

External wall - awmopi01a-02

external wall, solid wood construction, not ventilated, with dry lining, with rendering, other surface

Performance rating

Fire protection performance	REI from inside	90
	REI from outside	90

maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 35,0 kN/m
Classified by HFA

Germany

REI60 (from inside;/from outside); Attention: REI 90 (from inside) in Germany possible with 2x12,5mm gypsum plaster board type DF/gypsum fibre board

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

Corresponding proof: manufacturer-specific

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

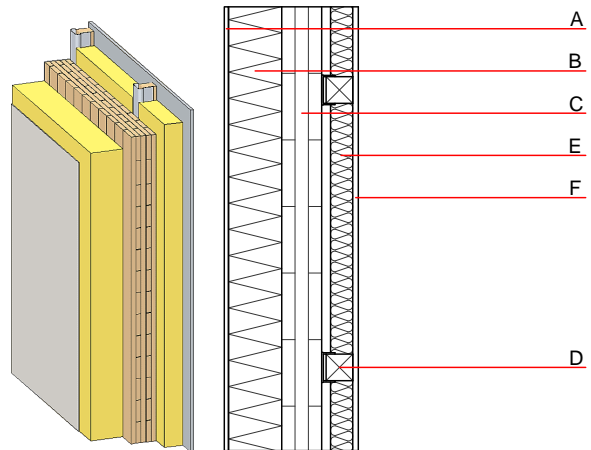
Calculated by HFA
Calculated by TUM

Acoustic performance	R_w (C; C_{tr})	50(-3;-9) dB
	$L_{n,w}$ (C_i)	

R_w =48dB if a lightweight ETICS insulation panel (ρ approx. 90kg/m³) is applied.
Assessed by Müller-BBM

Mass per unit area	m	97.40 kg/m ²
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Calculation based on gypsum plaster board type DF



Note: Attention: REI90 (from inside) in Germany possible with 2x12,5mm gypsum plaster board type DF/gypsum fibre board

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	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	140.0	mineral wool MW-PT [041; 155] ETICS insulation panel	0.041	1	155	1.030	A1
C	100.0	cross laminated timber	0.130	50	500	1.600	D
D	70.0	spruce wood battens (60/60) mounted on resilient clips; e=660	0.120	50	450	1.600	D
E	50.0	mineral wool [040; ≥ 16 ; $< 1000^\circ\text{C}$]	0.040	1	16	1.030	A1
F	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
F	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

OI3_{Kon}	82.3
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Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	51.830
Biogenic carbon in kg CO₂-e.	kg CO ₂	74.710
Energy use of Primary Energy	MJ	864.810
Share of renewable PE	%	28.41

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		0.394	0.127	4,24E-6	0.147	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	56.248	731.169	787.416	936.905	17.714	954.619

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		0.229	0.036	3,30E-6	0.022	
C1 - C4		0.005	0.007	1,53E-7	0.001	
A1 - C4		0.237	0.043	3,46E-6	0.022	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	244.511	888.138	1130.439	594.367	37.891	631.720
C1 - C4	0.803	-879.492	-878.525	18.411	0.000	20.620
A1 - C4	245.701	8.905	252.764	619.109	37.943	662.090