

## Pitched roof - sdrhzi09a-08

pitched roof, timber frame construction, ventilated, with dry lining, not suspended, other surface

### Performance rating

**Fire protection performance** REI 30

maximum span = 5 m; maximum load  $E_{d,fi} = 2,62 \text{ kN/m}^2$  (rafter 60/200 without roofing, counter battens and battens)

Classified by HFA

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#### Germany

F30

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

Corresponding proof: DIN 4102-4:2016-05, Tabelle 10.20, Zeile 8

**Thermal performance** U 0.17 W/(m<sup>2</sup>K)  
Diffusion suitable

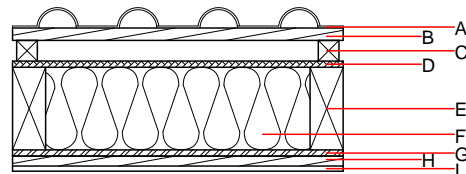
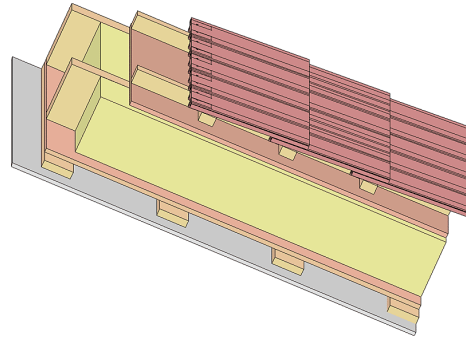
Calculated by TUM

**Acoustic performance**  $R_w (C; C_{tr})$  54(-1;-7) dB  
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

**Mass per unit area** m 106.30 kg/m<sup>2</sup>

Calculation based on gypsum plaster board type DF



**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
			$\lambda$	$\mu \text{ min} - \text{max}$	$\rho$	c	
A		concrete roof tile or tiled roof			2100		A1
B	30.0	spruce wood battens (30/50)	0.120	50	450	1.600	D
C	50.0	spruce wood counter battens (Austria: minimum height 50 mm), Germany 30 mm	0.120	50	450	1.600	D
D	16.0	fibreboard (MDF)	0.140	11	600	1.700	D
E	240.0	construction timber (80/...; e=625)	0.120	50	450	1.600	D
F	240.0	mineral wool [040; 30; $\geq 1000^\circ\text{C}$ ]	0.040	1	30	1.030	A1
G	15.0	OSB (sealed with airtight tape)	0.130	200	600	1.700	D
H	24.0	spruce wood cladding with spacing of cladding boards(24/100); a=400	0.120	50	450	1.600	D
I	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
I	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

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

#### Database ecoinvent

013<sub>Kon</sub> 32.6

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	42.920
Biogenic carbon in kg CO <sub>2</sub> -e.	kg CO <sub>2</sub>	62.260
Energy use of Primary Energy	MJ	936.340
Share of renewable PE	%	22.41

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		0.157	0.055	2,35E-6	0.051	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	104.987	632.248	737.234	454.176	30.095	484.271