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Designation: awmohi02a-05
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, PLB

External wall - awmohi02a-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 kN/m
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**	0.15 W/(m²K)
	Diffusion	suitable

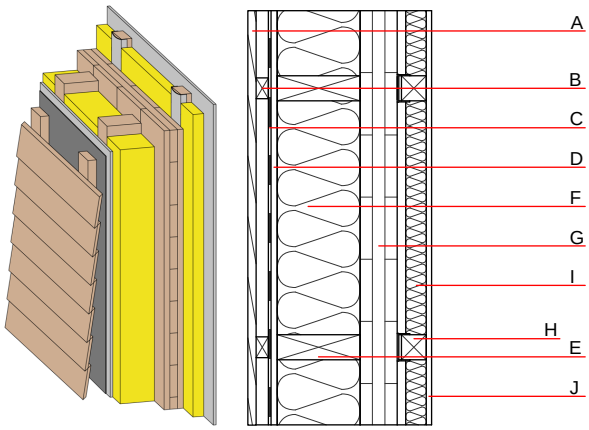
Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	53(-2;-8) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	109.60 kg/m²

Calculation based on gypsum plaster board type DF



Note: Attention: REI 90 (from inside) in Germany possible with 2x12,5mm GKF/GF
Cross laminated timber: Var. 04-06: at least 3-layers, top layer at least 30mm; var. 03: d ≥ 85mm; at least 5-layers, top layer at least 17mm

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 (30/50)	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 [040; 50]	0.040	1	50	2.000	E
G	100.0	cross laminated timber	0.130	50	500	1.600	D
H	70.0	battens (60/60) on resilient clips, e=660	0.120	50	450	1.600	
I	50.0	mineral wool [040; 11; <1000°C]	0.040	1	11	1.030	A1
J	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
J	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	34.3

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	84.270
Biogenic carbon in kg CO_2-e.	**kg CO_2**	119.660
Energy use of Primary Energy	**MJ**	807.640
Share of renewable PE	**%**	39.10

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		0.198	0.085	3,60E-6	0.054	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	135.506	1226.646	1362.152	643.697	23.584	667.280

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		0.112	0.022	3,07E-6	0.020	
C1 - C4		0.007	0.007	2,45E-7	0.001	
A1 - C4		0.123	0.030	3,33E-6	0.021	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	314.065	1396.658	1708.626	455.211	38.299	493.060
C1 - C4	0.866	-1236.777	-1235.911	24.552	-0.100	24.450
A1 - C4	315.790	160.399	474.092	491.846	38.315	529.710