

Pitched roof - sdmhbo02-02

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

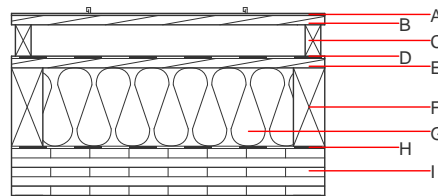
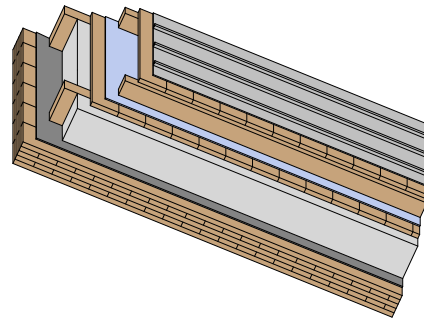
Thermal performance U Diffusion 0.15 $\text{W}/(\text{m}^2\text{K})$ suitable

Calculated by TUM

Acoustic performance R_w ($C_c; C_{tr}$) 43(-1;-6) dB
 $L_{n,w}$ (C_i)

Assessed by Müller-BBM

Mass per unit area m 110.40 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 240.0	construction timber (80/..; e=800)	0.120	50	450	1.600	D
G 240.0	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

$OI3_{kon}$ 40.7

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	114.490
Biogenic carbon in $\text{kg CO}_2\text{-e.}$	kg CO_2	163.240
Energy use of Primary Energy	MJ	1188.030
Share of renewable PE	%	37.57

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		0.251	0.109	3,70E-6	0.071	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	144.370	1559.987	1704.356	739.679	33.300	772.979

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		0.168	0.029	4,07E-6	0.031	
C1 - C4		0.006	0.008	2,71E-7	0.001	
A1 - C4		0.174	0.036	4,34E-6	0.032	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	445.296	1897.534	2343.874	717.039	80.931	797.447
C1 - C4	1.062	-1724.853	-1723.790	24.635	-0.159	24.476
A1 - C4	446.358	172.681	620.084	741.674	80.772	821.923