

External wall - awmhi01a-05

external wall, solid wood construction, ventilated, with dry lining, with cladding, other surface

Performance rating

Fire protection performance	REI from inside	90
	REI from outside	60

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

Germany

REI 60 (from inside/from outside); Attention: REI 90 (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	0.12 W/(m ² K)
	Diffusion	suitable

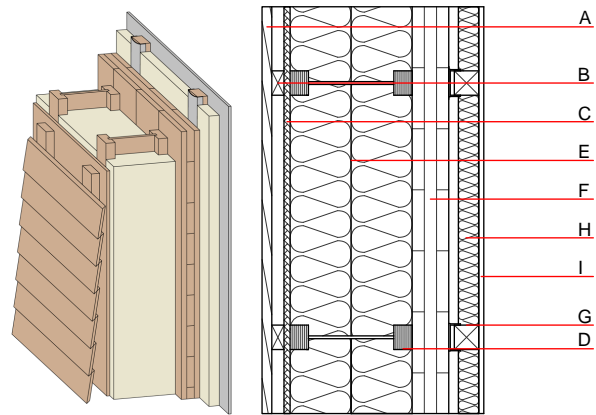
Calculated by TUM

Acoustic performance	$R_w (C; C_{tr})$	56(-2;-7) dB
	$L_{n,w} (C_i)$	

Assessed by HFA
 Assessed by Müller-BBM

Mass per unit area	m	105.70 kg/m ²
---------------------------	----------	--------------------------

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	24.0	larch wood external wall cladding	0.155	150	600	1.600	D
B	30.0	spruce wood battens offset (30/60) - ventilation	0.120	50	450	1.600	D
C	15.0	fibreboard (MDF)	0.140	11	600	1.700	D
D	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
E	300.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
F	100.0	cross laminated timber (at least 3-layers, top layer at least 30mm)	0.130	50	500	1.600	D
G	70.0	spruce wood battens 60/60 on resilient clips, $e=625$	0.120	50	450	1.600	D
H	50.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
I	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
I	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

O13_{kon}	38.4
--------------------------	------

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	98.450
Biogenic carbon in kg CO₂-e.	kg CO ₂	141.040
Energy use of Primary Energy	MJ	1872.020
Share of renewable PE	%	42.83

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		0.214	0.094	3,80E-6	0.057	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	131.297	1461.169	1592.467	748.998	58.624	807.622

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		0.209	0.045	4,31E-6	0.047	
C1 - C4		0.003	0.001	1,96E-7	0.000	
A1 - C4		0.214	0.046	4,51E-6	0.047	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	798.733	2128.143	2923.547	1024.880	85.679	1110.050
C1 - C4	2.720	-2123.291	-2120.570	39.819	-75.187	-35.370
A1 - C4	801.834	5.111	803.617	1070.189	10.544	1080.230