

External wall - awrhh04a-18

external wall, timber frame construction, ventilated, with 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 $E_{d,fi}$ = 19,2 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	0.15 W/(m ² K)
	Diffusion	suitable

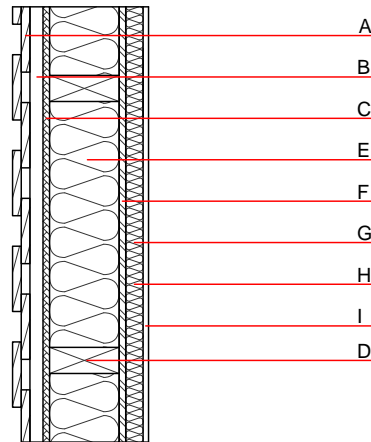
Calculated by TUM

Acoustic performance	R_w (C;C_{tr})	52(-3;10) dB
	L_{n,w} (C_i)	

Assessed by Müller-BBM

Mass per unit area	m	67.80 kg/m ²
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Calculation based on gypsum plaster board type DF



Note: dry lining ≥ 40 mm

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	240.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
E	240.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
F	15.0	OSB	0.130	200	600	1.700	D
G	40.0	spruce wood cross battens (a=400) ≥ 40mm	0.120	50	450	1.600	D
H	40.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
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} 20.9

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	63.310
Biogenic carbon in kg CO₂-e.	kg CO ₂	91.690
Energy use of Primary Energy	MJ	1311.070
Share of renewable PE	%	38.69

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		0.121	0.053	2,09E-6	0.026	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	149.991	974.129	1124.120	432.379	48.331	480.710

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		0.147	0.032	1,73E-6	0.040	
C1 - C4		0.002	0.000	1,11E-7	0.000	
A1 - C4		0.151	0.033	1,84E-6	0.041	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	504.487	1501.279	2005.926	767.817	69.776	837.700
C1 - C4	2.450	-1497.016	-1494.567	30.708	-68.834	-38.130
A1 - C4	507.317	4.521	511.998	803.754	0.994	804.860