External wall - awmoho03a-02

external wall, solid wood construction, ventilated, without dry lining, with cladding, wooden surface

Performance rating

Fire protection performance	**REI from inside**	60
	REI from outside	60

maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 35,0 kN/m
Classified by MA39/HFA

Germany

REI 60 (from inside/from outside)

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

Corresponding proof: manufacturer-specific

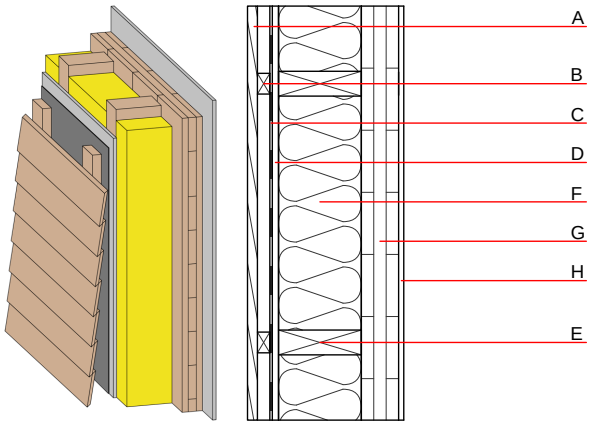
Thermal performance	**U**	0.19 W/(m²K)
	Diffusion	suitable

Calculated by TUM

Acoustic performance	**R_w ($C_;C_{tr}$)**	43(-1;-4) dB
	$L_{n,w}$ (C_I)	

Assessed by TU-GRAZ
Assessed by Müller-BBM

Mass per unit area	**m**	95.20 kg/m²



Note: Cross laminated timber:
Variation 00-02 and 04-06: at least 3-layers, top layer at least 30mm;
variation 03: d ≥ 85,0; at least 5-layers, top layer at least 17 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
			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 (30/60)	0.120	50	450	1.600	D
C		vapour-permeable membrane sd ≤ 0,3m					
D	15.0	gypsum fibre board	0.320	21	1000	1.100	A2
E	200.0	construction timber (60/200; e= 625)	0.120	50	450	1.600	D
F	200.0	cellulose fibre [R=50; r>5]	0.040	1	50	2.000	B
G	100.0	cross laminated timber	0.130	50	500	1.600	D
H		without gypsum board lining					

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	29.9

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	80.010
Biogenic carbon in kg CO_2-e.	**kg CO_2**	113.460
Energy use of Primary Energy	**MJ**	706.510
Share of renewable PE	**%**	41.12

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		0.182	0.078	3,15E-6	0.052	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	125.249	1179.478	1304.727	573.754	23.584	597.338

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		0.092	0.018	2,88E-6	0.018	
C1 - C4		0.006	0.007	2,14E-7	0.001	
A1 - C4		0.100	0.025	3,10E-6	0.019	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	289.300	1318.130	1605.570	388.580	34.910	423.060
C1 - C4	0.770	-1163.670	-1162.900	20.780	-0.100	20.680
A1 - C4	290.550	154.720	443.410	415.960	34.880	450.400