

**Pitched roof - sdmhzo02-04**

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

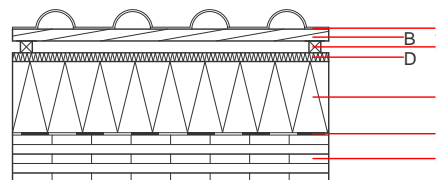
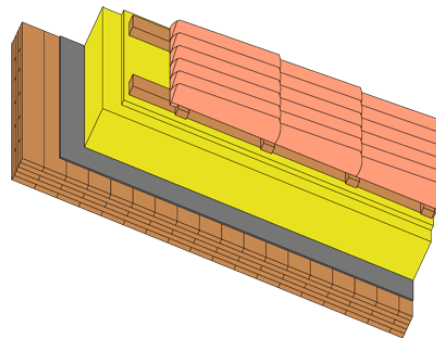
**Thermal performance** U Diffusion 0.16  $\text{W}/(\text{m}^2\text{K})$  suitable

Calculated by TUM

**Acoustic performance**  $R_w (C; C_{tr})$  39(-1;-7) dB  
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

**Mass per unit area** m 147.40  $\text{kg}/\text{m}^2$



**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.  
 Underlay laminated on insulation board

**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
			$\lambda$	$\mu \text{ min - max}$	$\rho$	c	
A		concrete roof tile /tiled roof				2100	A1
B	30.0	spruce wood battens (30/50)	0.120	50	450	1.600	D
C	30.0	spruce wood counter battens (Germany 30mm); Austria: minimum 50mm	0.120	50	450	1.600	D
D		sarking membrane $s_d \leq 0,3\text{m}$				1000	E
E	200.0	mineral wool [040; 130] on-roof insulation	0.040	1	130	1.030	
F	0.2	sealing sheet (air tight)					
G	120.0	cross laminated timber	0.130	50	500	1.600	D

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

**Database ecoinvent**

$OI3_{kon}$  121.8  
 Calculated by HFA

**Database GaBi (ÖKOBAUDAT)**

**Built-in renewable materials** kg 62.800  
**Biogenic carbon in  $\text{kg CO}_2\text{-e}$ .**  $\text{kg CO}_2$  90.490  
**Energy use of Primary Energy** MJ 1328.140  
**Share of renewable PE** % 23.14

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		0.545	0.206	6,05E-6	0.178	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	110.578	911.596	1022.173	1423.550	27.020	1450.570

### 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		0.301	0.045	4,08E-6	0.029	
C1 - C4		0.010	0.009	1,61E-7	0.001	
A1 - C4		0.313	0.055	4,25E-6	0.030	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	304.230	1069.682	1371.260	978.348	51.494	1029.172
C1 - C4	2.330	-1065.138	-1062.808	32.240	0.000	32.240
A1 - C4	307.266	4.544	309.157	1020.875	51.494	1071.699