

Pitched roof - sdmhbo02-00

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

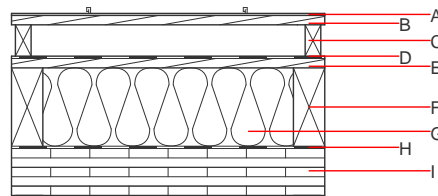
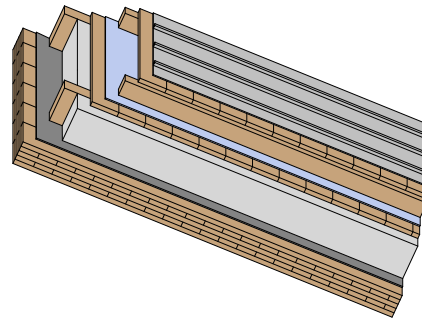
Thermal performance U Diffusion 0.19 $\text{W}/(\text{m}^2\text{K})$ suitable

Calculated by TUM

Acoustic performance R_w ($C_c; C_{tr}$) 41(-1;-6) dB
 $L_{n,w}$ (C_i)

Assessed by Müller-BBM

Mass per unit area m 105.00 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.

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 0.5	sarking membrane $s_d \leq 0,3\text{m}$			1000		E
E 24.0	planking spruce wood full formwork	0.120	50	450	1.600	D
F 180.0	construction timber (80/..; e=800)	0.120	50	450	1.600	D
G 180.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
H 0.2	sealing sheet (air tight)					
I 120.0	cross laminated timber	0.130	50	500	1.600	D

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{kon}$ 38.8

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	107.300
Biogenic carbon in $\text{kg CO}_2\text{-e.}$	kg CO_2	153.450
Energy use of Primary Energy	MJ	1147.480
Share of renewable PE	%	37.190

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	-109.283	0.242	0.102	3,55E-6	0.017	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	57.870	1485.967	1543.837	708.639	33.300	741.939

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	-124.558	0.161	0.027	3,95E-6	0.030	
C1 - C4	172.723	0.005	0.006	2,56E-7	0.001	
A1 - C4	48.165	0.166	0.033	4,20E-6	0.030	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	425.787	1788.961	2215.474	698.082	80.891	778.413
C1 - C4	1.003	-1659.512	-1658.509	22.606	-0.119	22.487
A1 - C4	426.791	129.449	556.965	720.689	80.772	800.900