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Designation: sdshzx02-01
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, SP

Pitched roof - sdshzx02-01

pitched roof, exposed rafter, ventilated, -, without lining, wooden surface

Performance rating

Fire protection performance	**REI**	30

maximum span = 5 m; maximum load $E_{d,fi}$ = 5,29 kN/m² (with exposed beams 180/240 and fire protection cladding)
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 10.24, Zeile 1

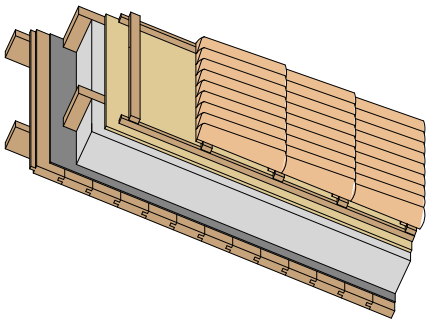
Thermal performance	**U**	0.17 W/(m²K)
	Diffusion	suitable

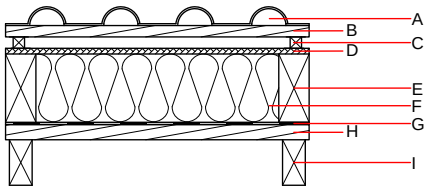
Calculated by TUM

Acoustic performance	**R_w (C_i;C_{tr})**	44(-2;-8) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	114.60 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. Depending on the requirements (eg increased rainproof under-roof), an additional underlay is required.

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	15.0	fibreboard (MDF)	0.140	11	600	1.700	D
E	240.0	construction timber (80/..; e=800)	0.120	50	450	1.600	D
F	240.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
G		vapour barrier sd≥ 2m			1000		
H	40.0	spruce wood tongue and groove, fire protection cladding (Germany Minimum 50 mm)	0.120	50	450	1.600	D
I		construction timber in acc. with structural design	0.120	50	450	1.600	D

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	20.6

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	81.980
Biogenic carbon in kg CO_2-e.	**kg CO_2**	115.800
Energy use of Primary Energy	**MJ**	876.860
Share of renewable PE	**%**	33.88

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		0.130	0.055	2,26E-6	0.031	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	157.639	1039.238	1196.877	401.250	46.624	447.874

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		0.100	0.020	2,17E-6	0.021	
C1 - C4		0.011	0.008	1,83E-7	0.001	
A1 - C4		0.113	0.028	2,36E-6	0.022	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	294.289	1333.742	1628.980	540.839	23.005	564.128
C1 - C4	2.053	-1161.796	-1159.743	29.847	-15.305	14.542
A1 - C4	297.040	171.946	469.935	579.820	7.700	587.804