

Pitched roof - sdmhzi02a-02

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

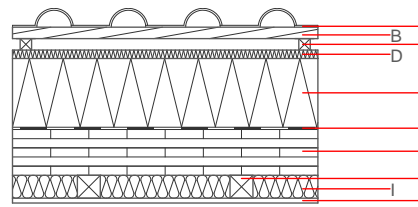
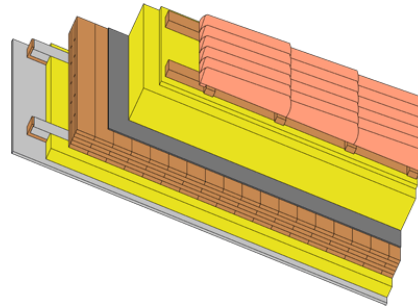
Thermal performance U Diffusion 0.11 $\text{W}/(\text{m}^2\text{K})$ suitable

Calculated by TUM

Acoustic performance R_w ($C; C_{tr}$) 54(-1;-7) dB
 $L_{n,w}$ (C_i)

Assessed by Müller-BBM

Mass per unit area m 184.00 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	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
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

OI_{kon} 71.9

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 137.950
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 197.020
Energy use of Primary Energy MJ 1949.520
Share of renewable PE % 32.84

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		0.330	0.146	6.76E-6	0.075	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	150.615	1757.464	1908.078	1228.232	102.343	1330.575

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		0.209	0.044	4.67E-6	0.044	
C1 - C4		0.008	0.002	2.12E-7	0.001	
A1 - C4		0.221	0.046	4.89E-6	0.045	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	635.524	1992.194	2625.276	1246.089	77.123	1322.540
C1 - C4	3.680	-1987.977	-1984.297	48.475	-64.449	-15.973
A1 - C4	640.283	4.476	642.317	1309.240	12.726	1321.294