

External wall - awrhho01a-13

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 0.21 $\text{W}/(\text{m}^2\text{K})$
 Diffusion suitable

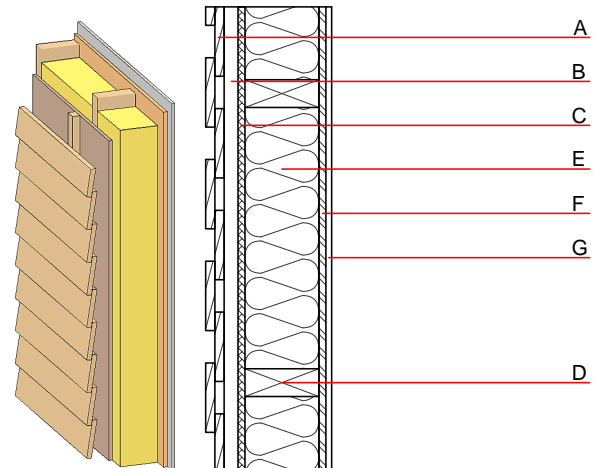
Calculated by TUM

Acoustic performance $R_w (C;C_{tr})$ 48(-2;-8) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 63.90 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	200.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
E	200.0	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

$OI3_{Kon}$ 19.4

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 54.070
 Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 76.170
 Energy use of Primary Energy MJ 548.050
 Share of renewable PE % 33.580

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	-60.891	0.127	0.046	1,72E-6	0.007	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	93.885	798.675	892.560	348.999	30.982	379.980

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	-65.317	0.072	0.015	1,44E-6	0.022	
C1 - C4	84.919	0.005	0.007	1,20E-7	0.001	
A1 - C4	20.058	0.080	0.022	1,57E-6	0.023	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	182.793	865.444	1048.553	343.009	22.607	365.710
C1 - C4	0.782	-711.817	-711.036	14.400	-21.420	-7.020
A1 - C4	184.053	153.887	338.255	364.002	1.251	365.350