

Flat roof - fdroba01a-02

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 $E_{d,fi} = 2,6 \text{ kN/m}^2$
 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

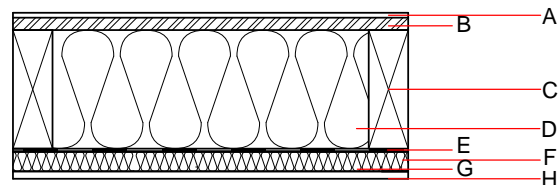
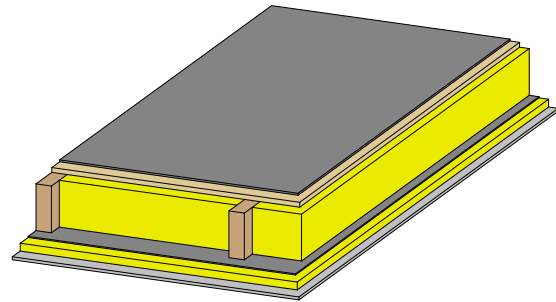
Thermal performance U Diffusion 0.13 $\text{W}/(\text{m}^2\text{K})$ suitable

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 $R_w (C;C_{tr})$ $L_{n,w} (C_i)$ 52(-4;-9) dB

Assessed by Müller-BBM

Mass per unit area m 188.50 kg/m^2



Note: ATTENTION: Regarding protection against moisture an object-related proof in terms of parameter like e.g. climate, shading class etc. is required. Therefore a hygrothermic simulation is necessary (e.g. WUFI), a simple Glaser calculation is 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 EN
			λ	μ min – max	ρ	c	
A		Plastic roofing membrane /metal sheeting on structured separation layer					E
B	25.0	OSB	0.130	200	600	1.700	D
C	300.0	construction timber (80/...; e=800)	0.120	50	450	1.600	D
D	300.0	mineral wool [040; 30; $\geq 1000^\circ\text{C}$]	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; $\geq 1000^\circ\text{C}$]	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 m^2)

Database ecoinvent

$OI3_{kon}$ 47.6

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	36.800
Biogenic carbon in $\text{kg CO}_2\text{-e.}$	kg CO_2	54.540
Energy use of Primary Energy	MJ	834.770
Share of renewable PE	%	24.880

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	-10.651	0.217	0.063	3,08E-6	0.045	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	67.952	498.890	566.842	520.507	92.312	612.820

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	-24.454	0.172	0.025	1,42E-6	0.030	
C1 - C4	61.451	0.003	0.003	8,05E-8	0.000	
A1 - C4	40.747	0.178	0.029	1,51E-6	0.031	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	206.187	637.016	842.292	606.897	64.359	671.333
C1 - C4	1.012	-629.954	-628.943	11.875	-13.914	-2.038
A1 - C4	207.689	7.322	214.098	627.077	50.509	677.663