

## Pitched roof - sdrhbi02a-04

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

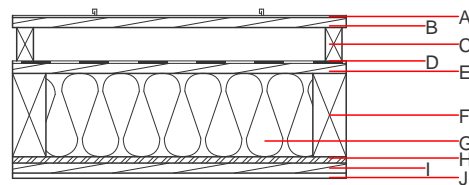
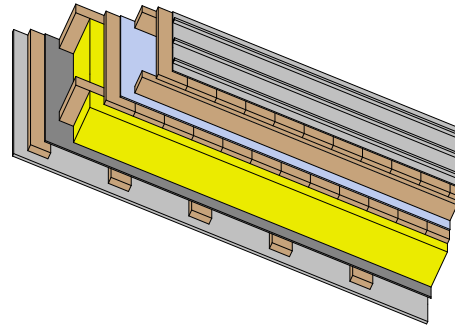
**Thermal performance** U Diffusion 0.17 W/(m<sup>2</sup>K)  
suitable

Calculated by TUM

**Acoustic performance**  $R_w$  (C;C<sub>tr</sub>) 48(-1;-7) dB  
 $L_{n,w}$  (C<sub>i</sub>)

Assessed by Müller-BBM

**Mass per unit area** m 72.40 kg/m<sup>2</sup>



**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 sd ≤ 0,3m			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	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 m<sup>2</sup>)

#### Database ecoinvent

OI3<sub>Kon</sub> 26.4

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	67.670
Biogenic carbon in kg CO <sub>2</sub> -e.	kg CO <sub>2</sub>	96.860
Energy use of Primary Energy	MJ	795.190
Share of renewable PE	%	33.49

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		0.157	0.071	2,29E-6	0.034	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	152.910	948.291	1101.200	452.990	17.244	470.234

### 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		0.124	0.019	1,19E-6	0.027	
C1 - C4		0.006	0.008	1,56E-7	0.001	
A1 - C4		0.131	0.027	1,35E-6	0.028	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	265.026	1113.998	1382.768	506.213	79.122	585.484
C1 - C4	0.936	-936.170	-935.235	17.405	-6.480	10.926
A1 - C4	266.341	178.087	448.172	528.848	72.694	601.690