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Designation: awmhhi01a-05
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, PLB

External wall - awmhhi01a-05

external wall, solid wood construction, ventilated, with dry lining, with cladding, other 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/lfm
Classified by HFA

Germany

REI 60 (from inside/from outside); Attention: REI 90 (from inside) possible with 2x12,5mm gypsum plaster board type DF/gypsum fibre board

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

Corresponding proof: manufacturer specific

Thermal performance	**U**	0.12 W/(m²K)
	Diffusion	suitable

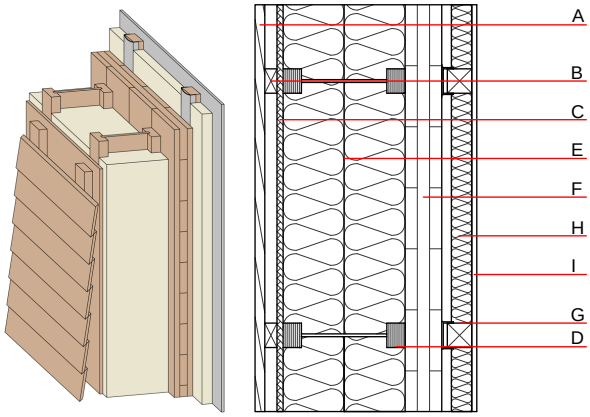
Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	56(-2;-7) dB
	$L_{n,w}$ (C_I)	

Assessed by HFA
Assessed by Müller-BBM

Mass per unit area	**m**	105.70 kg/m²

Calculation based on gypsum plaster board type DF



Note: Attention: REI 90 (from inside) in Germany possible with 2x12,5mm gypsum plaster board type DF/gypsum fibre board

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 offset (30/60) - ventilation	0.120	50	450	1.600	D
C	15.0	fibreboard (MDF)	0.140	11	600	1.700	D
D	300.0	Light composite wood-based beams (I-beams) with solid wood flanges (60/45) and hard board intermediate web (≥ 6,7) e=625	0.400	20 - 30	800	1.700	D
E	300.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
F	100.0	cross laminated timber (at least 3-layers, top layer at least 30mm)	0.130	50	500	1.600	D
G	70.0	spruce wood battens 60/60 on resilient clips, e=625	0.120	50	450	1.600	D
H	50.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
I	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
I	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	38.4

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	98.450
Biogenic carbon in kg CO_2-e.	**kg CO_2**	141.040
Energy use of Primary Energy	**MJ**	1872.020
Share of renewable PE	**%**	42.83

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		0.214	0.094	3,80E-6	0.057	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	131.297	1461.169	1592.467	748.998	58.624	807.622

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		0.209	0.045	4,31E-6	0.047	
C1 - C4		0.003	0.001	1,96E-7	0.000	
A1 - C4		0.214	0.046	4,51E-6	0.047	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	798.733	2128.143	2923.547	1024.880	85.679	1110.050
C1 - C4	2.720	-2123.291	-2120.570	39.819	-75.187	-35.370
A1 - C4	801.834	5.111	803.617	1070.189	10.544	1080.230