

Pitched roof - sdrhbi01a-02

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

Performance rating

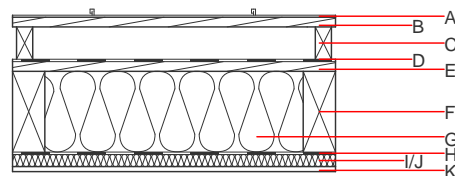
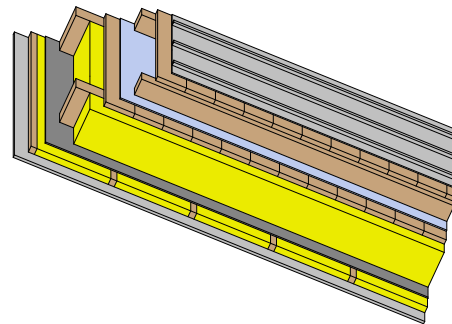
Fire protection performance REI 30
 maximum span = 5 m; maximum load $E_{d,fi} = 3,66 \text{ kN/m}^2$ (rafter 80/200 without roofing, full formwork and counter battens)
 Classified by HFA

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 0.19 $\text{W}/(\text{m}^2\text{K})$ suitable
 Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ $L_{n,w} (C_i)$ 50(-4;-11) dB
 Assessed by Müller-BBM

Mass per unit area m 57.40 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)

Layer	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 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	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
H		vapour barrier $s_d \geq 10\text{m}$				1000	
I	30.0	spruce wood cross battens (a=400)	0.120	50	450	1.600	D
J	30.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
K	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2

Sustainability rating (per m^2)

Database ecoinvent
 $OI3_{kon}$ 25.5
 Calculated by HFA

Database GaBi (ÖKOBAUDAT)
 Built-in renewable materials kg 51.040
 Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 74.360
 Energy use of Primary Energy MJ 1091.300
 Share of renewable PE % 37.17
 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		0.133	0.063	2,12E-6	0.031	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	121.980	777.092	899.072	439.286	26.626	465.912

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		0.152	0.026	1,14E-6	0.028	
C1 - C4		0.002	0.001	1,24E-7	0.000	
A1 - C4		0.155	0.027	1,28E-6	0.028	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	403.695	1163.744	1570.521	656.364	112.608	769.095
C1 - C4	1.545	-1158.623	-1157.078	23.937	-30.979	-7.042
A1 - C4	405.620	5.380	414.082	685.681	81.682	767.487