

External wall - awrho04b-09

external wall, timber frame construction, ventilated, without dry lining, with cladding, other surface

Performance rating

Fire protection performance	REI from inside	60/K ₂ 60
	REI from outside	60/K ₂ 60

REI 90 (from inside/from outside); maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 50 kN/m
Classified by HFA
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Germany

manufacturer-specific

Load $E_{d,fi}$ according to the German certification document

Thermal performance	U	0.18 W/(m ² K)
	Diffusion	suitable

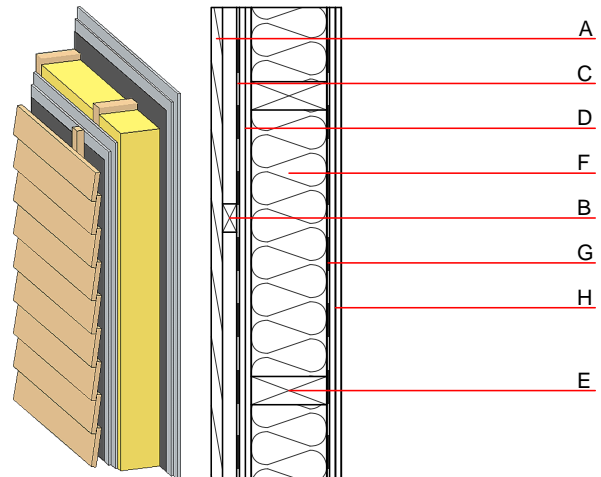
Calculated by TUM

Acoustic performance	R_w (C;C_{tr})	53(-4;-10) dB
	L_{n,w} (C_i)	

Assessed by Müller-BBM

Mass per unit area	m	97.20 kg/m ²
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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	μ min – max	ρ	c	
A	24.0	larch wood external wall cladding	0.155	150	600	1.600	D
B	30.0	spruce wood battens offset (30/50; 30/80) - ventilation	0.120	50	450	1.600	D
C		wind barrier			1000		
D	36.0	gypsum fibre board (2x... mm)	0.320	21	1000	1.100	A2
E	240.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
F	240.0	mineral wool [040; 30; ≥1000°C]	0.040	1	30	1.030	A1
G		vapour barrier sd≥ 2m			1000		
H	36.0	gypsum fibre board (2x... mm) or	0.320	21	1000	1.100	A2
H	36.0	gypsum plaster board type DF (2x... mm)	0.250	10	800	1.050	A2

Sustainability rating (per m²)

Database ecoinvent

O13_{Kon}	47.6
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Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	24.150
Biogenic carbon in kg CO₂-e.	kg CO ₂	35.270
Energy use of Primary Energy	MJ	563.790
Share of renewable PE	%	24.81

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		0.205	0.070	3,11E-6	0.072	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	127.037	425.552	552.590	606.958	10.862	617.821

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		0.110	0.018	8,88E-7	0.012	
C1 - C4		0.006	0.004	1,85E-7	0.001	
A1 - C4		0.125	0.024	1,12E-6	0.014	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	137.076	439.021	576.226	368.996	50.689	419.800
C1 - C4	0.515	-417.085	-416.570	21.934	-0.119	21.820
A1 - C4	139.900	22.971	163.000	423.890	50.874	474.880