

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

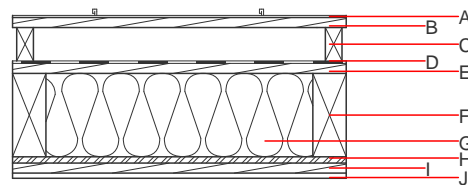
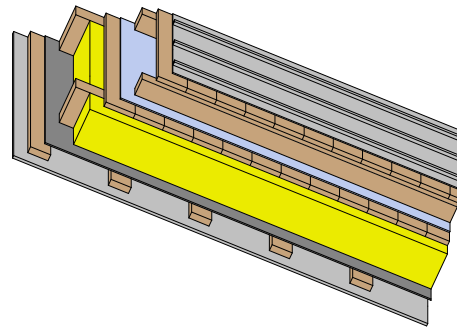
**Thermal performance** U Diffusion 0.20  $\text{W}/(\text{m}^2\text{K})$  suitable

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 68.80  $\text{kg}/\text{m}^2$



**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
		$\lambda$	$\mu$ min – max	$\rho$	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	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  $\text{m}^2$ )

**Database ecoinvent**

$OI3_{kon}$  25.3

Calculated by HFA

**Database GaBi (ÖKOBAUDAT)**

**Built-in renewable materials** kg 62.880  
**Biogenic carbon in  $\text{kg CO}_2\text{-e}$ .** kg  $\text{CO}_2$  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 <sub>2</sub> -e.]	AP [kg SO <sub>2</sub> -e.]	EP [kg PO <sub>4</sub> -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 <sub>2</sub> -e.]	AP [kg SO <sub>2</sub> -e.]	EP [kg PO <sub>4</sub> -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