

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

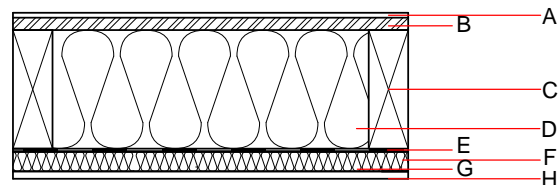
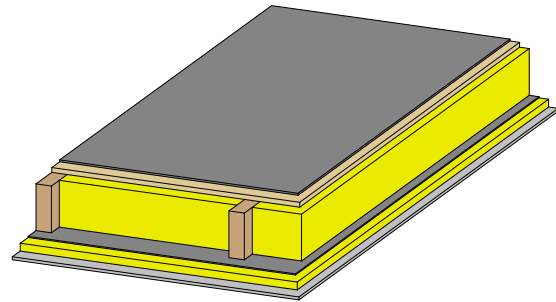
Thermal performance U Diffusion 0.13 $\text{W}/(\text{m}^2\text{K})$ suitable

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 177.90 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	280.0	construction timber (80/...; e=800)	0.120	50	450	1.600	D
D	280.0	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

OI_{kon} 43.0

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	35.500
Biogenic carbon in $\text{kg CO}_2\text{-e.}$	kg CO_2	52.670
Energy use of Primary Energy	MJ	810.310
Share of renewable PE	%	24.660

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	-9.510	0.191	0.057	2,93E-6	0.038	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	65.837	449.585	515.422	478.730	92.312	571.042

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	-23.389	0.166	0.024	1,34E-6	0.030	
C1 - C4	59.294	0.003	0.003	7,72E-8	0.000	
A1 - C4	39.462	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	614.871	812.390	590.785	63.278	654.135
C1 - C4	0.992	-607.922	-606.931	11.458	-13.688	-2.230
A1 - C4	199.861	7.208	206.208	610.447	49.654	660.173