

Pitched roof - sdmhbi01a-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

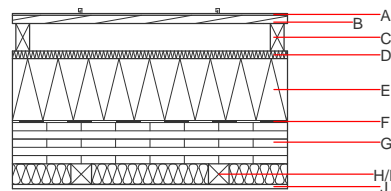
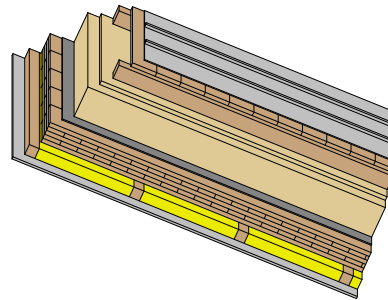
Thermal performance U Diffusion 0.11 $\text{W}/(\text{m}^2\text{K})$ suitable

Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 55(-1;-6) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 150.90 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	$\mu \text{ min} - \text{max}$	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	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

$OI3_{kon}$ 77.8

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	149.240
Biogenic carbon in $\text{kg CO}_2\text{-e}$.	kg CO_2	209.330
Energy use of Primary Energy	MJ	1959.900
Share of renewable PE	%	35.06

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		0.372	0.166	6,59E-6	0.085	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	176.871	1931.664	2108.535	1308.584	102.343	1410.926

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		0.248	0.048	4,92E-6	0.051	
C1 - C4		0.003	0.001	2,40E-7	0.000	
A1 - C4		0.252	0.049	5,17E-6	0.051	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	684.393	2188.248	2871.419	1228.845	144.203	1372.376
C1 - C4	2.426	-2184.139	-2181.712	38.308	-64.449	-26.140
A1 - C4	687.200	4.368	690.347	1272.695	79.806	1351.830