

External wall - awmopo01a-04

external wall, solid wood construction, not ventilated, without dry lining, with rendering, wooden surface

Performance rating

Fire protection performance
REI from inside 60
REI from outside 90
maximum ceiling height = 3 m; maximum load $E_{d,fi} = 35,0 \text{ kN/m}$
Classified by HFA

Germany

REI60 (from inside/from outside)

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

Corresponding proof: manufacturer-specific

Thermal performance
U Diffusion 0.26 $\text{W}/(\text{m}^2\text{K})$
suitable

Calculated by HFA

Calculated by HFA

Calculated by TUM

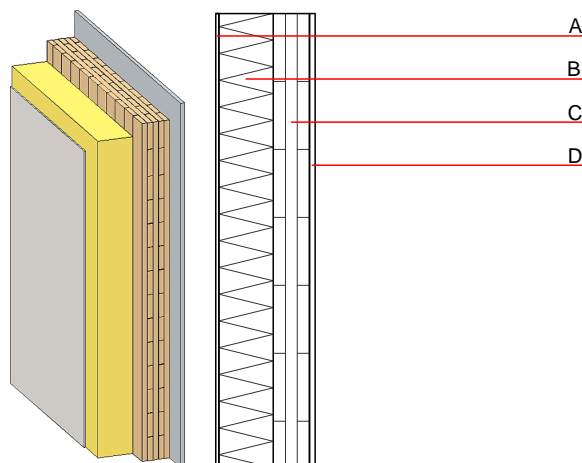
Acoustic performance
 $R_w (C; C_{tr})$ 38(-1;-4) dB
 $L_{n,w} (C_i)$

If a lightweight ETICS insulation panel (ρ approx. 90 kg/m^3) is applied - $R_w = 36 \text{ dB}$.

Beurteilung durch TU-GRAZ

Assessed by Müller-BBM

Mass per unit area m 79.60 kg/m^2



Note: Cross laminated timber:

Variation 00-03: $d \geq 78,0$; at least 3-layers, top layer at least 25 mm; variation 04-07: at least 3-layers, top layer at least 30 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	$\mu \text{ min} - \text{max}$	ρ	c	
A	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	120.0	mineral wool MW-PT [040; 155]	0.040	1	155	1.030	A1
C	100.0	solid glued wood (e.g. cross laminated timber)	0.130	50	500	1.600	D
D		without gypsum board lining					

Sustainability rating (per m^2)

Database ecoinvent

O13_{Kon} 69.0

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	46.000
Biogenic carbon in $\text{kg CO}_2\text{-e}$.	kg CO_2	66.220
Energy use of Primary Energy	MJ	711.340
Share of renewable PE	%	29.55

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		0.338	0.108	3,50E-6	0.128	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	42.970	684.000	726.970	788.464	17.714	806.178

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		0.185	0.029	2,97E-6	0.018	
C1 - C4		0.004	0.005	1,17E-7	0.001	
A1 - C4		0.190	0.034	3,09E-6	0.018	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	209.562	782.004	989.686	486.918	30.441	516.830
C1 - C4	0.657	-779.260	-778.438	13.502	0.000	15.710
A1 - C4	210.224	2.744	211.457	501.113	30.441	536.610