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Designation: awmoho03a-05
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, PLB

External wall - awmoho03a-05

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	60

maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 35,0 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**	0.19 W/(m²K)
	Diffusion	suitable

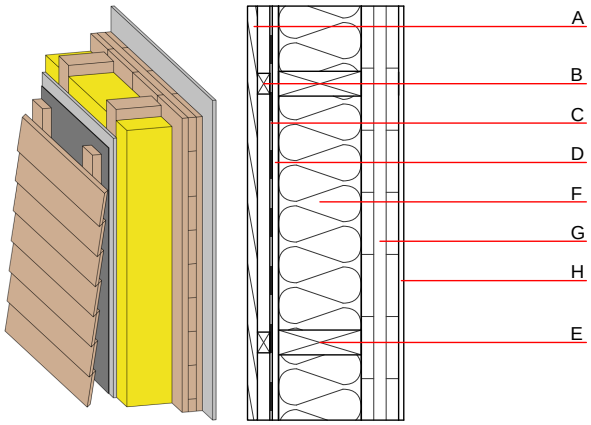
Calculated by TUM

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**	105.20 kg/m²

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 ≥ 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	12.5	gypsum plaster board type DF / gypsum fibre board	0.250	10	800	1.050	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	32.3

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**	749.170
Share of renewable PE	**%**	39.45

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		0.187	0.081	3,42E-6	0.052	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	127.279	1179.478	1306.756	612.074	23.584	635.658

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		0.096	0.019	2,89E-6	0.018	
C1 - C4		0.007	0.007	2,34E-7	0.001	
A1 - C4		0.106	0.027	3,14E-6	0.020	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	293.890	1323.310	1615.340	418.520	35.850	453.940
C1 - C4	0.800	-1163.670	-1162.870	23.270	-0.100	23.170
A1 - C4	295.550	160.150	453.840	453.610	35.870	489.050