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Designation: awropo23b-00
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, PLB

External wall - awropo23b-00

external wall, timber frame construction, not ventilated, without dry lining, with rendering, gypsum plasterboard

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 $E_{d,fi}$ = 19 kN/m
Classified by HFA

Germany

manufacturer-specific

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

Thermal performance	**U**	0.13 W/(m²K)
	Diffusion	suitable

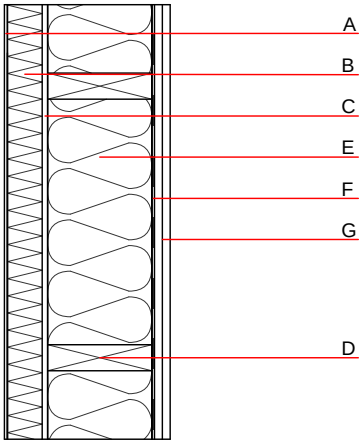
Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	59(-2;-8) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	84.20 kg/m²

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	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	80.0	MW-PT [040; 150]	0.040	1	150	1.030	A1
C	12.5	gypsum fibre board	0.320	21	1000	1.100	A2
D	240.0	construction timber (60/240; e=625)	0.120	50	450	1.600	D
E	240.0	mineral wool [040; 30; ≥1000°C]	0.040	1	30	1.030	A1
F		vapour barrier sd≥ 2m			1000		
G	36.0	gypsum plaster board type DF (2x18 mm) or	0.250	10	800	1.050	A2
G	36.0	gypsum fibre board (2x18 mm)	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	65.8

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	11.360
Biogenic carbon in kg CO_2-e.	**kg CO_2**	16.580
Energy use of Primary Energy	**MJ**	575.130
Share of renewable PE	**%**	17.90

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		0.285	0.086	3,37E-6	0.101	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	103.420	188.675	292.094	693.424	4.993	698.417

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		0.179	0.026	1,10E-6	0.012	
C1 - C4		0.006	0.006	1,16E-7	0.001	
A1 - C4		0.193	0.035	1,25E-6	0.014	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	100.950	214.709	316.580	431.863	38.031	470.010
C1 - C4	0.473	-196.022	-195.385	17.501	-0.119	19.590
A1 - C4	102.965	19.463	123.717	472.160	38.116	515.970