External wall - awmoho05a-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 HFA

Thermal performance	**U**	0.15 W/(m²K)
	Diffusion	suitable

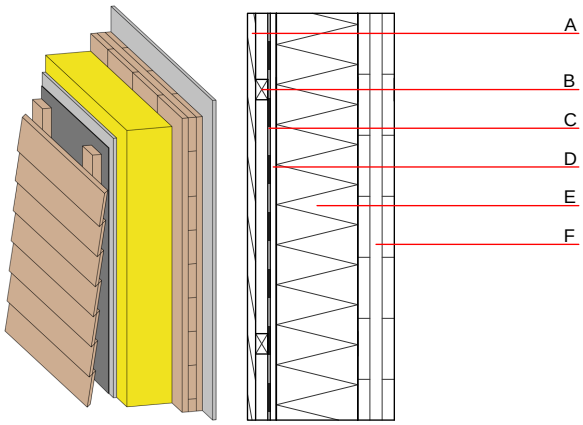
Calculated by HFA

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

Assessed by TU-GRAZ

Mass per unit area	**m**	96.90 kg/m²

Calculation based on gypsum plaster board type DF



Note: Cross laminated timber:
Variation 00-01: d ≥ 94,0; at least 3-layers, top layer at least 30mm; variation 02: d ≥ 85,0; at least 5-layers, top layer at least 17 mm
F= at least 5-layers cross laminated timber

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	20.0	larch wood external wall cladding	0.155	150	600	1.600	D
B	30.0	spruce wood battens	0.120	50	450	1.600	D
C		vapour-permeable membrane sd ≤ 0,3m					
D	12.5	gypsum fibre board	0.320	21	1000	1.100	A2
E	200.0	mineral wool [035; 130; ≥1000°C]	0.035	1	130	1.030	A1
F	90.0	cross laminated timber	0.130	50	500	1.600	D
G	12.5	gypsum plaster board type DF / gypsum fibre board	0.250	10	800	1.050	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	87.6

calculated with gypsum plaster fire protection board (GKF/DF); this data includes 3-, 5-, and 7-ply cross laminated timber elements;
Calculated by HFA

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		0.436	0.123	4,08E-6	0.131	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	95.676	782.074	877.750	924.761	21.007	945.768