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Designation: sdrhzi09a-04
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, SP

Pitched roof - sdrhzi09a-04

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 kN/m² (rafter 60/200 without roofing, counter battens and battens)
Classified by IBS
Classified by HFA

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**	0.20 W/(m²K)
	Diffusion	suitable

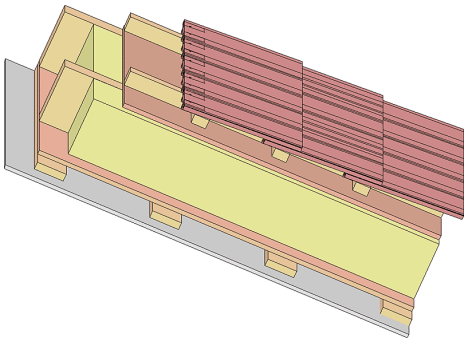
Calculated by HFA
Calculated by TUM

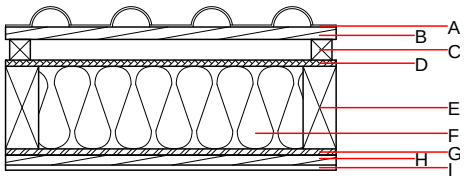
Acoustic performance	**R_w ($C;C_{tr}$)**	53(-1;-7) dB
	$L_{n,w}$ (C_I)	

with a tiled roof Rw = 51 (-1; -7) dB
Assessed by TGM
Assessed by Müller-BBM

Mass per unit area	**m**	104.00 kg/m²

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
			λ	μ min – max	ρ	c	EN
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	200.0	construction timber (80/..; e=625)	0.120	50	450	1.600	D
F	200.0	mineral wool [038; ≥33; ≥1000°C]	0.038	1	33	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

$OI3_{Kon}$	34.5

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	40.400
Biogenic carbon in kg CO_2-e.	**kg CO_2**	58.570
Energy use of Primary Energy	**MJ**	896.430
Share of renewable PE	**%**	21.98

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		0.163	0.057	2,38E-6	0.054	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	100.620	599.492	700.112	464.763	30.095	494.858

Database GaBi (ÖKOBAUDAT)

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		0.123	0.021	1,74E-6	0.026	
C1 - C4		0.007	0.003	8,91E-8	0.001	
A1 - C4		0.134	0.025	1,84E-6	0.026	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	193.906	682.862	878.160	661.334	31.950	693.407
C1 - C4	2.088	-677.546	-675.458	22.650	-22.453	0.197
A1 - C4	197.078	5.575	204.045	699.354	9.548	709.025