

Pitched roof - sdrhbi02a-01

pitched roof, timber frame construction, ventilated, with dry lining, not suspended, other surface

Performance rating

Fire protection performance REI 30

maximum span = 5 m; maximum load $E_{d,fi}$ = 3,66 kN/m² (rafter 80/200 without roofing, full formwork, counter battens and OSB)
Classified by HFA

Germany

F30

Load $E_{d,fi}$ according to the German certification document

Corresponding proof: DIN 4102-4:2016-05, Tabelle 10.19, Zeile 1

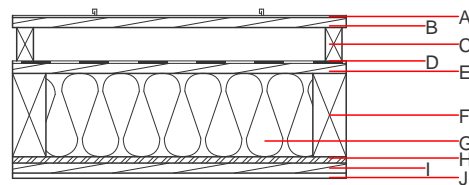
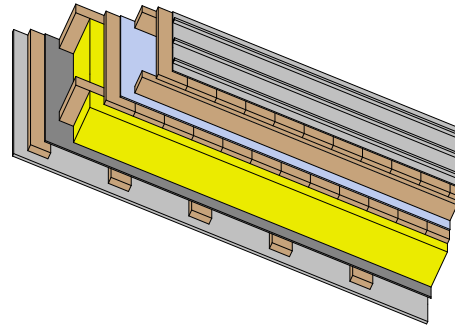
Thermal performance U Diffusion 0.20 W/(m²K)
suitable

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 68.80 kg/m²



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 full 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		sarking membrane sd ≤ 0,3m			1000		E
E	24.0	planking spruce wood full formwork	0.120	50	450	1.600	D
F	200.0	construction timber (80/*; e=625)	0.120	50	450	1.600	D
G	200.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
H	15.0	OSB airtight	0.130	200	600	1.700	D
I	24.0	spruce wood cladding with spacing of cladding boards(24/100); a=400	0.120	50	450	1.600	D
J	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2

Sustainability rating (per m²)

Database ecoinvent

OI3_{Kon} 25.3

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	62.880
Biogenic carbon in kg CO ₂ -e.	kg CO ₂	90.340
Energy use of Primary Energy	MJ	768.150
Share of renewable PE	%	32.97

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		0.148	0.067	2,18E-6	0.033	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	145.900	895.350	1041.250	434.846	17.244	452.090

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		0.119	0.018	1,11E-6	0.026	
C1 - C4		0.005	0.006	1,46E-7	0.001	
A1 - C4		0.126	0.025	1,26E-6	0.027	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	252.020	1041.616	1297.168	493.576	79.095	572.794
C1 - C4	0.897	-892.609	-891.713	16.053	-6.453	9.600
A1 - C4	253.296	149.265	406.093	514.858	72.694	587.675