

External wall - awrhho01a-16

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 $E_{d,fi} = 32,0 \text{ kN/m}$
 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 0.18 $\text{W}/(\text{m}^2\text{K})$
 Diffusion suitable

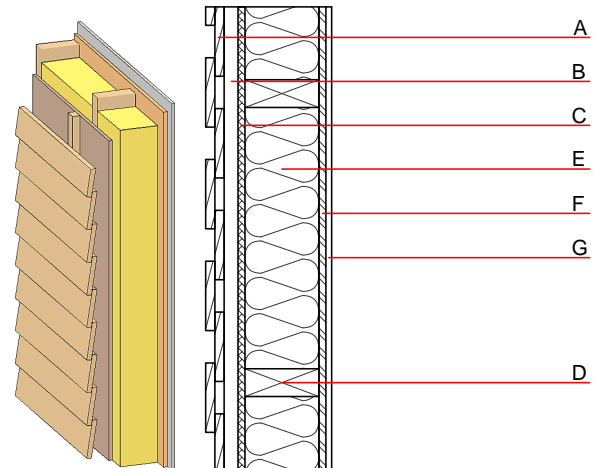
Calculated by TUM

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 67.40 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 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	Cellulose fibre [040; 50]	0.040	1	50	2.000	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

$OI3_{Kon}$ 20.6

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 58.310
 Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 81.880
 Energy use of Primary Energy MJ 570.900
 Share of renewable PE % 34.130

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	-65.243	0.136	0.049	1,84E-6	0.007	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	97.466	850.505	947.970	369.570	30.982	400.552

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	-71.061	0.077	0.015	1,51E-6	0.023	
C1 - C4	91.346	0.006	0.008	1,29E-7	0.001	
A1 - C4	20.741	0.085	0.024	1,64E-6	0.024	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	193.560	927.991	1122.029	353.792	22.627	376.530
C1 - C4	0.816	-744.487	-743.672	15.664	-21.440	-5.780
A1 - C4	194.854	183.763	379.094	376.048	1.251	377.410