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fermacell
Dry Lining



FERMACELL: WALL, CEILING AND FLOOR CONSTRUCTIONS

FERMACELL
partition walls
with steel subframes
with insulating
material

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ^① [mm]/[kg/m ³]	Fire protection in minutes	Sound insulation		Maximum wall height [m]	Test certificate ^⑤
						$R_{w,R}$ ^③	$R'_{w,R}$ ^②		
1 S 11		75	12.5	40/40	F 30	46 dB	46 dB	3.00	P 81.615a P 3837/3588 P 3119/1159 G 94 8880
		100 125	12.5	40/20	F 30	49 dB	48 dB	4.50	
		100 125	12.5	60/20	F 30	52 dB	50 dB	5.00	
		150	12.5	100/40	F 30	54 dB	51 dB	5.50	
1 S 11/W		100 125	12.5	60/40	F 30	55 dB	-	2.50	G 94 8880
1 S 12		100	12.5 (fillet 12.5)	40/20	F 30	49 dB	48 dB	3.50	P 81.846
1 S 13		180	12,5	40/40	F 30	55 dB ^⑦	-	5.00 ^⑨ 3.50 ^⑩ 6.00 ^⑪	G 94 8880
1 S 14		75	12.5 (inside layer 10)	40/40	F 30	54 dB	51 dB	3.00	G 94 8880
		150		80/20	F 30	56 dB	52 dB	3.00	
1 S 21		100 125	12.5	40/45	F 60	52 dB	50 dB	4.50	P 1928/8541
		150		100/40				54 dB	
1 S 31		95 (100)	12.5 + 10 (12.5 + 12,5)	50/50	F 90	54 dB	51 dB	3.00	P 84.613 G 94 8880
		120 (125) 145 (150)	12.5 + 10 (12.5 + 12,5)	50/50	F 90	57 dB	53 dB	5.00	
1 S 31/W		120 (125) 145 (150)	12.5 + 10 (12.5 + 12.5)	50/50	F 90	60 dB	-	2.50	G 94 8880
1 S 32		from 200	12.5 + 10 (12.5 + 12.5)	50/50	F 90	64 dB ^④ ^⑦	-	5.00 ^⑨ 3.50 ^⑩ 6.70 ^⑪	G 94 8880
1 S 33		111 125 136	18	60/50	F 90	52 dB	50 dB	4.50	P 3423/3899
1 S 34/1		180	12.5 + 10	40/40	F 90 Height ≤ 7 m	60 dB	56 dB	7.00	P 86.431
			12.5 + 10 + 10						

① In constructions where only sound insulation is required, mineral wool a bulk density ≥ 20 kg/m³ can be used.

② $R'_{w,R}$ calculated value for sound insulation based on DIN 4109 is valid for flanking constructions with an area mass greater than 300 kg/m².

③ $R_{w,R}$ sound insulation value based on a laboratory test result without flanking sound considerations according to DIN 52210 part 2.

④ Calculated value for sound insulation based on DIN 4109 part 5.5.2.

⑤ Test certificates from the U.K., Germany and other European countries are available.

⑥ Construction 1 S 21 is fire rated to 10 m - please refer to the specific construction sheet for details of stud size, spacing and gauge.

⑦ Where separated studs are mechanically braced to each other, the sound insulation figure will change. Contact FERMACELL Technical staff for further information.

⑧ Wall thickness, heights and construction properties quoted are for separated steel stud partitions with U channels and C studs fixed parallel to each other and jointed with an isolation strip (for example a self adhesive insulation strip).

⑩ Wall thickness, heights and construction properties quoted are for separated steel stud partitions with U channels and C studs fixed parallel to each other without any of jointing between the two systems.

⑪ Wall thickness, heights and construction properties quoted are for separated steel stud partitions with U channels and C studs fixed parallel to each other and connected to each other at < 1/3 height with a fillet of board or an off cut of steel stud.

FERMACELL
partition walls
with steel subframes
with insulating
material

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ^① [mm]/[kg/m ³]	Fire protection in minutes	Sound insulation		Maximum wall height [m]	Test certificate ^⑤
						R _{w,R} ^③	R' _{w,R} ^②		
1 S 34/2		190	12.5 + 10 + 10	40/40	F 90 Height ≤ 9 m	62 dB	58 dB	9.00	P 86.431
					F 120 Height ≤ 7 m				
1 S 41		135	15 + 15	50/50	F 120	57 dB	53 dB	5.00	G 94 8880
1 S 42		≥ 215	15 + 12.5	80/50	F 120	59 dB ^⑦	-	5.50 6.00 ^⑩	G 94 8880
1 S 51		170	12.5 + 12.5 + 10	80/50	F 180	60 dB	56 dB	5.00	G 94 8880
		195				62 dB	58 dB	5.50	
1 S 52		≥ 230	12.5 + 12.5 + 10	80/50	F 180	62 dB ^⑦	58 dB	5.50 6.00 ^⑩	G 94 8880

FERMACELL
partition walls
with steel subframes
without insulating
material

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ^① [mm]/[kg/m ³]	Fire protection in minutes	Sound insulation		Maximum wall height [m]	Test certificate ^⑤
						R _{w,R} ^③	R' _{w,R} ^②		
1 S 15		100	12.5		F 30	40 dB	40 dB	4.50	P 3119/1159
		125				42 dB	42 dB	5.00	
		150						5.50	
1 S 16		110	12.5		F 30	44 dB	44 dB	4.50	G 018/Ap.
			12.5 + 10						
1 S 22		125	12.5 + 12.5		F 60	52 dB	50 dB	4.50	G 018/Ap.
		150				54 dB	51 dB	5.00	
		175						5.50	
1 S 23		130	12.5 + 10		F 60	55 dB	52 dB	4.50	G 018/Ap.
			12.5+10+10						
1 S 35		140	12.5+10+10		F 90	58 dB	54 dB	4.50	P 3466/3951
		165				60 dB	56 dB	5.00	
		190						5.50	

① In constructions where only sound insulation is required, mineral wool a bulk density ≥ 20 kg/m³ can be used.

② R'_{w,R} calculated value for sound insulation based on DIN 4109 is valid for flanking constructions with an area mass greater than 300 kg/m².

③ R_{w,R} sound insulation value based on a laboratory test result without flanking sound considerations according to DIN 52210 part 2.

⑤ Test certificates from the U.K., Germany and other European countries are available.

⑦ Where separated studs are mechanically braced to each other, the sound insulation figure will change. Contact FERMACELL Technical staff for further information.

⑩ Wall thickness, heights and construction properties quoted are for separated steel stud partitions with U channels and C studs fixed parallel to each other and connected to each other at < 1/3 height with a fillet of board or an off cut of steel stud.

**FERMACELL
partition walls
with timber subframes
with insulating
material**

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Sound insulation		Maximum wall height [m]	Test certificate ⑤
						$R_{w,R}$ ③	$R'_{w,R}$ ②		
1 H 11		85 or 105	12.5	40/30	F 30	42 dB	42 dB	3.10	G 94 8880
								4.10	
1 H 12		80 or 100	10	40/30	F 30	42 dB	42 dB	3.10	G 94 8880
								4.10	
1 H 22/GB		100	12,5	40/45	F 60	42 dB	42 dB	3.00	-
1 H 23/GB		175	12,5	40/45	F 60	55 dB	55 dB	3.10	-
1 H 31		105 or 125	12.5 + 10	50/50	F 90	49 dB	49 dB	3.10	G 94 8880
								4.10	
1 H 32		145	12.5 + 10 (one-sided transverse 30/50 with/without mineral wool strip)	50/50	F 90	57 dB with mineral wool strip 54 dB without mineral wool strip	53 dB	3.60	G 94 8880
								3.10	
1 H 35		170	12.5 + 10	50/50	F 90	66 dB	-	3.10	G 94 8880
		210						4.10	

**FERMACELL
partition walls
with timber subframes
without insulating
material**

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Sound insulation		Maximum wall height [m]	Test certificate ⑤
						$R_{w,R}$ ③	$R'_{w,R}$ ②		
1 H 13		105	12.5		F 30	37 dB	37 dB	4.10	G 111/Ap.
1 H 14		105	12.5 (inside layer 10)		F 30	41 dB	41 dB	4.10	G 111/Ap.
1 H 21		125	12.5 + 10		F 60	46 dB	46 dB	4.10	G 111/Ap.
1 H 33		145	12.5+10+10		F 90	52 dB	50 dB	4.10	G 111/Ap.
1 H 34		175	12.5+10+10 (one-sided transverse 30/50 with/without mineral wool strip)		F 90	54 dB with mineral wool strip	51 dB	4.10	G 111/Ap.
						51 dB without mineral wool strip			

① In constructions where only sound insulation is required, mineral wool a bulk density $\geq 20 \text{ kg/m}^3$ can be used.

② $R'_{w,R}$ calculated value for sound insulation based on DIN 4109 is valid for flanking constructions with an area mass greater than 300 kg/m^2 .

③ $R_{w,R}$ sound insulation value based on a laboratory test result without flanking sound considerations according to DIN 52210 part 2.

⑤ Test certificates from the U.K., Germany and other European countries are available.

**FERMACELL
partition walls
with timber
subframes
Loadbearing
Lining
Party walls**

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Sound insulation		Maximum wall height [m]	Test certificate ⑤
						$R_{w,R}$ ③	$R'_{w,R}$ ②		
1 HT 11		105	12.5	40/30	F 30	42 dB	42 dB	3.50	G 94 8880
1 HT 12		100	10	40/30	F 30	42 dB	42 dB	3.00	G 94 8880
1 HT 31-6		160	15 + 15	100/30	F 90	≥ 49 dB	-	3.50	P-3165/1558
1 HT 32-2		≈ 215	12.5 + 12.5 (with TPS-profil)	140/30	F 90	≥ 58 dB	-	3.50	P-3165/1558
1 HT 35-1		230	15 + 15	100/30	F 90	66 dB	-	3.00	P-3165/1558

**FERMACELL
partition walls
with timber
subframes
Loadbearing
Internal walls**

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Sound insulation		Test certificate ⑤
						$R_{w,R}$ ③	$R'_{w,R}$ ②	
1 HT 14		105	12.5		F 30	36 dB	36 dB	G 94 8880 G 017/98 -Nau-
1 HT 15		110	15		F 30	37 dB	37 dB	G 94 8880 G 017/98 -Nau-
1 HT 21		130	12.5 + 12.5		F 60	45 dB	45 dB	G 94 8880 G 017/98 -Nau-

**FERMACELL
non exposed
Party walls**

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Sound insulation	Test certificate ⑤
						$R_{w,R}$	
1 HG 32-8		167.5	12.5	140/20	F 30	≥ 64 dB ⑦	P-3165/1558
			15 HD Board		F 90		

① In constructions where only sound insulation is required, mineral wool a bulk density $\geq 20 \text{ kg/m}^3$ can be used.

② $R'_{w,R}$ calculated value for sound insulation based on DIN 4109 is valid for flanking constructions with an area mass greater than 300 kg/m^2 .

③ $R_{w,R}$ sound insulation value based on a laboratory test result without flanking sound considerations according to DIN 52210 part 2.

⑤ Test certificates from the U.K., Germany and other European countries are available.

⑦ The values shown are valid for two identical walls that are separated by 30 mm.

FERMACELL
External loadbearing
party walls

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Sound insulation		Test certificate ⑤
						$R_{w,R}$ ④		
1 HA 11		~ 230	12.5	140/20	F 30	48 dB		G 94 8880
			Vapour barrier					
			60 mm, PS 15 3 mm reinforcement 3 mm render coat					

FERMACELL
independent lining/
shaft wall
with steel
substructures

Designation	System drawing	Thickness [mm]	FERMACELL panelling [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Improved sound insulation ⑩ $\Delta R'_w$		Test certificate ⑤
						$\Delta R'_w$		
3 S 11		62.5	12.5	50/40	F 30 Fire classification from both sides	20 dB		G 267/94-Ap.
		87.5						
		112.5						
3 S 12		75	12.5 + 12.5	50/40	F 30 Fire classification from both sides	22 dB		G 267/94-Ap.
		100						
		125						
						Sound insulation		
						$R_{w,R}$ ③	$R'_{w,R}$ ②	
3 S 32		117.5	10 + 12.5 and 12.5 + 10	50/50 Mineral wool fillet 20/70 bonded on the back side to the sub-structure connection	F 90 Fire classification from both sides	54 dB	51 dB	G 169/We/Schr.
		142.5				57 dB	53 dB	
		167.5						

FERMACELL
Firewalls
with steel
substructures

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling each side [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Sound insulation		Test certificate ⑤
						$R_{w,R}$ ③	$R'_{w,R}$ ②	
4 S 31	 Loadbearing	225	3 x 12.5 1 x 0.38 Steel sheet	100/30	F 90	58 dB	-	P 3414/3002a
4 S 32	 Non loadbearing	175	3 x 12.5 1 x 0.38 Steel sheet		F 90	59 dB without insulation	54 dB	G 3933/8697
		200				61 dB with insulation		

- ① In constructions where only sound insulation is required, mineral wool a bulk density $\geq 20 \text{ kg/m}^3$ can be used.
 ② $R'_{w,R}$ calculated value for sound insulation based on DIN 4109 is valid for flanking constructions with an area mass greater than 300 kg/m^2 .
 ③ $R_{w,R}$ sound insulation value based on a laboratory test result without flanking sound considerations according to DIN 52210 part 2.
 ④ Calculated value for sound insulation based on DIN 4109 part 5.5.2
 ⑤ Test certificates from the U.K., Germany and other European countries are available.
 ⑩ The quoted improvements in sound insulation are valid for independent wall linings are individual values for sound reduction in solid walls with an area mass between 135 and 250 kg/m^2 ($R'_{w,R}$ $40 \text{ dB} - 47 \text{ dB}$ according to DIN standard 4109 table 1) and are valid for flanking constructions with an area mass of approximately 350 kg/m^2 or for solid walls with a discontinuous dry lining. For other types of walls and flanking conditions different values will apply.

FERMACELL
Dry Lining
with steel
subframes

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Longitudinal Sound insulation $R'_{L,w,R}$ ②	Test certificate ⑤
3 WS 11		42	12.5	20/20	-	57 dB	G 267/94-Ap.
		62.5		50/40	F 30		
		87.5					
3 WS 12		60	12.5 + 12.5	20/20	-	62 dB	
		75		50/40	F 30		
		100					

FERMACELL
Dry Lining
with timber
subframes

Designation	System drawing	Wall thickness [mm]	FERMACELL panelling [mm]	Mineral wool ① [mm]/[kg/m³]	Fire protection in minutes	Longitudinal Sound insulation $R'_{L,w,R}$ ②
3 WH 01		42.5	12.5	30/20	-	57 dB
		52.5		40/20		
		72.5		60/20		
3 WH 02		52.5	12.5 + 10	30/20	-	61 dB
		62.5		40/20		
		82.5		60/20		
		55	12.5 + 12.5	30/20	-	
		65		40/20		
85		60/20				

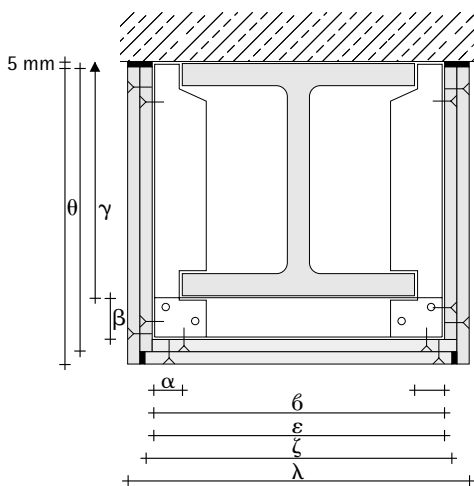
① In constructions where only sound insulation is required, mineral wool a bulk density $\geq 20 \text{ kg/m}^3$ can be used.

⑤ Test certificates from the U.K., Germany and other European countries are available.

② The sound insulation values shown are as a flanking construction only and are for continuous linings. When the lining is discontinuous an improvement of 4 dB for a single layer and 3 dB for a double layer lining may be assumed. The sound insulation value for the flanking wall, when combined with the value for the separating wall will give the overall sound insulation for the whole construction. The higher value may be used when the separating wall is connected to a flanking wall with a greater number of layers of FERMACELL.

BEAM ENCASEMENT

In accordance with DIN 4102



The following tables are valid for steel sections with a section factor of

$$Hp/A \leq 300 \text{ m}^{-1}$$

according to the formula:

$$Hp/A = \frac{2h - b}{A}$$

Where H_p = Heated perimeter
and A = Cross Sectional Area of metal Element

How to calculate board dimensions

Calculation of board dimensions must take into account the board thickness needed to achieve the required fire rating. Refer to the table on "Lining Thickness" left.

$$\text{Width } \epsilon = \delta + (\alpha \times 2)$$

$$\text{Width } \zeta = \epsilon + (2 \times 1^{\text{st}} \text{ layer thickness}) - (2 \times 5 \text{ mm joint filler})$$

$$\text{Width } \eta = \gamma + \beta - 5 \text{ mm joint filler} + 1^{\text{st}} \text{ layer thickness of board}$$

$$\text{Width } \theta = \eta + 2^{\text{nd}} \text{ layer thickness of board}$$

Note

α and β are the width, from the edge of the beam, of the proprietary steel clip systems. Examples of the Protektor range are available from Cornicare (01562 515200). Staples can be used to edge fix the boards. Timber grounds may also be placed in the web to provide the necessary fixing points. Grounds or proprietary clip systems must be installed at 400 mm centres, and screws and staples should be spaced at 150 mm centres.

Horizontal joints should be staggered by 400 mm.

F 30 constructions with one layer should be sealed at the corners with a fire proof mastic. For multiple layer constructions, the last (outer) layer should be sealed with joint filler as shown in the drawing left.

All fixing and jointing must be made in accordance with the FERMACELL Handy Guide.

LINING THICKNESS			
F 30	F 60	F 90	F 120
10 mm	10 mm	15 mm	18 mm
-	10 mm	12.5 mm	18 mm

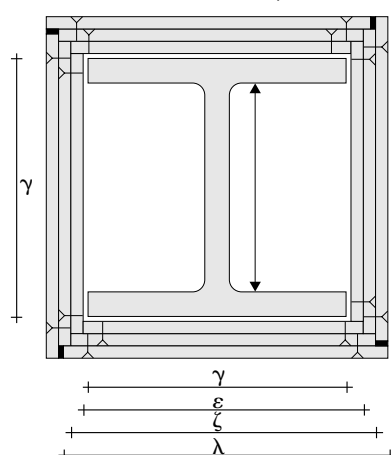
FERMACELL ceilings
with steel and timber substructures, irrespective of main ceiling construction

Designation	System drawing	Ceiling type	FERMACELL panelling [mm]	Mineral wool [Ⓐ] [mm]/[kg/m ³]	Fire protection in minutes	Test certificate [Ⓑ]
2S 11 ↑ u		suspended ceiling with fire protection from below	2 x 10 or 2 x 12.5	Optional	F 30	P 23.0539.1.79
2S 11 ↑ u ↓ o		suspended ceiling with fire protection from above and below	2 x 10 or 2 x 12.5	40/30	F 30	P 23.0319.0.83-1
2S 21 ↑ u		suspended ceiling with fire protection from below	3 x 10 or 2 x 15	Optional	F 60	G 94 8880
2S 34 ↑ u ↓ o		suspended ceiling with fire protection from above and below	15 + 2 x 12.5 or 4 x 10	40/40	F 90	P 3255/2458
2H 13 ↑ u		suspended ceiling with fire protection from below	2 x 10 or 2 x 12.5	Optional	F 30	P 23.0534.3.80-1
2H 23 ↑ u		suspended ceiling with fire protection from below	3 x 10 or 2 x 15	Optional	F 60	G 94 8880
2H 34 ↑ u		suspended ceiling with fire protection from below	15 + 2 x 12.5 or 4 x 10	Optional	F 90	P 3255/2458

[Ⓐ] For roof and ceiling constructions without mineral wool, other types of insulation may compromise the stated fire rating. Where mineral wool is used for fire rating, additional insulation may be added for acoustic purposes without compromising the fire rating.
[Ⓑ] Test certificates from the U.K., Germany and other European countries are available.

COLUMN ENCASEMENT

In accordance with DIN 4102 - part 4



The following tables are valid for steel sections with a section factor of

$$Hp/A \leq 300 \text{ m}^{-1}$$

according to the formula:

$$Hp/A = \frac{2b - 2h - b^2}{A}$$

Where Hp = Heated perimeter
and A = Cross Sectional Area of metal Element

How to calculate board dimensions

Calculation of board dimensions must take into account the board thickness needed to achieve the required fire rating. Refer to the table on "Lining Thickness" left.

$$\text{Width } \varepsilon = \gamma + (1 \times 1^{\text{st}} \text{ layer thickness})$$

$$\text{Width } \zeta = \varepsilon + (1 \times 1^{\text{st}} \text{ layer thickness}) + (1 \times 2^{\text{nd}} \text{ layer thickness})$$

$$\text{Width } \lambda = \zeta + (1 \times 2^{\text{nd}} \text{ layer thickness}) + (1 \times 3^{\text{rd}} \text{ layer thickness}) + 5 \text{ mm for joint filler}$$

Note

α and β are the width, from the edge of the beam, of the proprietary steel clip systems. Examples of the Protektor range are available from Cornicare (01562 515200). Staples can be used to edge fix the boards. Timber grounds may also be placed in the web to provide the necessary fixing points. Grounds or proprietary clip systems must be installed at 400 mm centres, and screws and staples should be spaced at 150 mm centres.

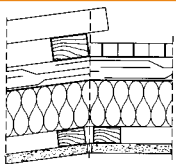
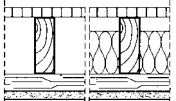
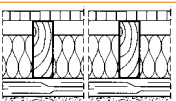
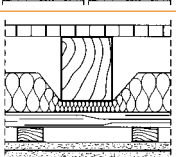
Horizontal joints should be staggered by 400 mm.

F 30 constructions with one layer should be sealed at the corners with a fire proof mastic. For multiple layer constructions, the last (outer) layer should be sealed with joint filler as shown in the drawing left.

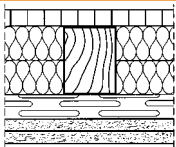
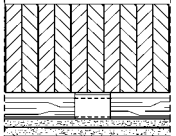
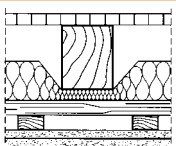
All fixing and jointing must be made in accordance with the FERMACELL Handy Guide.

LINING THICKNESS				
F 30	F 60	F 90	F 120	F 180
10 mm	10 mm	15 mm	15 mm	15 mm
-	10 mm	15 mm	15 mm	15 mm
-	-	12.5 mm	15 mm	15 mm
-	-	-	15 mm	15 mm
-	-	-	-	15 mm

FERMACELL Timber Joist Ceilings

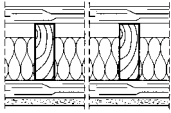
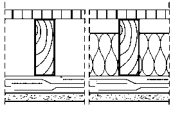
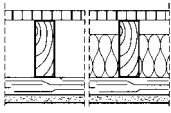
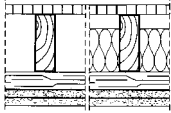
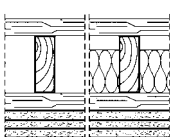
Designation	System drawing	Ceiling type	FERMACELL panelling [mm]	Mineral wool [Ⓐ] [mm]/[kg/m ³]	Fire protection in minutes	Test certificate [Ⓑ]
2 H 11		ceilings with/without a layer of structural overlay board for pitched roofs	1 x 10 or 1 x 12.5	100/15	F 30	P-MPA-E-00-27 P-MPA-E-00-28
2 H 12		ceilings with a layer of structural overlay board	1 x 10 or 1 x 12.5	Optional	F 30	P 3354/2449
2 H 23		ceilings with a layer of structural overlay board	2 x 10	50/60	F 60	TE 81278
2 H 31		wood joist ceiling with a layer of structural overlay board	2 x 10 or 2 x 12.5	wire netting 50/80	F 90	P-MPA-E-99-203

FERMACELL ceilings with timber subframes

Designation	System drawing	Ceiling type	FERMACELL panelling [mm]	Mineral wool [Ⓐ] [mm]/[kg/m ³]	Fire protection in minutes	Test certificate [Ⓑ]
2 H 32		ceilings with a layer of structural overlay board	2 x 15	2 x 100/30	F 90	G 075/96-Ap.
2 H 33		Glulam floors	2 x 10 or 2 x 12.5	optional	F 90	G 184/97-Nau-
2 H 41		ceilings with a layer of structural overlay board	2 x 10 or 2 x 12.5	wire netting 50/100	F 120	P-MPA-E-99-203

[Ⓐ] For roof and ceiling constructions without mineral wool, other types of insulation may compromise the stated fire rating.
Where mineral wool is used for fire rating, additional insulation may be added for acoustic purposes without compromising the fire rating.

[Ⓑ] Test certificates from the U.K., Germany and other European countries are available.

Designation	System drawing	Ceiling type	FERMACELL panelling [mm]	Mineral wool ^④ [mm]/[kg/m ³]	Fire protection in minutes	Test certificate ^⑤
2 HD 11		ceilings without a layer of structural overlay board	1 x 10 or 1 x 12.5	100/15	F 30	P 23.0560.1.87-1
2 HD 12		ceilings without a layer of structural overlay board	2 x 10 or 2 x 12.5	Optional	F 30	G 94 8880
2 HD 13		ceilings with a layer of structural overlay board	1 x 10 or 1 x 12.5	Optional	F 30	G 94 8880
2 HD 21		ceilings with a layer of structural overlay board	2 x 10 or 2 x 12.5	Optional	F 60	G 94 8880
2 HD 34		roof structure with independent ceiling and non-essential decking/overlay	15 + 2 x 12.5 or 4 x 10	Optional	F 90	G 94 8880

^④ For roof and ceiling constructions without mineral wool, other types of insulation may compromise the stated fire rating. Where mineral wool is used for fire rating, additional insulation may be added for acoustic purposes without compromising the fire rating.

^⑤ Test certificates from the U.K., Germany and other European countries are available.

FERMACELL
dry flooring elements
sound insulation on
timber joist floors

Floor/ceiling constructions			FERMACELL dry flooring systems					
			2 E 32	2 E 32-c	2 E 32-d	2 E 22-mi	2 E 22-al	
1		40	R' _{w,R} [dB]	47	50	49	49	46
		75	L' _{n,w,R} [dB]	66	69	64	65	71
2		42	R' _{w,R} [dB]	49	52	51	51	49
		73	L' _{n,w,R} [dB]	64	65	62	63	67
3		50	R' _{w,R} [dB]	52	54	52	53	52
		67	L' _{n,w,R} [dB]	60	58	58	57	60
4		53	R' _{w,R} [dB]	56	57	55	56	55
		62	L' _{n,w,R} [dB]	55	53	53	52	55
5		53	R' _{w,R} [dB]	55 ^①	57 ^①	57 ^①	57 interpolated	55 interpolated
		63	L' _{n,w,R} [dB]	55 ^①	51 ^①	53 ^①	51 interpolated	55 interpolated
6		55	R' _{w,R} [dB]	57 ^①	57 ^①	56 ^①	56 ^①	56
		58	L' _{n,w,R} [dB]	52 ^①	47 ^①	52 ^①	51 ^①	51

① Floor and ceiling constructions F90

② Product mineral wool: Akustic EP3 by G+H or Floorrock GP by Rockwool.

■ Party floor between dwellings (in accordance with BS 5821)

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

Floor and ceiling construction
(from top to bottom)

1 22 mm chipboard
80/200 mm timber joists
50 mm mineral wool
50/30 mm battens
10 mm FERMACELL

2 22 mm chipboard
80/200 mm timber joists
50 mm mineral wool
50/30 mm battens
10 mm FERMACELL
10 mm FERMACELL

3 22 mm chipboard
80/200 mm timber joists
50 mm mineral wool
50 x 30 mm battens
on acoustic hangers
10 mm FERMACELL

4 22 mm chipboard
80/200 mm timber joists
50 mm mineral wool
50/30 mm battens
on acoustic hangers
10 mm FERMACELL
10 mm FERMACELL

5 22 mm chipboard
80/200 mm timber joists
50 mm Rockwool RPM
60/40 mm counterbattens
60/40 mm battens
on acoustic hangers
10 mm FERMACELL
10 mm FERMACELL

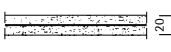






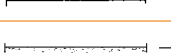

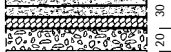
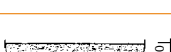



6 22 mm chipboard
80/200 mm timber joists
100 mm mineral wool
100 mm mineral wool
resilient bar
15 mm FERMACELL
15 mm FERMACELL

FERMACELL
dry flooring elements
improved
sound insulation on
concrete floors

Drawing of the system			Concrete floors (315 kg/m ²)					
			2 E 13	2 E 32	2 E 32-c	2 E 22-al	2 E 22-mi	
7		L' _{n,w,R} 83 dB	ΔL _w [dB]	17	21	22	22	27

② Product mineral wool: SPT/G (AKUSTIC EP3) by G+H or Floorrock by Rockwool.

Product wood fibre insulating slab: Pavatex Pavapor. Area of application 1/ admissible point loading 1.0 kN.

Ref. no.	Floor construction	Thick-ness mm	Weight kN/m ²	Areas of application	Admissible ①② point loading kN	Thermal resistance ③ [λ] (m ² K/W)	Class ④ Fire load from above
2 E 11	 FERMACELL dry flooring element (2 x 10 mm) 20	20	0.24	1 + 2	1.5	0.06	F 30
2 E 22	 FERMACELL dry flooring element (2 x 12.5 mm) 25	25	0.30	1 + 2 + 3	2.5	0.07 ^⑤	F 60
2 E 13	 FERMACELL dry flooring element (2 x 10 mm) + 20 mm rigid foamed polystyrene 40	40	0.24	1 + 2	1.5	0.56	F 30
2 E 14	 FERMACELL dry flooring element (2 x 10 mm) + 30 mm rigid foamed polystyrene 50	50	0.25	1 + 2	1.5	0.81	F 30
2 E 15	 FERMACELL dry flooring element (2 x 10 mm) + 60 mm extruded rigid foam plastic 80	80	0.26	1 + 2	1.5	2.06	F 30
2 E 31	 FERMACELL dry flooring element (2 x 10 mm) + 10 mm wood fibre insulating slab 30	30	0.26	1 + 2 + 3	2.5	0.26	F 90
2 E 32	 FERMACELL dry flooring element (2 x 10 mm) + 10 mm mineral wool 30	30	0.26	1	1.0	0.31	F 90
2 E 32-c	 FERMACELL dry flooring element (2 x 10 mm) + 10 mm mineral wool 20 mm FERMACELL levelling compound 50	50	0.33	1	1.0	0.53	F 90
2 E 22-a	 10 mm FERMACELL glued FERMACELL dry flooring element (2 x 12.5 mm) 10 mm FERMACELL glued 35	35	0.42	1 + 2 + 3 + 4	3.5	0.10	F 90
2 E 31-a	 10 mm FERMACELL glued FERMACELL dry flooring element (2 x 10 mm) + 10 mm wood fibre insulating slab 40	40	0.38	1 + 2 + 3 + 4	3.5	0.28	F 90
2 E 32-a	 10 mm FERMACELL glued FERMACELL dry flooring element (2 x 10 mm) + 10 mm mineral wool 40	40	0.38	1 + 2	1.5	0.33	F 90
2 E 11-c	 FERMACELL dry flooring element (2 x 10 mm) 20 mm FERMACELL levelling compound 40	40	0.31	1 + 2	1.5	0.28	F 90
2 E 11-d	 FERMACELL dry flooring element (2 x 10 mm) 30 mm FERMACELL TS slabs 50	50	0.58	1 + 2	1.5	0.14	F 90
2 E 32-d	 FERMACELL dry flooring element (2 x 10 mm) + 10 mm mineral wool 30 mm FERMACELL TS slabs 60	60	0.60	1	1.0	0.39	F 90

Areas of application	
1	Housing spaces, corridors and lofts
2	Offices, corridors and lofts in office building, sales rooms up to 50 m ² area in residential buildings
3	Hospital rooms and common rooms in hospitals, lecture halls, class rooms, inns, domestic cellars
4	Surgeries, corridors of hospitals, corridors to lecture halls, meeting rooms of public buildings, churches, theatres and cinemas, dance halls and gymnasiums, exhibition and sales rooms, office buildings and department stores, libraries and archives

① Data relating to the admissible point loading are based on a square loading surface area $\geq 10 \text{ cm}^2$ and the distance must be $\geq 500 \text{ mm}$. The distance to the floor corner must be $\geq 250 \text{ mm}$ or the loading surface must be at $\geq 100 \text{ cm}^2$. The total floor load must not exceed the maximal admissible floor load capacity.

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

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

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

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

FERMACELL: THE VERY BEST CREDENTIALS

Technical and installation support is available as follows:

Tel: 0870-6 09 03 06
Fax: 0870-2 40 29 48
Email: info@fermacell.co.uk
Web: www.fermacell.co.uk

Our technical support staff is fully qualified to provide detailed technical solutions – usually at the time of your enquiry. Where special detailing or a non-standard solution is required we shall undertake to have given a preliminary answer within 24 hours.

Visits either to your premises or site are arranged at short notice according to your requirements. Please call our Hotline for further assistance.



Training

FERMACELL is an innovative, high performance product and installation techniques, whilst not difficult, are different to standard dry lining practice. For this reason we recommend, that first time users of FERMACELL – either specifiers or installers – contact us for a brief explanation of the main differences in the use of the board. Although this can be usually accomplished by telephone, we always



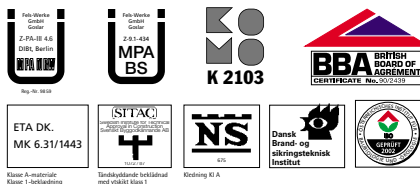
encourage training including demonstrations on site, according to customer preferences.

CPD

Generic, CPD service accredited presentations on the features, benefits and use of Gypsum Fibreboards can be arranged at short notice. These presentations are free and are available to professional and trade bodies, architectural and other building practices as well as schools of architecture and building colleges.

International Certification

FERMACELL is produced to the highest international quality standards – our reputation depends upon it. In addition to the accreditation of our factories to ISO 9001 to ensure consistent product quality, FERMACELL itself has been certified by the following bodies:



As well as international equivalent bodies throughout Europe.

Research Led R & D

Being the best doesn't mean you can be complacent. Increasing innovation in building techniques, changes in Building Regulations and requests and suggestions from our customers lead us to develop both new products and methods of application.



Our purpose built R & D centre in the Harz Mountains in Germany has a continuous programme of New Product Development. This is combined with a rigorous testing regime – often in conjunction with the University of Brunswick.

FERMACELL's daily and continued use in thousands of high profile projects worldwide is a testament not only to the product's huge appeal and breadth of application, but also to the service and professionalism of FERMACELL staff in supporting its users. Call us to experience the benefits of FERMACELL for yourself.

Version: 4/2002. We reserve the right to change specifications.
Please call the helpline to ensure that you are in possession of the latest information.

FERMACELL

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For additional information please call the FERMACELL Technical Helpline 08 70-6 09 03 06.