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Designation: sdmhbi01a-03
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, PLB

Pitched roof - sdmhbi01a-03

pitched roof, solid wood construction, ventilated, with dry lining, not suspended, other surface

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

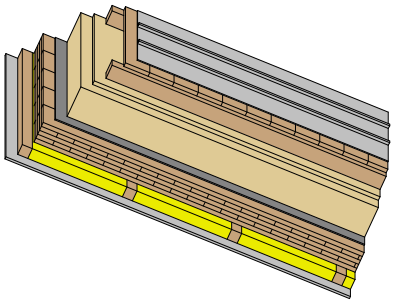
Thermal performance	**U**	0.14 W/(m²K)
	Diffusion	suitable

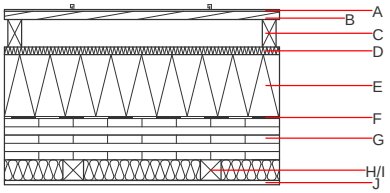
Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	46(-1;-6) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	126.30 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.
Underlay laminated on insulation board

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 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	180.0	mineral wool [040; 130] on-roof insulation	0.040	1	130	1.030	
F	0.2	sealing sheet (air tight)					
G	120.0	cross laminated timber	0.130	50	500	1.600	D
H	60.0	spruce wood (battens 60/60; e=400)	0.120	50	450	1.600	D
I	60.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
J	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	95.4

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	77.820
Biogenic carbon in kg CO_2-e.	**kg CO_2**	112.470
Energy use of Primary Energy	**MJ**	1396.560
Share of renewable PE	**%**	26.77

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		0.467	0.161	4,93E-6	0.171	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	105.364	1132.965	1238.329	1146.784	33.300	1180.084

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		0.340	0.050	4,37E-6	0.036	
C1 - C4		0.005	0.008	2,18E-7	0.001	
A1 - C4		0.347	0.059	4,60E-6	0.037	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	372.367	1335.055	1705.761	991.081	118.396	1108.807
C1 - C4	1.128	-1325.609	-1324.481	25.014	0.000	25.014
A1 - C4	373.883	9.706	381.928	1022.676	118.448	1140.454