

External wall - awrhho01a-09

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

Performance rating

Fire protection performance	REI from inside	60
	REI from outside	30

maximum ceiling height = 3 m; maximum load $E_{d,fi} = 32,0$ kN/m

Classified by HFA

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Germany

F60 (from inside)/F30 (from outside)

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

Corresponding proof: manufacturer-specific

Thermal performance	U	0.25 W/(m ² K)
	Diffusion	suitable

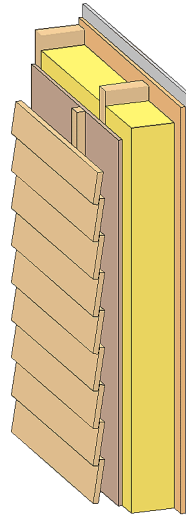
Calculated by TUM

Acoustic performance	R_w (C;C_{tr})	47(-2;-8) dB
	L_{n,w} (C_i)	

Assessed by Müller-BBM

Mass per unit area	m	60.00 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	15.0	fibreboard (MDF)	0.140	11	600	1.700	D
D	160.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
E	160.0	mineral wool [040; 30; $\geq 1000^\circ\text{C}$]	0.040	1	30	1.030	A1
F	15.0	OSB (sealed with airtight tape)	0.130	200	600	1.700	D
G	15.0	gypsum plaster board type DF or	0.250	10	800	1.050	A2
G	15.0	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

OI₃_{kon} 25.9

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	44.620
Biogenic carbon in kg CO₂e.	kg CO ₂	65.170
Energy use of Primary Energy	MJ	640.190
Share of renewable PE	%	29.28

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		0.140	0.049	1,60E-6	0.047	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	113.088	656.311	769.399	377.380	28.891	406.271

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		0.108	0.018	1,58E-6	0.028	
C1 - C4		0.002	0.002	8,96E-8	0.000	
A1 - C4		0.112	0.021	1,68E-6	0.028	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	186.134	756.882	943.138	435.885	32.390	468.350
C1 - C4	0.922	-751.746	-750.825	10.800	-24.350	-13.550
A1 - C4	187.441	5.395	192.958	452.748	8.090	460.910