & WF 306268 PK2-05-19-002-E-0 & WF 306268 PB111/B-0-137 & WF 306268 PK2-05-19-002-E-0 & WF 306268
8410	4000 3130	64	62	64	EI90	F 90		
8410	4000 -	62	62	64	EI90	-		
11530	8000 4080	64	62	64	EI90	F 90		
11530	4000 -	62	62	64	EI90	F 90		
11960	8000 4750	64	62	64	EI90	F 90		
11960	4000 -	62	62	64	EI90	-		

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⁾ Thickness / density	
		[mm]	[UW – CW]	[mm]	[mm]/[kg/m ³]	
1 S 32		≥ 155 ⁽¹⁰⁾	2×50×0.6	2×12.5 or 12.5+10	50/50 or 60/30	
		≥ 205 ⁽¹⁰⁾	2×75×0.6	2×12.5 or 12.5+10	50/50 or 60/30	
		≥ 255 ⁽¹⁰⁾	2×100×0.6	2×12.5 or 12.5+10	50/50 or 60/30	
		≥ 305 ⁽¹⁰⁾	2×125×0.6	2×12.5 or 12.5+10	50/50 or 60/30	
		≥ 355 ⁽¹⁰⁾	2×150×0.6	2×12.5 or 12.5+10	50/50 or 60/30	
1 S 33		111 ⁽¹⁰⁾	75×0.6	18	50/50	
		136 ⁽¹⁰⁾	100×0.6	18	50/50	
1 S 35		145	75×0.6	12.5+2×10	none	
		170	100×0.6	12.5+2×10	none	
		195	125×0.6	12.5+2×10	none	
1 S 36		210 ⁽¹⁰⁾	2×75×0.6	12.5+10	2×60/30	
		280 ⁽¹⁰⁾	2×100×0.6	12.5+10	2×60/30	
1 S 41		105	50×0.6	15+12.5	40/50	
		130	75×0.6	15+12.5	60/50	
		155	100×0.6	15+12.5	60/50	
		180	125×0.6	15+12.5	60/50	
		205	150×0.6	15+12.5	60/50	

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							
2910	– 2750	62	64	59	–	F 90		EW 306268
4460	– 3800	64	64	59	–	F 90		
6020	– 4750	66	64	59	–	F 90		
7500	– 5600	67	64	59	–	F 90		
9120	– 6550	67	64	59	–	F 90		
5370	4000 3420	50	57	59	EI90	F 90		WF 152808 & WF 306268
7760	4000 4460	50	57	59	EI90	F 90		
8410	4000 5410	79	60	60	EI90	F 90		PB 3055/1703 KR 3400/3676-MPA-BS WF 306268
11960	4000 6740	80	62	60 (interpolated)	EI90	F 90		
11960	4000 7790	81	62	60	EI90	F 90		
4460	– 3130	74	70	64	–	F 90		WF 306268
6020	– 4080	74	70	65	–	F 90		
5050	4000 2090	69	59	64	EI120	F 120		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 3040	69	62	64	EI120	F 120		
11530	4000 3890	70	62	64	EI120	F 120		
11960	4000 4560	70	62	64	EI120	F 120		
11960	4000 5410	70	62	64	EI120	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⁾ Thickness / density	
		[mm]		[mm]	[mm] / [kg/m³]	
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		75	50 × 0.6	12.5 fibre gypsum and 12.5 Powerpanel H ₂ O	≥ 40/glass wool	
		100	75 × 0.6		≥ 40/glass wool	
		125	125 × 0.6		≥ 40/glass wool	
1 S 13 H ₂ O		110	75 × 0.6	12.5 fibre gypsum and 12.5 Powerpanel H ₂ O	60/25	
		135	100 × 0.6		60/25	
1 S 14 H ₂ O		100	75 × 0.6	12.5 Powerpanel H ₂ O	40/glass wool	
		125	100 × 0.6	12.5 Powerpanel H ₂ O	40/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 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 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 42 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	

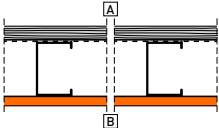
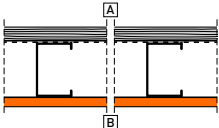
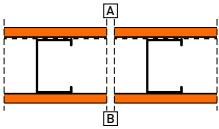
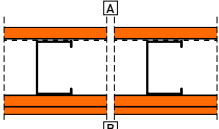
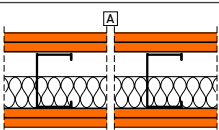
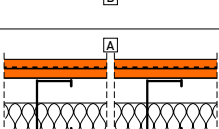
For swimming pool areas steel components must be protected with a minimum C4 corrosion protection coating.

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	[kg/m ²]	[dB]	[dB]		
3000	–	29	49 (with insulation)	59	–	–
4000	4000	33	> 48	59	EI30	3420/035/07
4000	4000	33	51	59	EI30	3411/835/07
4000	4000	33	> 51	59	EI30	KR-3247/500/07-MPS-BS
4000	4000	48	56	59	EI30	3420/035/07
4000	4000	48	56	59	EI30	3411/835/07
						K-3247/500/07-MPS-BS
						PB: 3813-7536-Schm
						PB: P-V C n° 07-U-067 (CR)
4000	3000	27	49	59	EI30	3144/03414 MPA BS
4000	3000	27	49	59	EI30	KB: K-3708/608/14
4000	4000	29	41	59	EI30	3420/035/07
4000	4000	29	41	59	EI30	3411/835/07
						K-3247/500/07-MPA-BS (CR)
4000	4000	55	57	64	EI90	3605/4995-Ap-MPA-BSK
5300	4000	55	57	64	EI90	3419/4066-MPA-BS
4000	4000	59	≥ 41	64	EI90	3107/632/07 Schm-MPA-BSK
4000	4000	59	≥ 41	64	EI90	3265-518-07-MPA-BS
4000	3000	60	60	64	EI120	3636-5005K-3420-4076 (CR)
4000	3000	60	60	64	EI120	

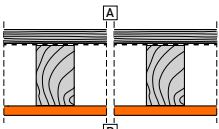
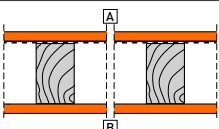
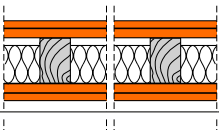
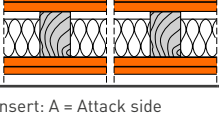
1. Walls

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	75×0.6 softwood studs	max 600 c/c - with 75×50 noggins at ***c/c	18 mm Plywood	12.5
1 H 13-SW		102	75×0.6 softwood studs	max 600 c/c - with 75×50 noggins at ***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⁾ Thickness / density	Steel sheet / mesh Attack side	Steel sheet / mesh Inner side	Wall side	Resistance class
[mm]/[kg/m ³]	[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	1 × 0.5	A + B	RC3

Mineral wool ⁽¹⁾ Thickness / density	Steel sheet / mesh Attack side	Steel sheet / mesh Inner side	Wall side	Resistance class
[mm]/[kg/m ³]	[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⁾ Thickness / density
		[mm]		[mm]	[mm]/[kg/m ³]
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		
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	70/30
		130	100×0.6	2×15	70/30
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⁾ Thickness / density
		[mm]	[UW – CW]	[mm]	[mm]/[kg/m ³]
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		

Maximum wall height [mm] ⁽²³⁾ Fire protection requirements				Mass per unit area [kg/m ²]	Airborne sound Improvement ΔR_w ⁽¹⁶⁾ [dB]		Flanking sound insulation $D_{n,f,w}$ ⁽¹²⁾ [dB]		Fire rating (mins)		Fire test & classification reports
non-fire rated	fire rated								EN	BS	
		EN	BS								
2520	–	–	–	20	20		≥ 59 (with insulation)		–	–	–
3820	–	–	–	20	20		≥ 59 (with insulation)		–	–	–
5300	–	–	–	20	20		≥ 59 (with insulation)		–	–	–
4000	4000	–	–	22	> 22		> 64		EI30	–	18-2.03418-2.162
2910	4000	–	–	32	> 22 (with insulation)		> 59 (with insulation)		EI30	–	3725/8503 3813/7536
4460	4000	–	–	32	> 22 (with insulation)		> 59 (with insulation)		EI30	–	K-3401/3686
4460	4000	–	–	36	> 22 (with insulation)		64 (with insulation)		EI60	–	LP-764.1-06 LP-764.2-06
6020	4000	–	–	36	> 22 (with insulation)		64 (with insulation)		EI60	–	1382/20/Z00NZP
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 [kg/m ²]	Airborne sound Improvement measure ΔR_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								EN	BS	
		EN	BS								
4460	4000	–	–	41	–	≥ 22	59	64	EI60	–	PB 3.2/10-048-1 PB 3.2/10.088-1 KB 3.2/11-035-3
6020	4000	–	–	41	–	≥ 22	59	64	EI60	–	PB 3.2/10-048-1 PB 3.2/10.088-1 KB 3.2/11-035-3
4460	4000	–	–	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 [kg/m ²]	Airborne sound Improvement ΔR_w ⁽¹⁶⁾ [dB]		Flanking sound insulation $D_{n,f,w}$ ⁽¹²⁾ [dB]		Fire rating (mins)		Fire test & classification reports
non-fire rated	fire rated								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 ⁽¹¹⁾ Thickness / density	
		[mm]		[mm]	[mm]/[kg/m³]	
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 ⁽¹¹⁾ Thickness / density	
		[mm]		[mm]	[mm]/[kg/m³]	
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/m³]	
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	

Maximum lining [mm] ⁽²¹⁾		Mass per unit area	Thermal resistance ⁽²⁰⁾	Flanking sound insulation $R_{Lw,R}^{(12)}$
		[kg/m ²]	[m ² K/W]	[dB]
	8000	17	0.53	57
	8000	20	1.28	57
	8000	32	0.57	62
	8000	35	1.31	62

Maximum lining height [mm]		Mass per unit area	Thermal resistance	Flanking sound insulation $R_{Lw,R}$
		[kg/m ²]	[m ² K/W]	[dB]
	8000	14.5	n/a	57
	8000	17.5	n/a	57
	8000	27	n/a	62
	8000	30	n/a	62

Maximum lining height [mm]		Mass per unit area	Flanking sound insulation $R_{Lw,R}$
		[kg/m ²]	[dB]
	8000	16	57
	8000	16	57
	8000	17	57
	8000	32	61
	8000	33	61
	8000	34	61

4. Ceilings

4.1 Suspended ceilings

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)									
UO (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 60×0.6	85		varies	
2 S 31 A1		Suspended ceiling	from below		Steel CD 60×0.6	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 H₂O		Suspended ceiling	N/A		Steel CD 60×0.6	approx. 70		varies	
2 S 11 H₂O		Suspended ceiling	from below	from below as well as from above	Steel CD 60×0.6	80	136	varies	
U (from below)									
UO (from above)									
2 S 12 H₂O		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.

* 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.
Always check with the JamesHardie technical support team.

Boarding	Board support spacing (max)	Mineral wool Thickness / density		Mass per unit area		Fire protection EN	Fire test reports
[mm]	[mm]	[mm]/[kg/m ³]		[kg/m ²]			
2 × 10	≤ 350	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/m ³]		[kg/m ²]			
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/m ³]		[kg/m ²]			
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⁾	
		[mm]	Timber stud (max. 600 mm centres)	Head & Base plates	[mm]	Thickness / density	
1 H 11		114	89 × 38	89 × 38	12.5	90/10	
1 H 15		≥ 233	2 × 89 × 38 30 mm air gap	2 × 89 × 38	12.5	2 × 90/10	
1 H 21		130	89 × 38	89 × 38	2 × 12.5	90/10	
1 H 22		114	89 × 38	89 × 38	12.5	70/35	
1 H 24		240	2 × 89 × 38 ≥5 mm air gap	2 × 89 × 38	12.5	2 × 70/35	
1 H 26		105	72 × 44	72 × 44	12.5 + 10	90/10	
		125	89 × 38	89 × 38	12.5 + 10	90/10	
1 H 29		124	89 × 38	89 × 38	12.5 & 12.5 + 10	70/35	

fermacell® fibre gypsum board – without insulation

System reference	System drawing	Wall thickness	Substructure		Boarding per side	Mineral wool ⁽¹⁾	
		[mm]	Timber stud (max. 600 mm centres)	Head & Base plate	[mm]	Thickness / density	
1 H 13		115	89 × 38	89 × 38	12.5	none	
		96	72 × 44	72 × 44	15	none	

fermacell® Powerpanel H₂O

System reference	System drawing	Wall thickness	Substructure		Boarding per side	Mineral wool ⁽¹⁾	
		[mm]	Timber stud	Head & Base plate	[mm]	Thickness / density	
1 H 21 H ₂ O		85	60 × 40	60 × 40	12.5 Powerpanel H ₂ O	60/25	
		105	89 × 38	89 × 38	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	34	44	59	EI30	–	GA 2100/086/17 MPA BS GA 3368/618/14 MPA BS
3 100	41	57	63	EI30	–	WF 174181
3 100	68	51	63	EI60		WF 174182
4 000	38	44	59	EI60	–	WF 14777A & B
4 000	43	57	63	EI60	–	WF 14777A & B
3 200	64	51	63	EI60	F60	WF 14777A & B WF 174182
3 200	64	51	63	EI60	F60	WF 385716
4 000	53	51	53	EI60	F60	WF 1477A & B

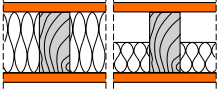
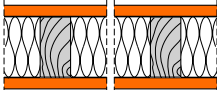
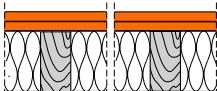
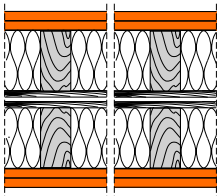
Maximum wall height [mm] ⁽²³⁾	Mass per unit area	Airborne sound insulation R_w	Flanking sound insulation $D_{n,f,W}$ ⁽¹²⁾	Fire protection		Fire test & classification reports
fire rated	[kg/m ²]	[dB]	[dB]	EN	BS	
4 000	36	43	55	EI30	–	WR 174181
4 000	42	44	55	–	F 60	WF 385716

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
4 000	35	42	59	EI60	–	

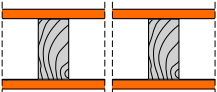
1. Walls

1.2 Timber stud walls – load-bearing – with insulation

fermacell® fibre gypsum board

System reference	System drawing	Wall thickness	Substructure		Boarding per side	Mineral wool ⁽¹⁾ Thickness / density	
			Timber stud	Head & base plate			
		[mm]	[mm]	[mm]	[mm]	[mm]/[kg/m³]	
1 HT 11		114	89 × 38	89 × 38	12.5	90/10 or 40/30	
1 HT 22		139	89 × 38	89 × 38	2 × 12.5 mm	90/10	
		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		270	2 × 89 × 38	89 × 38	2 × 12.5 mm Inner cavity single layer may be timber based product. Refer to fermacell technical information.	90/10	

1.3 Timber stud walls – load bearing – without insulation

System reference	System drawing	Wall thickness	Substructure		Boarding per side	Mineral wool ⁽¹⁾ Thickness / density	
			Timber stud	Head & Base plate			
		[mm]	[mm]	[mm]	[mm]	[mm]/[kg/m³]	
1 HT 14		114	89 × 38	89 × 38	12.5	none	

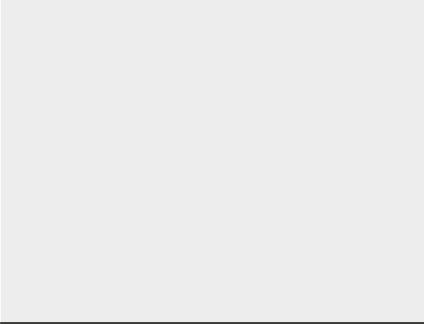
Partition load		Mass per unit area	Airborne sound insulation $R_w^{(3)}$	Flanking sound insulation $D_{n,f,W}^{(12)}$	Fire protection (minutes)		Fire test & classification reports
		[kg/m ²]	[dB]	[dB]	EN	BS	
	5.56 kN/m	34	44	59	REI30	–	WF 174181 PR 06-2.043
	5.56 kN/m	64	44	59	REI60		WF 178182
	10 kN/stud	48	44	59	REI60		WF 312865B
	10.8 kN/stud	48	≥46	≥59	REI60		RF11175 PG 10936
	5.56 kN/stud	57	≥46	≥59	REI60-30 60 mins from double layer side, 30 mins from single layer side)	–	WF 174182
	5.56 kN/stud	112	≥66	≥59	REI60		WF 174182 WF 175387

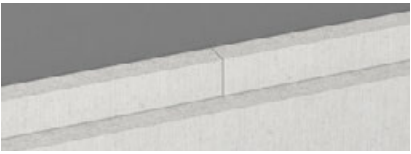
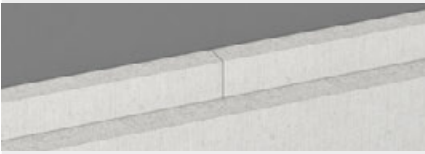
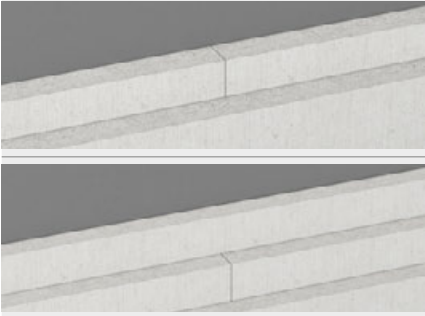
Load		Mass per unit area	Airborne sound insulation $R_w^{(3)}$	Flanking sound insulation $D_{n,f,W}^{(12)}$	Fire protection (minutes)		Fire test & classification reports
		[kg/m ²]	[dB]	[dB]	EN	BS	
	5.56 kN/Stud	35	39	55	REI30	–	WF 174181 PR 06-2.043

1. Walls

1.4 Multi-storey solid timber construction – Encapsulation Fire Protection

fermacell® fibre gypsum board

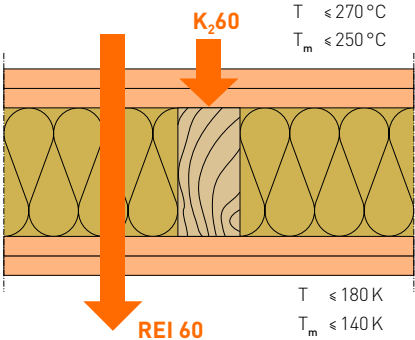
Encapsulation Fire criterion according to EN 13501-2	K ₂ 10	K ₂ 30	
Boarding thickness	10 mm	2 × 10 or 18 mm	
			
			

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.

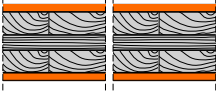
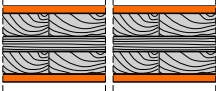
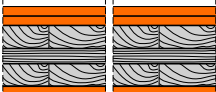
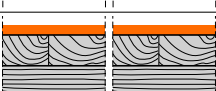
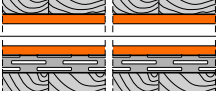
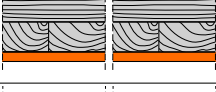
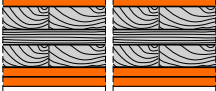
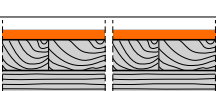
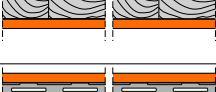
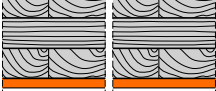
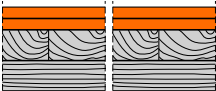


Example of Timber wall construction to (REI 60/K₂60)

1. Walls

1.5 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⁾ 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 bar)	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 bar)	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

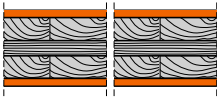
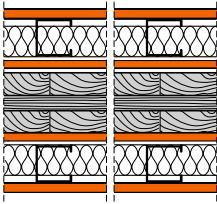
** calculated acc. EN12354-1:2000, S 143

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	$R_w \geq 40$ [-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	$R_w \geq 40$ [-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	$R_w \geq 44$ [-1;-3]* Pb.- Nr.: 04-001021	–	REI90		KB 3.2/15-369-4 · Encapsulation: K ₂ 45**
120	≥ 100	$R_w \geq 41$ [-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	$R_w \geq 44$ [-1;-32]* Pb.- Nr.: 04-001021	–	REI120		KB 3.2/15-369-4 (· Encapsulation: K ₂ 45**

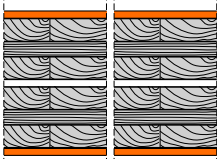
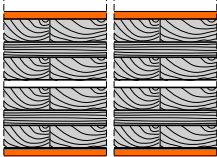
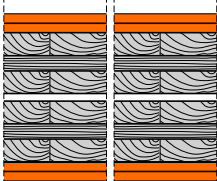
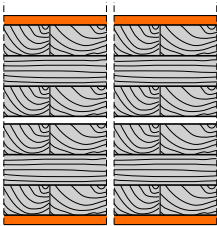
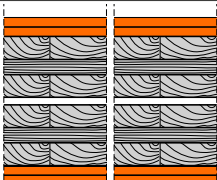
1. Walls

1.5 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⁾ Thickness/density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
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⁾ Thickness/density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
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

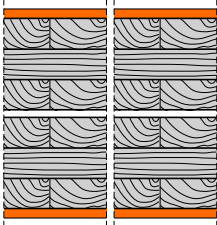
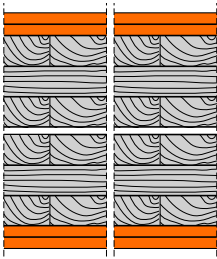
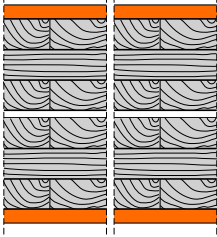
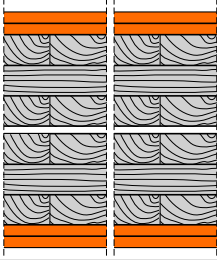
Applied load	Mass per unit	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,W}^{(12)}$	Fire protection (minutes)		Test reports & certification
[kN/m]	[kg/m ²]	[dB]	[dB]	EN	BS	
45	≥ 61	$R_w \geq 37$ [-1;-3]* Pb.- Nr.: 04-01020	–	REI60		N° CSI1958FR · Encapsulation: K ₂ 10 · PC10080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

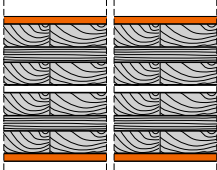
1.5 Cross laminated timber walls (CLT/X-LAM)

fermacell® fibre gypsum board - cavity wall

System reference	System drawing	Wall thickness	Substructure Timber construction	Boarding per side	Mineral wool ⁽¹⁾ Thickness/density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
1 HTM 36		≥ 275	≥ 2 × 120 mm 10 mm cavity 10 mm cavity	12.5	– 80/10	
1 HTM 37		≥ 310	≥ 2 × 120 mm 10 mm cavity 10 mm cavity	2 × 15	– 80/18	
1 HTM 43		≥ 286	≥ 2 × 120 mm 10 mm cavity 10 mm cavity	18	– 80/18	
1 HTM 44		≥ 310	≥ 2 × 120 mm 10 mm cavity 10 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⁾ Thickness/density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
1 HTM 22 A1		≥ 100	≥ 2 × 80 mm 10 mm cavity 10 mm cavity	10	– 80/10	

* calculated acc. Soundinsulationsoftware INSUL, Version v.8.0.3

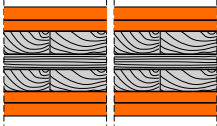
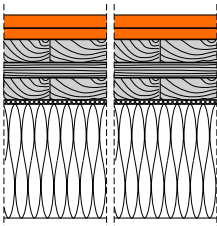
Applied load	Mass per unit	Airborne sound insulation index R_w	Flanking sound insulation $D_{n,f,w}^{(12)}$	Fire protection (minutes)		Test reports & certification
				EN	BS	
120 each wall side	≥ 143	$R_w \geq 55$ [-5;-12]* Pb.- Nr.: 04-01008 $R_w \geq 75$ [-2;-6]* Pb.- Nr.: 04-01009	–	REI90		KB 3.2/16-279-3 · 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

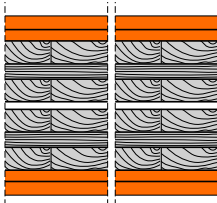
1.5 Cross laminated timber walls (CLT/X-LAM)

fermacell® fibre gypsum board - firewall

System reference	System drawing	Wall thickness	Substructure Timber construction	Boarding per side	Mineral wool ^[1] 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] Thickness/density	
		[mm]	[mm]	[mm]	[mm]/[kg/m³]	
4 HTM 31		≥ 236	≥ 2 × 80 mm 10 mm cavity 10 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 Suspended ceilings

GENERAL INFORMATION

DRY LINING

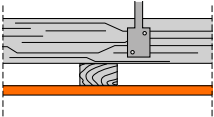
TIMBER CONSTRUCTION

BEAM AND COLUMN

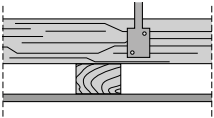
FIXINGS

FASTENERS

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

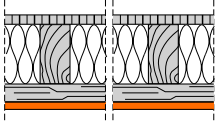
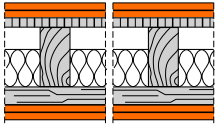
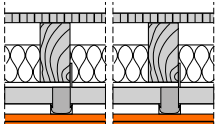
Boarding	Substructure support span	Insulation	Mass per unit area ^[49]	Fire protection	Fire protection
[mm]	[mm]	[mm]/[kg/m ³]	[kg/m ²]		
12.5	≤ 400	Optional	28	–	–

Boarding	Substructure structure span	Mineral wool Thickness/Gross 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	–	–

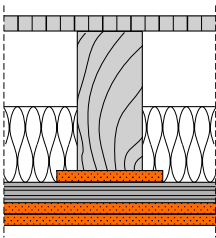
2. Ceilings/Roofs

2.2 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	Timber battens 50/30 or Resilient bar	≥ 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
[mm]		[mm]	[mm]/[kg/m ³]	[kg/m ²]	EN	BS	
	1 × 10	≤ 400	50/16 glasswool	16	EI30	-	R0156a
	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 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

Advantages

single-layer/multi-layer boarding

simple assembly

Component

Fire protection
• GA 2100/086/17 MPA BS R 30, R 60, R 90 & R 120

Critical steel temperature
• EN 13381-4:2013-8 550 °C

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
UB Depth	127	152	178	203	203	203	254	254	254	254	254	254	305	305	305	305	305	305	305
Section Factor (m ⁻¹)	200	194	188	173	169	143	218	192	173	164	140	122	225	200	174	155	138	122	150
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
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
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
UB Depth	406	406	406	406	406	406	406	457	457	457	457	457	457	457	457	457	533	533	533
Section Factor (m ⁻¹)	189	162	143	129	117	106	158	139	125	114	104	128	117	106	98	90	121	109	100
R 30	12.5																		
R 60	15 + 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

Universal Column encasment																				
	152 × 152 × 23	152 × 152 × 30	152 × 152 × 37	203 × 203 × 46	203 × 203 × 52	203 × 203 × 60	203 × 203 × 71	203 × 203 × 86	254 × 254 × 73	254 × 254 × 89	254 × 254 × 107	254 × 254 × 132	254 × 254 × 167	305 × 305 × 97	305 × 305 × 118	305 × 305 × 137	305 × 305 × 158	305 × 305 × 198	305 × 305 × 240	305 × 305 × 283
UB Depth		152				203					254						305			
Section Factor (m ⁻¹)	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 × 12.5																12.5		
R 90	3 × 12.5	2 × 12.5								15 + 12.5				2 × 15			15 + 12.5		2 × 12.5	
R 120	3 × 12.5																			

Universal Column encasment											
	356x368x129	356x368x153	356x368x177	356x368x202	356x406x235	356x406x287	356x406x340	356x406x393	356x406x467	356x406x551	356x406x634
UB Depth						356					
Section Factor (m ⁻¹)	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										



1. Fixing centres

1.1 Partition Wall constructions

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	Spacing	Use	Length	Spacing	Use
	[mm]	[mm]	[No./m²]	[mm]	[mm]	[No./m²]
Metal – 1-layer						
10 mm	–	–	–	30	250	26 [20]*
12.5 mm	–	–	–	30	250	20
15 mm	–	–	–	30	250	20
18 mm	–	–	–	40	250	20
Metal – 2-layer / 2nd layer fixed into the substructure						
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 in swimming pool areas

1.2 Ceiling constructions

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

Light and medium weight dead loads *

Dead loads fastened with toggle bolt or screws ⁽¹⁸⁾		Permissible load per hook in kN for different fermacell® fibre gypsum board thicknesses ***							
		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 **		0.40	0.50	0.55	0.55	0.50	0.60	0.50	0.60
Screw - fully threaded. min ø 5 mm		0.20	0.30	0.30	0.35	0.30	0.35	-	-

* Permissible loads shown with a safety factor 2.

** 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 lesser fixing centres, 50 % of the relevant permissible load per fixing should be used. The total single loads for walls should not exceed 1.5 kN/m and for free-standing Dry Lining and double studwalls not physically connected to one another, 0.4 kN/m. The stability of the wall or casing should be verified as described above according to BS 5234.

Lightweight wall-mounted loads

Picture hook with nail fixing *	Permissible load per hook in kN for different fermacell® fibre gypsum board thicknesses **				
	10 mm	12.5 mm	15 mm	18 mm	10 + 12.5 mm
	0.15	0.17	0.18	0.20	0.20
	0.25	0.27	0.28	0.30	0.30

* Failure load of hooks depends on make.

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

Fixing to ceilings*

Loads fixed to ceilings with tilting or spring-loaded toggles		Permissible load per single suspension in kN for different fermacell® fibre gypsum board thicknesses ***					
		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 **		0.20	0.22	0.23	0.24	0.25	0.22

* Permissible loads shown with a safety factor 2.

** 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.

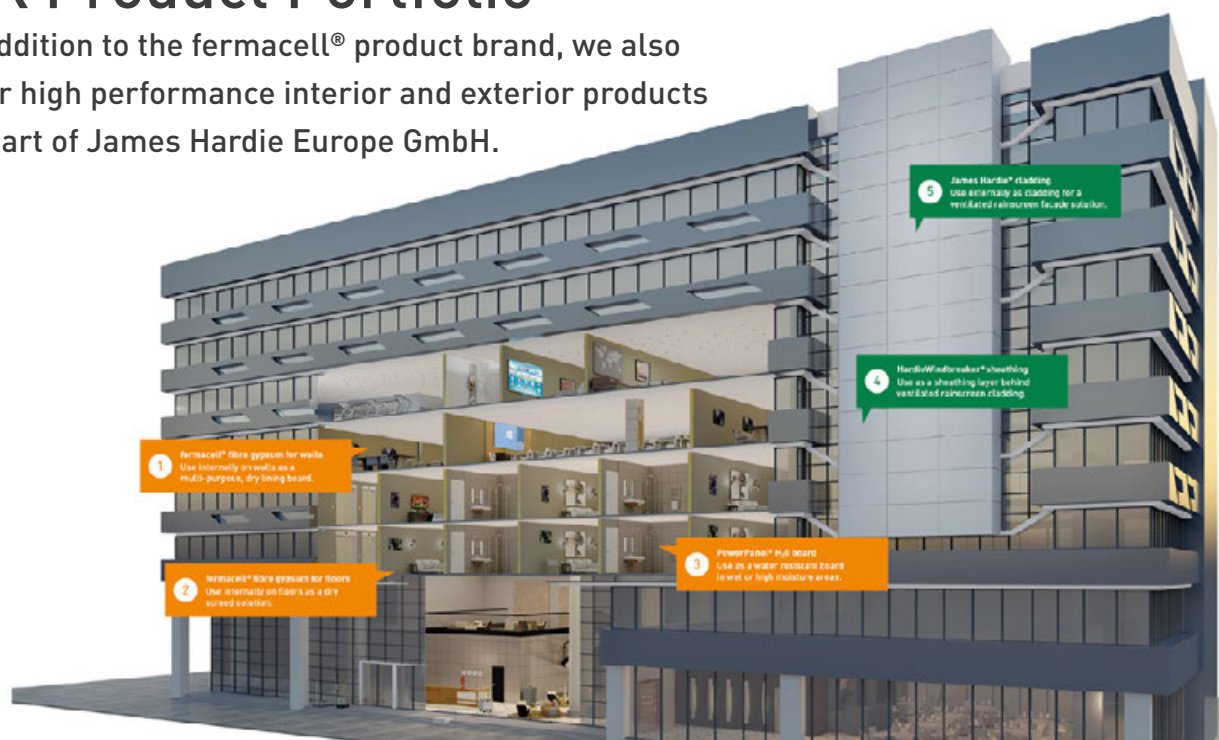
Maximum tile weights

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.



HardiePanel® fibre cement cladding is a non-combustible A2 rainscreen cladding. Available in a range of 21 colours and a choice of two textures – making it a smart solution for any project.



HardieWindbreaker® sheathing board is a 9 mm fibre cement board used as a sheathing layer behind ventilated cladding. Comes with a full 15 year warranty and can be exposed up to 12 months prior to the decorative cladding is installed.



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.



HardieBacker® tile backer board is the strongest tile backer board in the market, with a tile hanging weight of 200 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 pattringing/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

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