

**Pitched roof - sdmhbo01-02**

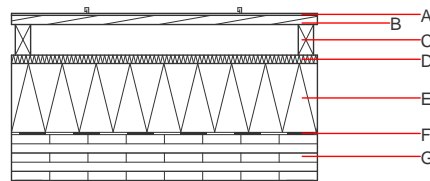
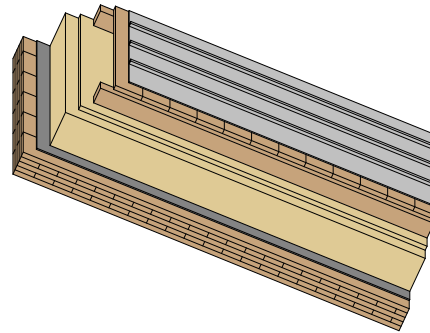
pitched roof, solid wood construction, ventilated, without dry lining, without lining, wooden surface

**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

<b>Thermal performance</b>	<b>U Diffusion</b>	0.13 W/(m <sup>2</sup> K) suitable
Calculated by TUM		
<b>Acoustic performance</b>	<b>R<sub>w</sub> (C;C<sub>tr</sub>)</b> <b>L<sub>n,w</sub> (C<sub>i</sub>)</b>	48(-1;-6) dB
Assessed by Müller-BBM		
<b>Mass per unit area</b>	<b>m</b>	136.30 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 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 22.0	softboard [045; 250] - rigid underlay	0.045	5	250	2.100	E
E 240.0	wood-fibre insulation board [0,040; R=200] on-roof insulation	0.040	5 - 7	200	2.100	E
F 0.2	sealing sheet (air tight)					
G 120.0	cross laminated timber	0.130	50	500	1.600	D

**Sustainability rating** (per m<sup>2</sup>)

**Database ecoinvent**

<b>O13<sub>kon</sub></b>	73.5
--------------------------	------

Calculated by HFA

**Database GaBi (ÖKOBAUDAT)**

<b>Built-in renewable materials</b>	kg	145.520
<b>Biogenic carbon in kg CO<sub>2</sub>-e.</b>	kg CO <sub>2</sub>	203.890
<b>Energy use of Primary Energy</b>	MJ	1862.050
<b>Share of renewable PE</b>	%	35.63

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		0.354	0.158	6,11E-6	0.081	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	162.564	1857.963	2020.527	1233.852	102.343	1336.195

### 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		0.226	0.044	4,78E-6	0.048	
C1 - C4		0.002	0.000	2,10E-7	0.000	
A1 - C4		0.228	0.044	4,99E-6	0.049	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	661.188	2118.470	2778.668	1163.974	140.601	1303.903
C1 - C4	2.335	-2119.829	-2117.494	34.550	-64.449	-29.899
A1 - C4	663.523	-1.359	661.174	1198.524	76.152	1274.004