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Designation: fdroba01a-01
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, PLB

Flat roof - fdroba01a-01

flat roof, timber frame construction, not ventilated, with dry lining, suspended, other surface

Performance rating

Fire protection performance	**REI**	30

maximum span = 5 m; maximum load Ed,fi = 2,6 kN/m²
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

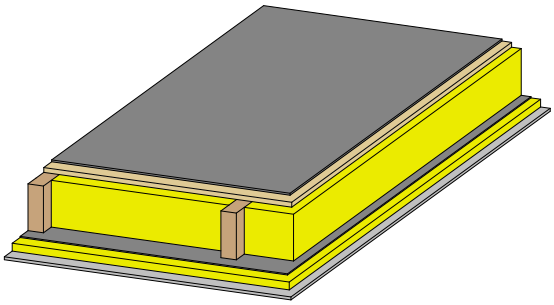
Thermal performance	**U**	0.13 W/(m²K)
	Diffusion	suitable

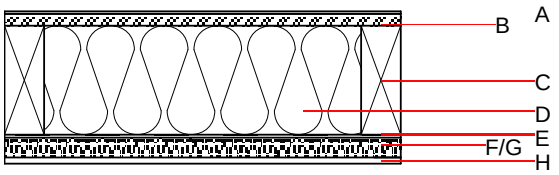
Attention: Due to the application of a moisture-adaptive vapour barrier an object-related proof according to protection against moisture (diffusion) is mandatory. A hygrothermic simulation is necessary (e.g. WUFI)
Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	52(-4;-9) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	177.90 kg/m²





Note: ATTENTION: Regarding protection against moisture an object-related proof in terms of paramter like e.g. climate, shading class etc. is required. Therfore a hygrothermic simulation is necessary (e.g.WUFI), a simple Glaser calculation ist not allowed.

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		Plastic roofing membrane /metal sheeting on structured separation layer					E
B	25.0	OSB	0.130	200	600	1.700	D
C	280.0	construction timber (80/..; e=800)	0.120	50	450	1.600	D
D	280.0	mineral wool [040; 30; ≥1000°C]	0.040	1	30	1.030	A1
E		moisture-adaptive vapour retarder					E
F	40.0	acoustic hanger					
G	40.0	mineral wool [040; 30; ≥1000°C]	0.040	1	30	1.030	A1
H	15.0	gypsum plaster board type DF	0.250	10	800	1.050	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	40.7

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	35.500
Biogenic carbon in kg CO_2-e.	**kg CO_2**	52.670
Energy use of Primary Energy	**MJ**	810.310
Share of renewable PE	**%**	24.66

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		0.175	0.058	2,88E-6	0.058	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	91.212	440.726	531.937	485.759	88.127	573.885

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		0.166	0.024	1,34E-6	0.030	
C1 - C4		0.003	0.003	7,72E-8	0.000	
A1 - C4		0.171	0.028	1,43E-6	0.030	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	198.379	614.872	812.390	590.785	63.278	654.135
C1 - C4	0.992	-607.922	-606.931	11.458	-13.688	-2.230
A1 - C4	199.860	7.208	206.208	610.448	49.654	660.173