

### Pitched roof - sdmhbo02-02

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

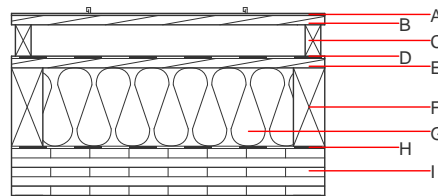
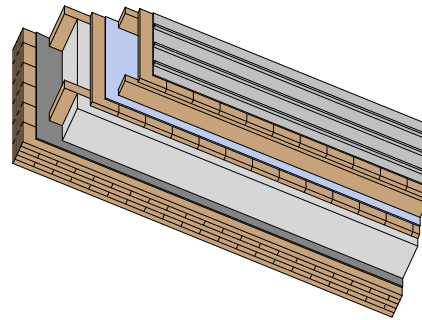
**Thermal performance** U Diffusion 0.15  $\text{W}/(\text{m}^2\text{K})$  suitable

Calculated by TUM

**Acoustic performance**  $R_w$  ( $C; C_{tr}$ ) 43(-1;-6) dB  
 $L_{n,w}$  ( $C_i$ )

Assessed by Müller-BBM

**Mass per unit area** m 110.40  $\text{kg}/\text{m}^2$



**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 240.0	construction timber (80/..; e=800)	0.120	50	450	1.600	D
G 240.0	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

$OI3_{kon}$  40.1

Calculated by HFA

##### Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	114.490
Biogenic carbon in $\text{kg CO}_2\text{-e.}$	$\text{kg CO}_2$	163.240
Energy use of Primary Energy	MJ	1188.030
Share of renewable PE	%	37.570

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	-115.851	0.253	0.107	3,71E-6	0.018	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	61.942	1562.185	1624.127	734.430	33.300	767.730

**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	-134.382	0.168	0.029	4,07E-6	0.031	
C1 - C4	183.744	0.006	0.007	2,71E-7	0.001	
A1 - C4	49.362	0.174	0.036	4,34E-6	0.032	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	445.296	1897.534	2343.874	717.039	80.931	797.447
C1 - C4	1.062	-1724.853	-1723.791	24.635	-0.159	24.476
A1 - C4	446.358	172.681	620.084	741.674	80.772	821.923