

Pitched roof - sdmhbi01a-04

pitched roof, solid wood construction, ventilated, with dry lining, not suspended, other surface

Performance rating

Fire protection performance REI 60
 maximum span = 5 m; maximum load $E_{d,fi} = 5 \text{ kN/m}^2$ (without roof structure)
 Classified by HFA

Germany

REI60
 Load $E_{d,fi}$ according to the German certification document
 Corresponding proof: manufacturer-specific

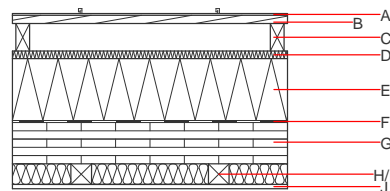
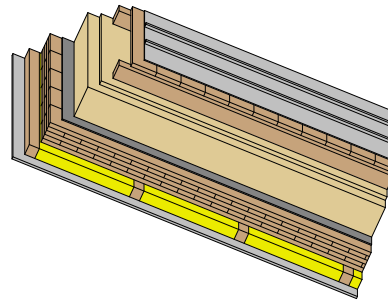
Thermal performance U Diffusion 0.13 $\text{W}/(\text{m}^2\text{K})$ suitable

Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 47(-1;-6) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 128.90 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	$\mu \text{ min} - \text{max}$	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	200.0	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
H	60.0	spruce wood (battens 60/60; e=400)	0.120	50	450	1.600	D
I	60.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
J	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{Kon}$ 101.6

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 77.820
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 112.470
Energy use of Primary Energy MJ 1436.320
Share of renewable PE % 26.31

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		0.496	0.169	5,10E-6	0.183	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	107.248	1132.965	1240.212	1198.007	33.300	1231.307

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		0.361	0.053	4,48E-6	0.037	
C1 - C4		0.006	0.009	2,19E-7	0.001	
A1 - C4		0.369	0.062	4,70E-6	0.038	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	376.302	1335.513	1710.154	1025.974	122.176	1147.481
C1 - C4	1.163	-1325.609	-1324.446	25.790	0.000	25.790
A1 - C4	377.855	10.163	386.357	1058.461	122.228	1180.020