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Designation: sdrhbi01a-05
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, SP

Pitched roof - sdrhbi01a-05

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 $E_{d,fi}$ = 3,66 kN/m² (rafter 80/200 without roofing, full formwork and counter battens)
Classified by HFA

Germany

F30

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

Corresponding proof: DIN 4102-4:2016-05, Tabelle 10.19, Zeile 1

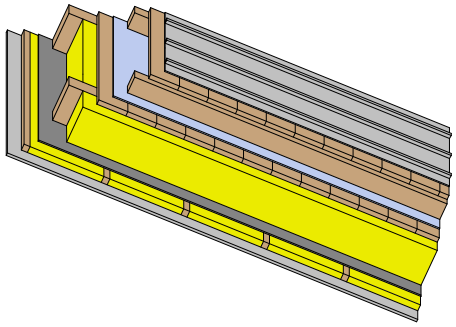
Thermal performance	**U**	0.16 W/(m²K)
	Diffusion	suitable

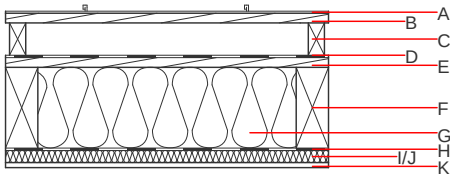
Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	51(-4;-11) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	60.80 kg/m²





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		sheet metal roofing on structured separation layer			7800		A1
B	24.0	spruce wood full 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		sarking membrane sd ≤ 0,3m			1000		E
E	24.0	planking spruce wood full formwork	0.120	50	450	1.600	D
F	240.0	construction timber (80/*; e=625)	0.120	50	450	1.600	D
G	240.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
H		vapour barrier sd≥ 10m			1000		
I	30.0	spruce wood cross battens (a=400)	0.120	50	450	1.600	D
J	30.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
K	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	26.9

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	55.490
Biogenic carbon in kg CO_2-e.	**kg CO_2**	80.790
Energy use of Primary Energy	**MJ**	1210.980
Share of renewable PE	**%**	37.71

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		0.141	0.066	2,27E-6	0.032	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	130.240	839.369	969.609	467.862	29.415	497.277

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		0.165	0.029	1,25E-6	0.031	
C1 - C4		0.002	0.001	1,31E-7	0.000	
A1 - C4		0.168	0.030	1,38E-6	0.031	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	454.530	1295.462	1753.277	721.842	118.804	840.794
C1 - C4	1.789	-1290.329	-1288.540	27.057	-37.174	-10.118
A1 - C4	456.699	5.391	465.377	754.279	81.682	836.109