

Pitched roof - sdmhzo03-01

pitched roof, solid wood construction, ventilated, without dry lining, without lining, wooden surface

Performance rating

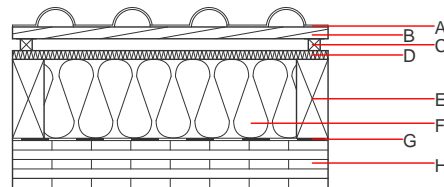
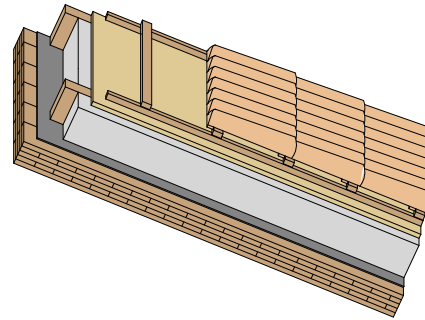
Fire protection performance REI 30
 maximum span = 5 m; maximum load $E_{d,fi} = 5 \text{ kN/m}^2$ (without roof structure)
 Classified by HFA

Germany
 REI30
 Load $E_{d,fi}$ according to the German certification document
 Corresponding proof: manufacturer-specific

Thermal performance U Diffusion 0.17 $\text{W}/(\text{m}^2\text{K})$ suitable
 Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 46(-1;-7) dB
 $L_{n,w} (C_i)$
 Assessed by Müller-BBM

Mass per unit area m 139.40 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	$\mu \text{ min - max}$	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	200.0	construction timber (80/...; e=800)	0.120	50	450	1.600	D
F	200.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
G		sealing sheet (air tight)					
H	120.0	cross laminated timber	0.130	50	500	1.600	D

Sustainability rating (per m^2)

Database ecoinvent

$O13_{kon}$ 36.6
 Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	102.980
Biogenic carbon in $\text{kg CO}_2\text{-e}$.	kg CO_2	145.160
Energy use of Primary Energy	MJ	1287.700
Share of renewable PE	%	30.73

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		0.203	0.086	3,90E-6	0.058	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	94.241	1255.287	1349.528	667.928	35.418	703.346

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		0.138	0.028	4,75E-6	0.030	
C1 - C4		0.011	0.007	2,31E-7	0.001	
A1 - C4		0.150	0.035	4,98E-6	0.030	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	392.745	1677.818	2069.414	849.531	31.205	880.187
C1 - C4	2.268	-1534.962	-1532.694	33.329	-22.133	11.197
A1 - C4	395.710	142.857	537.417	891.994	9.072	900.518