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Designation: sdmhbi02a-01
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, PLB

Pitched roof - sdmhbi02a-01

pitched roof, solid wood construction, ventilated, with dry lining, not suspended, gypsum plasterboard

Performance rating

Fire protection performance	**REI**	60

maximum span = 5 m; maximum load $E_{d,fi}$ = 5 kN/m² (without roof structure)
Classified by HFA

Germany

REI60

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

Corresponding proof: manufacturer-specific

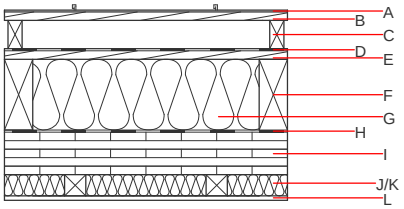
Thermal performance	**U**	0.14 W/(m²K)
	Diffusion	suitable

Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	49(-1;-6) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	120.90 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 structured separation layer			7800		A1
B	24.0	spruce wood 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	200.0	construction timber (80/..; e=800)	0.120	50	450	1.600	D
G	200.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
H	0.2	sealing sheet (air tight)	0.170		1200		E
I	120.0	solid glued wood	0.130	50	500	1.600	D
J	60.0	spruce wood (battens 60/60; e=400)	0.120	50	450	1.600	D
K	60.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
L	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2

Sustainability rating (per m²)

Database ecoinvent

OI3$_{Kon}$	43.1

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	113.420
Biogenic carbon in kg CO_2-e.	**kg CO_2**	162.150
Energy use of Primary Energy	**MJ**	1258.850
Share of renewable PE	**%**	36.30

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		0.267	0.117	4,17E-6	0.077	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	175.530	1736.802	1912.332	815.053	33.300	848.353

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		0.185	0.031	4,13E-6	0.032	
C1 - C4		0.006	0.007	2,91E-7	0.001	
A1 - C4		0.193	0.039	4,43E-6	0.033	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	455.494	1894.929	2351.025	769.272	84.507	853.231
C1 - C4	1.114	-1745.602	-1744.487	27.041	-0.133	26.908
A1 - C4	456.990	149.587	607.178	801.855	84.426	885.733