

External wall - awmoho03a-04

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

Performance rating

Fire protection performance REI from inside 90
 REI from outside 90
 maximum ceiling height = 3 m; maximum load $E_{d,fi} = 35,0 \text{ kN/m}$
 Classified by MA39/HFA

Germany

REI 90 from inside REI 60 from outside
 Load $E_{d,fi}$ according to the German certification document
 Corresponding proof: manufacturer-specific

Thermal performance U Diffusion 0.19 $\text{W}/(\text{m}^2\text{K})$
 suitable

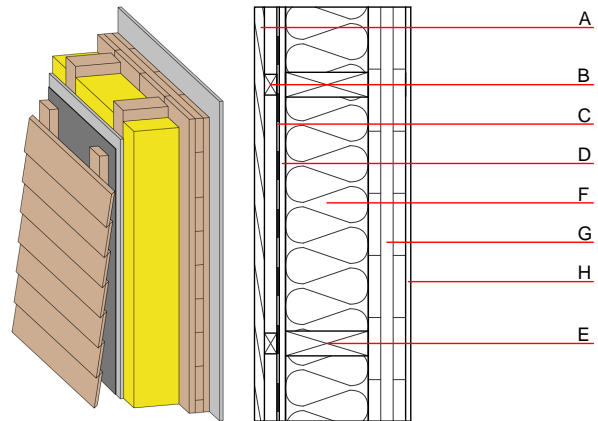
Calculated by TUM

Acoustic performance $R_w (C;C_{tr})$ 47(-1;-4) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 98.10 kg/m^2

Calculation based on gypsum plaster board type DF



Note: Cross laminated timber:
 Variation 00-02 and 04-06: at least 3-layers, top layer at least 30mm;
 variation 03: $d \geq 85,0$; 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 EN
			λ	$\mu \text{ min - max}$	ρ	c	
A	24.0	larch wood external wall cladding	0.120	50	450	1.600	D
B	30.0	spruce wood battens (30/60)	0.120	50	450	1.600	D
C		vapour-permeable membrane $s_d \leq 0,3\text{m}$					
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	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
G	100.0	cross laminated timber	0.130	50	500	1.600	D
H	12.5	gypsum plaster board type DF / gypsum fibre board	0.250	10	800	1.050	A2

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{Kon}$ 37.1

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	68.260
Biogenic carbon in $\text{kg CO}_2\text{-e}$.	kg CO_2	98.740
Energy use of Primary Energy	MJ	815.870
Share of renewable PE	%	36.06

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		0.195	0.086	3,71E-6	0.054	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	122.554	1078.106	1200.661	668.983	23.584	692.567

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		0.134	0.024	3,11E-6	0.020	
C1 - C4		0.004	0.002	2,14E-7	0.001	
A1 - C4		0.142	0.027	3,34E-6	0.021	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	292.560	1175.040	1465.690	488.190	44.720	532.480
C1 - C4	0.810	-1163.670	-1162.870	20.580	-0.100	20.480
A1 - C4	294.230	11.880	304.210	521.640	44.740	565.940