

External wall - awmopi03a-01

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/lfm
 Classified by HFA

Germany

REI 60 (from inside)/REI90 (from outside); Attention: REI90 (from inside) 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	0.09 W/(m ² K)
	Diffusion	suitable

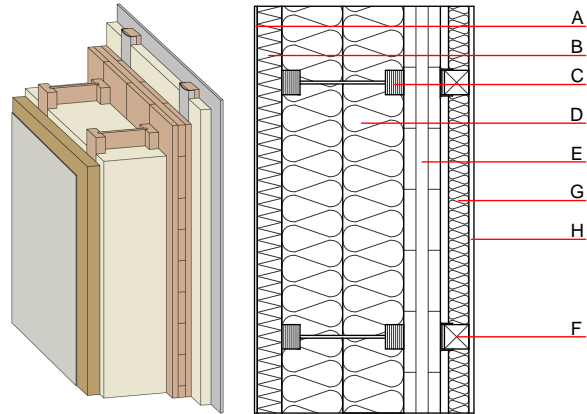
The stated thermal characteristics in the product data sheet are specified for the hard board intermediate web; the flanges are calculated with solid wood.
 Calculated by HFA
 Calculated by TUM

Acoustic performance	R_w (C;C _{tr})	63(-2;-7) dB
	$L_{n,w}$ (C _i)	

Assessed by Müller-BBM

Mass per unit area	m	106.40 kg/m ²
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Calculation based on gypsum plaster board type DF



Note: Attention: REI 90 (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	60.0	wood-fibre insulation board [045; 190]	0.045	5 - 7	190	2.100	E
C	300.0	Light composite wood-based beams (I-beams) with solid wood flanges (60/45) and hard board intermediate web ($\geq 6,7$) e=625	0.400	20 - 30	800	1.700	D
D	300.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
E	100.0	cross laminated timber $\geq 94,0$; at least 3-layers, top layer at least 30 mm	0.130	50	500	1.600	D
F	70.0	spruce wood Battens on resilient clips (60/60; e=625)	0.120	50	450	1.600	D
G	50.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
H	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
H	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

O13 _{kon}	48.0
calculated with gypsum plaster fire protection board (GKF/DF); this data includes 3-, 5-, and 7-ply cross laminated timber elements; Calculated by HFA	

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	88.120
Biogenic carbon in kg CO ₂ -e.	kg CO ₂	126.670
Energy use of Primary Energy	MJ	1842.400
Share of renewable PE	%	42.80

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		0.231	0.102	4,53E-6	0.053	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	101.511	1250.305	1351.815	836.898	60.309	897.207

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		0.206	0.044	3,27E-6	0.042	
C1 - C4		0.004	0.001	1,48E-7	0.000	
A1 - C4		0.212	0.046	3,42E-6	0.043	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	785.206	1890.085	2672.416	1007.876	82.002	1089.390
C1 - C4	2.908	-1884.283	-1881.210	40.501	-70.799	-28.090
A1 - C4	788.495	6.061	792.051	1053.901	11.255	1070.240