

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 Diffusion 0.17 $\text{W}/(\text{m}^2\text{K})$ suitable

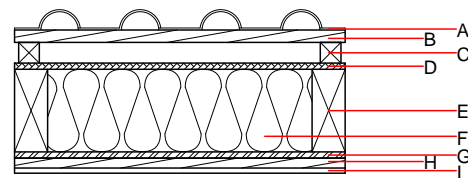
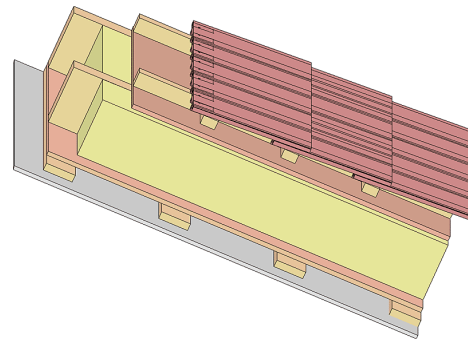
Calculated by TUM

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^2

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
		λ	μ min - max	ρ	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^2)

Database ecoinvent

OI_{kon} 32.6

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	42.920
Biogenic carbon in $\text{kg CO}_2\text{-e}$.	kg CO_2	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 ₂ -e.]	AP [kg SO ₂ -e.]	EP [kg PO ₄ -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