

Pitched roof - sdrhbi02a-03

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

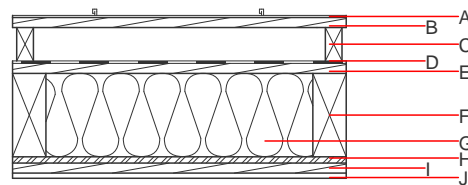
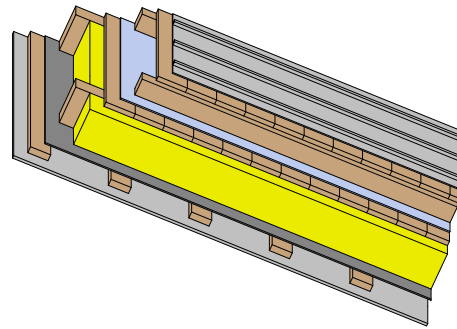
Thermal performance U Diffusion 0.17 $\text{W}/(\text{m}^2\text{K})$ suitable

Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 48(-1;-7) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 68.10 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	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 240.0	construction timber (80/*; e=625)	0.120	50	450	1.600	D
G 240.0	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} 36.1

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 54.070
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 79.810
Energy use of Primary Energy MJ 872.400
Share of renewable PE % 30.35

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		0.194	0.075	2,24E-6	0.064	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	145.526	827.183	972.710	511.109	17.244	528.353

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		0.168	0.024	1,45E-6	0.030	
C1 - C4		0.003	0.002	1,33E-7	0.000	
A1 - C4		0.172	0.027	1,59E-6	0.030	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	263.480	942.373	1209.552	586.864	89.387	676.399
C1 - C4	0.942	-936.170	-935.229	14.287	-6.480	7.807
A1 - C4	264.809	6.462	274.970	607.588	82.959	690.695