

## Pitched roof - sdmhbi01a-01

pitched roof, solid wood construction, ventilated, with dry lining, not suspended, other surface

### Performance rating

**Fire protection performance** REI 60

maximum span = 5 m; maximum load  $E_{d,fi}$  = 5 kN/m<sup>2</sup> (without roof structure)  
Classified by HFA

#### Germany

REI60

Load  $E_{d,fi}$  according to the German certification document

Corresponding proof: manufacturer-specific

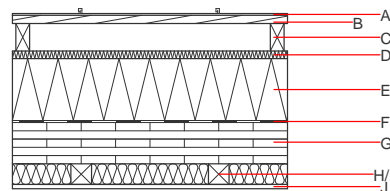
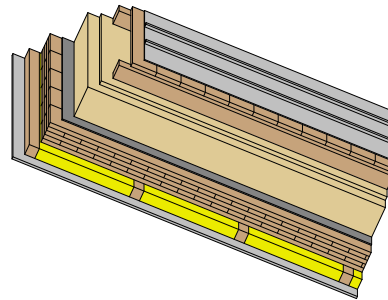
**Thermal performance** U Diffusion 0.12 W/(m<sup>2</sup>K)  
suitable

Calculated by TUM

**Acoustic performance**  $R_w$  ( $C$ ;  $C_{tr}$ ) 54(-1;-6) dB  
 $L_{n,w}$  ( $C_i$ )

Assessed by Müller-BBM

**Mass per unit area** m 142.90 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	200.0	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
H	60.0	spruce wood (battens 60/60; e=400)	0.120	50	450	1.600	D
I	60.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
J	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2

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

#### Database ecoinvent

Ol3<sub>Kon</sub> 71.9

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	140.040
Biogenic carbon in kg CO <sub>2</sub> -e.	kg CO <sub>2</sub>	196.860
Energy use of Primary Energy	MJ	1843.370
Share of renewable PE	%	34.69

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		0.347	0.155	6,10E-6	0.081	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	163.558	1813.581	1977.139	1213.398	91.189	1304.587

### 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		0.235	0.045	4,89E-6	0.048	
C1 - C4		0.003	0.001	2,40E-7	0.000	
A1 - C4		0.240	0.046	5,13E-6	0.048	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	636.959	2087.163	2722.900	1163.032	137.128	1299.488
C1 - C4	2.173	-2083.054	-2080.880	35.283	-57.374	-22.091
A1 - C4	639.513	4.368	642.661	1203.857	79.806	1282.992