

Pitched roof - sdrhbi02a-00

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 $E_{d,fi} = 3,66 \text{ kN/m}^2$ (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

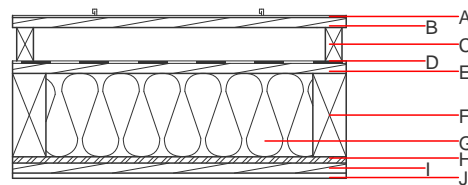
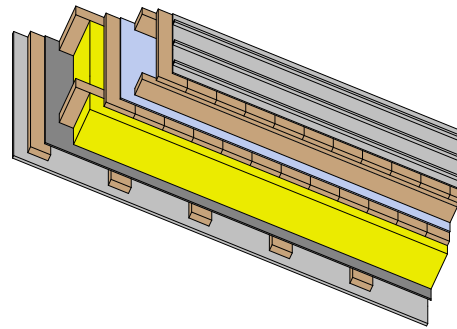
Thermal performance U Diffusion 0.20 $\text{W}/(\text{m}^2\text{K})$ suitable

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 65.20 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)

Layer	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 $s_d \leq 0,3\text{m}$			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	mineral wool [040; 30; $\geq 1000^\circ\text{C}$]	0.040	1	30	1.030	A1
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 m^2)

Database ecoinvent

$OI3_{kon}$ 33.4

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	51.550
Biogenic carbon in $\text{kg CO}_2\text{-e.}$	kg CO_2	76.130
Energy use of Primary Energy	MJ	832.490
Share of renewable PE	%	30.27

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		0.180	0.071	2.14E-6	0.057	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	139.747	794.427	934.175	483.278	17.244	500.522

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		0.156	0.023	1.32E-6	0.028	
C1 - C4		0.002	0.002	1.26E-7	0.000	
A1 - C4		0.160	0.025	1.46E-6	0.029	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	250.732	898.595	1152.821	560.784	87.650	648.557
C1 - C4	0.902	-892.609	-891.708	13.454	-6.453	7.001
A1 - C4	252.020	6.245	261.758	580.474	81.248	661.846