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Designation: awrhho04b-09
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, SP

External wall - awrhho04b-09

external wall, timber frame construction, ventilated, without dry lining, with cladding, other surface

Performance rating

Fire protection performance	**REI from inside**	60/$K_2$60
	REI from outside	60/$K_2$60

REI 90 (from inside/from outside); maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 50 kN/m
Classified by HFA
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Germany

manufacturer-specific

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

Thermal performance	**U**	0.18 W/(m^2K)
	Diffusion	suitable

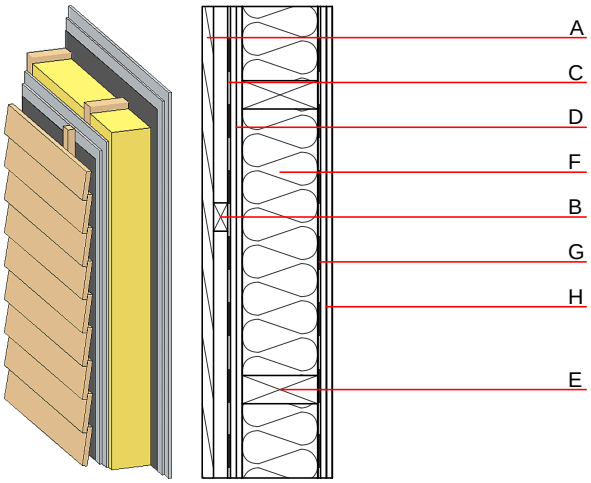
Calculated by TUM

Acoustic performance	**R_w (C_i;C_{tr})**	53(-4;-10) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	97.20 kg/m^2

Calculation based on gypsum plaster board type DF



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 (30/50; 30/80) - ventilation	0.120	50	450	1.600	D
C		wind barrier			1000		
D	36.0	gypsum fibre board (2x... mm)	0.320	21	1000	1.100	A2
E	240.0	construction timber (60/..; e=625)	0.120	50	450	1.600	D
F	240.0	mineral wool [040; 30; ≥1000°C]	0.040	1	30	1.030	A1
G		vapour barrier sd≥ 2m			1000		
H	36.0	gypsum fibre board (2x... mm) or	0.320	21	1000	1.100	A2
H	36.0	gypsum plaster board type DF (2x... mm)	0.250	10	800	1.050	A2

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{Kon}$	47.6

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	24.150
Biogenic carbon in kg CO_2-e.	**kg CO_2**	35.270
Energy use of Primary Energy	**MJ**	563.790
Share of renewable PE	**%**	24.81

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		0.205	0.070	3,11E-6	0.072	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	127.037	425.552	552.590	606.958	10.862	617.821

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		0.110	0.018	8,88E-7	0.012	
C1 - C4		0.006	0.004	1,85E-7	0.001	
A1 - C4		0.125	0.024	1,12E-6	0.014	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	137.076	439.021	576.226	368.996	50.689	419.800
C1 - C4	0.515	-417.085	-416.570	21.934	-0.119	21.820
A1 - C4	139.900	22.971	163.000	423.890	50.874	474.880