

### Pitched roof - sdmhbo02-01

pitched roof, solid wood construction, ventilated, without dry lining, without lining, wooden surface

#### Performance rating

**Fire protection performance** REI 30  
 maximum span = 5 m; maximum load  $E_{d,fi} = 5 \text{ kN/m}^2$  (without roof structure)  
 Classified by HFA

**Germany**  
 REI30  
 Load  $E_{d,fi}$  according to the German certification document  
 Corresponding proof: manufacturer-specific

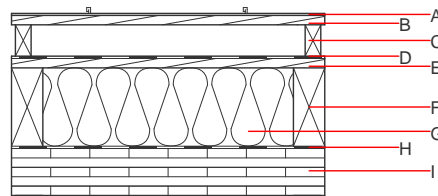
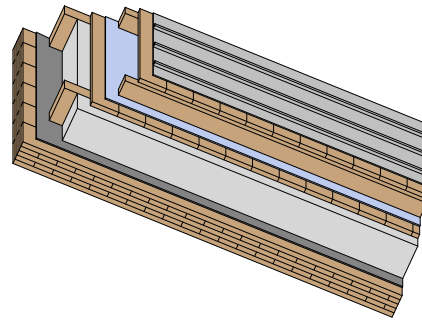
**Thermal performance** U Diffusion 0.18  $\text{W}/(\text{m}^2\text{K})$  suitable

Calculated by TUM

**Acoustic performance**  $R_w (C; C_{tr})$  42(-1;-6) dB  
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

**Mass per unit area** m 106.80  $\text{kg}/\text{m}^2$



**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 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 0.5	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=800)	0.120	50	450	1.600	D
G 200.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
H 0.2	sealing sheet (air tight)					
I 120.0	cross laminated timber	0.130	50	500	1.600	D

#### Sustainability rating (per $\text{m}^2$ )

##### Database ecoinvent

**O13<sub>kon</sub>** 39.2

Calculated by HFA

##### Database GaBi (ÖKOBAUDAT)

**Built-in renewable materials** kg 109.700  
**Biogenic carbon in  $\text{kg CO}_2\text{-e}$ .**  $\text{kg CO}_2$  156.710  
**Energy use of Primary Energy** MJ 1161.000  
**Share of renewable PE** % 37.320

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	-111.473	0.246	0.103	3,60E-6	0.017	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	59.227	1511.373	1570.600	717.236	33.300	750.536

### 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	-127.833	0.163	0.028	3,99E-6	0.030	
C1 - C4	176.397	0.005	0.006	2,61E-7	0.001	
A1 - C4	48.564	0.169	0.034	4,25E-6	0.031	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	432.290	1825.152	2258.274	704.402	80.905	784.758
C1 - C4	1.023	-1681.292	-1680.269	23.282	-0.133	23.150
A1 - C4	433.313	143.860	578.005	727.684	80.772	807.908