

Flat roof - fdmbi01a-02

flat roof, solid wood construction, not ventilated, with dry lining, suspended, Gipsplatte

Performance rating

Fire protection performance REI 60

maximum span = 5 m; maximum load $E_{d,fi} = 5 \text{ kN/m}^2$
 Classified by HFA

Germany

REI30; Attention: REI60 (from inside) possible with 2x12,5mm gypsum plaster board type DF/gypsum fibre board

Load $E_{d,fi}$ according to the German certification document

Corresponding proof: manufacturer-specific

Thermal performance U Diffusion 0.16 $\text{W}/(\text{m}^2\text{K})$ suitable

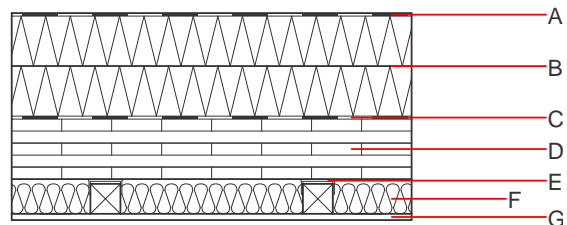
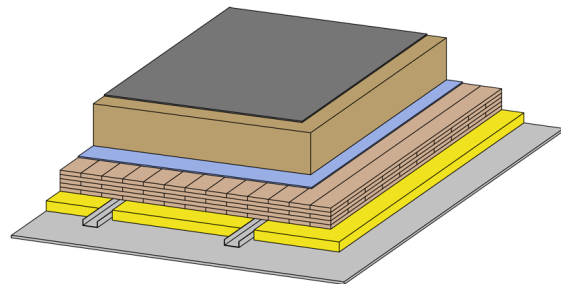
Calculated by TUM

Acoustic performance $R_w (C;C_{tr})$ 50(-3;-9) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 99.20 kg/m^2

Calculation based on gypsum plaster board type DF



Note: Attention: REI60 (from inside) in Germany possible with 2x12,5mm gypsum plaster board type DF/gypsum fibre board

Register of building materials used for this application, cross-section (from outside to inside, dimensions in mm)

	Thickness	Building material	Thermal performance				Reaction to fire EN
			λ	$\mu \text{ min - max}$	ρ	c	
A		sealing sheet $s_{d} \geq 100\text{m}$ e.g. EPDM membrane					
B	200.0	mineral wool MW-WD [040; 130; <1000°C] (2*100)	0.040	1	130	1.030	
C		sealing sheet e.g. bitumen					
D	125.0	cross laminated timber $\geq 125,0$; at least 5-layers, top layer at least 27,5 mm)	0.130	50	500	1.600	D
E	70.0	acoustic hanger (suspension); $e=415$;					
F	60.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
G	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
G	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m^2)

Database ecoinvent

O13_{kon} 110.4

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 64.900
Biogenic carbon in kg CO₂-e. kg CO₂ 93.500
Energy use of Primary Energy MJ 1292.820
Share of renewable PE % 24.32

Calculated by TUM

Details of sustainability rating

Database ecoinvent

Lifecycle (Phases)	GWP [kg CO ₂ -e.]	AP [kg SO ₂ -e.]	EP [kg PO ₄ -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.488	0.158	7,08E-6	0.180	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	62.058	855.000	917.058	1208.480	198.054	1406.533

Database GaBi (ÖKOBAUDAT)

Lifecycle (Phases)	GWP [kg CO ₂ -e.]	AP [kg SO ₂ -e.]	EP [kg PO ₄ -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.317	0.048	4,29E-6	0.030	
C1 - C4		0.005	0.009	1,87E-7	0.001	
A1 - C4		0.325	0.057	4,49E-6	0.032	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	312.926	1110.601	1420.796	948.485	144.454	1092.242
C1 - C4	1.038	-1100.559	-1099.522	23.284	0.000	23.284
A1 - C4	314.353	10.301	321.923	978.465	144.506	1122.274