

External wall - awropi04a-18

external wall, timber frame construction, not ventilated, with dry lining, with rendering, other surface

Performance rating

Fire protection performance REI from inside 60
REI from outside 60
maximum ceiling height = 3 m; maximum load $E_{d,fi} = 32,0 \text{ kN/m}$
Classified by HFA
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Germany

F60 (from inside/from outside)
Load $E_{d,fi}$ according to the German certification document
Corresponding proof: manufacturer-specific

Thermal performance U 0.13 W/(m²K)
Diffusion suitable

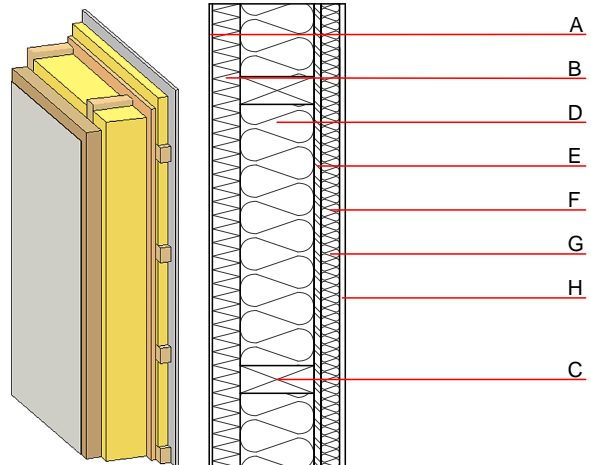
Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 54(-3;-11) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 69.30 kg/m²

Calculation based on gypsum plaster board type DF



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	$\mu \text{ min} - \text{max}$	ρ	c	
A	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	60.0	wood-fibre insulation board WF-PT [045; 180]	0.045	5 - 7	180	2.100	E
C	240.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
D	240.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
E	15.0	OSB (sealed with airtight tape)	0.130	200	600	1.700	D
F	40.0	spruce wood cross battens (a=400) or battens offset)	0.120	50	450	1.600	D
G	40.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
H	15.0	gypsum plaster board type DF or	0.250	10	800	1.050	A2
H	15.0	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

OI3_{Kon} 35.4

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 53.260
Biogenic carbon in kg CO₂-e. kg CO₂ 77.730
Energy use of Primary Energy MJ 1292.630
Share of renewable PE % 38.24

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		0.158	0.070	3,23E-6	0.026	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	125.540	828.752	954.292	593.761	54.129	647.890

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		0.144	0.031	7,32E-7	0.036	
C1 - C4		0.003	0.001	6,82E-8	0.000	
A1 - C4		0.150	0.032	8,10E-7	0.036	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	491.195	1260.938	1752.785	759.763	66.286	826.160
C1 - C4	2.642	-1255.748	-1252.942	31.959	-64.446	-30.280
A1 - C4	494.316	5.449	500.784	798.314	1.904	805.910