External wall - awmopi01a-12

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**	0.16 W/(m²K)
	Diffusion	suitable

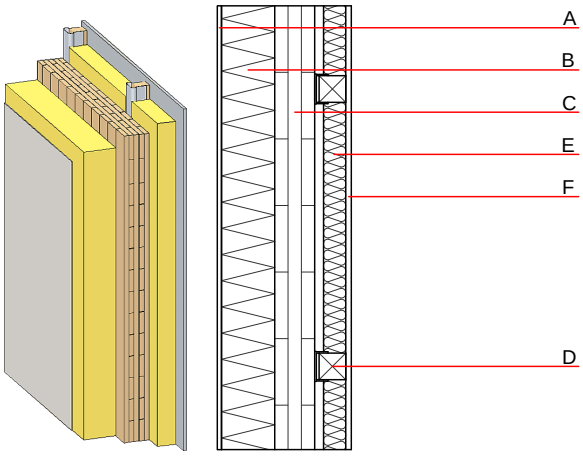
Calculated by TUM

Acoustic performance	**R_w (C;C_{tr})**	51(-3;-9) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	104.30 kg/m²

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
			λ	μ min – max	ρ	c	EN
A	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	180.0	wood-fibre insulation board [0,045; R=160] ETICS insulation panel	0.045	5 - 7	160	2.100	E
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; 11; <1000°C]	0.040	1	11	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

$OI3_{Kon}$	44.0

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	93.230
Biogenic carbon in kg CO_2-e.	**kg CO_2**	134.000
Energy use of Primary Energy	**MJ**	1110.870
Share of renewable PE	**%**	38.93

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		0.211	0.092	4,07E-6	0.050	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	76.095	1055.897	1131.991	744.258	48.388	792.647

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		0.137	0.028	2,73E-6	0.026	
C1 - C4		0.003	0.001	1,50E-7	0.000	
A1 - C4		0.143	0.030	2,89E-6	0.026	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	430.414	1339.818	1768.022	646.272	43.266	688.990
C1 - C4	1.690	-1334.374	-1332.519	26.586	-31.836	-3.040
A1 - C4	432.486	5.703	436.347	678.382	11.482	694.900