

Pitched roof - sdmhbo01-03

pitched roof, solid wood construction, ventilated, without dry lining, without lining, wooden surface

Performance rating

Fire protection performance REI 30
 maximum span = 5 m; maximum load $E_{d,fi} = 5 \text{ kN/m}^2$ (without roof structure)
 Classified by HFA

Germany

REI30
 Load $E_{d,fi}$ according to the German certification document
 Corresponding proof: manufacturer-specific

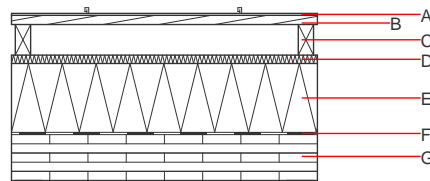
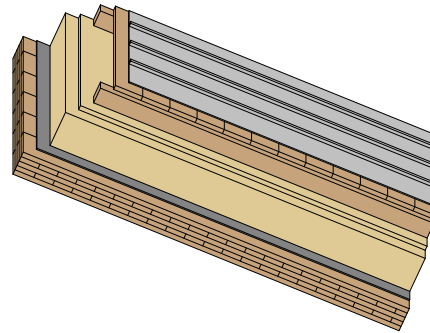
Thermal performance U Diffusion 0.18 $\text{W}/(\text{m}^2\text{K})$ suitable

Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 39(-1;-6) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 111.70 kg/m^2



Note: The design of the under-roof construction and of the counter-battens have to be specified according to the roof pitch and the national requirements.
 Underlay laminated on insulation 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	μ min – max	ρ	c	
A		sheet metal roofing on structured separation layer				7800	A1
B	24.0	spruce wood formwork	0.120	50	450	1.600	D
C	80.0	spruce wood counter battens (40/80)	0.120	50	450	1.600	D
D		sarking membrane $s_d \leq 0,3\text{m}$				1000	E
E	180.0	mineral wool [040; 130] on-roof insulation	0.040	1	130	1.030	
F	0.2	sealing sheet (air tight)					
G	120.0	cross laminated timber	0.130	50	500	1.600	D

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{kon}$ 91.1
 Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 74.100
 Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 107.300
 Energy use of Primary Energy MJ 1298.710
 Share of renewable PE % 26.97

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		0.450	0.153	4,45E-6	0.168	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	91.057	1059.264	1150.321	1072.052	33.300	1105.352

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		0.318	0.046	4,23E-6	0.034	
C1 - C4		0.004	0.007	1,88E-7	0.001	
A1 - C4		0.323	0.054	4,42E-6	0.035	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	349.162	1265.278	1613.010	926.210	114.794	1040.334
C1 - C4	1.036	-1261.300	-1260.263	21.255	0.000	21.255
A1 - C4	350.206	3.979	352.754	948.504	114.794	1062.628