

External wall - awrhho01a-17

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 $E_{d,fi} = 32 \text{ kN/m}$
 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 Diffusion 0.18 $\text{W}/(\text{m}^2\text{K})$
 suitable

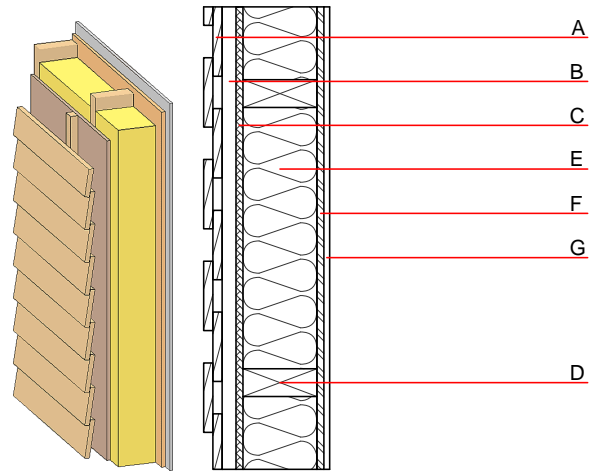
Calculated by TUM

Acoustic performance $R_w (C;C_{tr})$ 49(-2;-8) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 64.40 kg/m^2

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	
			λ	μ min - max	ρ	c	EN	
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 (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 m^2)

Database ecoinvent

O13_{Kon} 23.6

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 56.140
 Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 81.300
 Energy use of Primary Energy MJ 1137.620
 Share of renewable PE % 37.850

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	-63.600	0.139	0.050	2,04E-6	0.007	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	112.108	906.771	1018.879	424.765	47.788	472.553

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	-90.863	0.128	0.028	1,62E-6	0.036	
C1 - C4	123.412	0.002	0.000	9,99E-8	0.000	
A1 - C4	32.911	0.132	0.028	1,73E-6	0.036	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	428.169	1297.066	1725.665	675.752	60.755	736.620
C1 - C4	2.085	-1292.771	-1290.686	26.006	-59.813	-33.810
A1 - C4	430.634	4.554	435.617	706.987	0.994	708.090