

Pitched roof - sdmhzo02-02

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

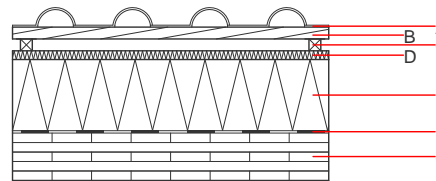
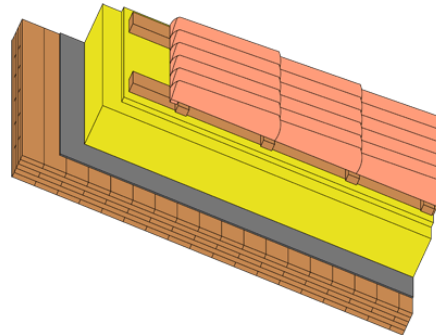
Thermal performance U Diffusion 0.13 $\text{W}/(\text{m}^2\text{K})$ suitable

Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 47(-1;-7) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 169.40 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	concrete roof tile /tiled roof			2100		A1
B 30.0	spruce wood battens (30/50)	0.120	50	450	1.600	D
C 30.0	spruce wood counter battens (Germany 30mm); Austria: minimum 50mm	0.120	50	450	1.600	D
D 22.0	softboard [045; 250] - rigid underlay	0.045	5	250	2.100	E
E 240.0	wood-fibre insulation board [0,040; R=200] on-roof insulation	0.040	5 - 7	200	2.100	E
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

O13_{kon} 98.0
 Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 134.220
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg $\text{CO}_2\text{-e}$ 191.590
Energy use of Primary Energy MJ 1851.670
Share of renewable PE % 33.30

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		0.421	0.203	7,54E-6	0.079	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	180.201	1710.295	1890.496	1534.126	96.063	1630.189

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		0.188	0.040	4,53E-6	0.042	
C1 - C4		0.007	0.001	1,82E-7	0.001	
A1 - C4		0.197	0.042	4,71E-6	0.042	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	612.320	1922.417	2532.524	1181.218	73.521	1254.067
C1 - C4	3.588	-1923.668	-1920.079	44.717	-64.449	-19.732
A1 - C4	616.606	-1.251	613.143	1235.069	9.072	1243.469