

External wall - awropi04a-00

external wall, timber frame construction, not ventilated, with dry lining, with rendering, other surface

Performance rating

Fire protection performance	REI from inside	60
	REI from outside	60

maximum ceiling height = 3 m; maximum load $E_{d,fi} = 32,0 \text{ kN/m}$

Classified by MA39

Classified by HFA

Germany

F60 (from inside/from outside)

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

Corresponding proof: manufacturer-specific

Thermal performance	U	0.17 W/(m ² K)
	Diffusion	suitable

Calculated by HFA

Calculated by TUM

Acoustic performance	$R_w (C;C_{tr})$	52(-3;-11) dB
	$L_{n,w} (C_i)$	

vertical battens for the dry lining screwed onto the structural timber lead to an

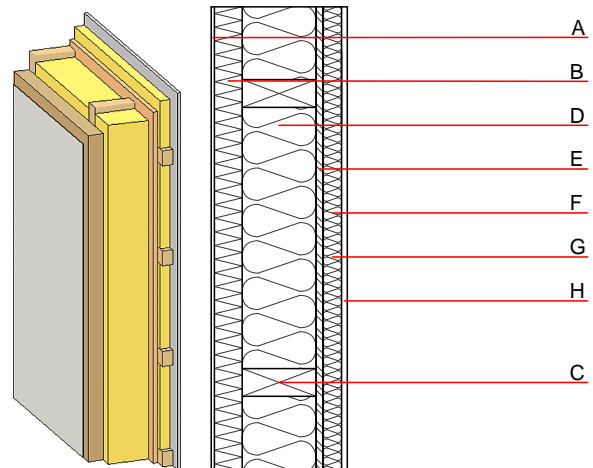
$R_w(C;Ctr)=50(-3;-11) \text{ dB}$

Assessed by MA39

Assessed by Müller-BBM

Mass per unit area	m	57.40 kg/m ²
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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 EN
			λ	$\mu \text{ min - max}$	ρ	c	
A	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	60.0	wood-fibre insulation board WF-PT [045; 180]	0.045	5 - 7	180	2.100	E
C	160.0	construction timber (60/..; e=625)	0.120	50	450	1.600	D
D	160.0	mineral wool [040; ≥ 16 ; <1000°C]	0.040	1	16	1.030	A1
E	15.0	OSB (sealed with airtight tape)	0.130	200	600	1.700	D
F	40.0	spruce wood cross battens (a=400) or battens offset)	0.120	50	450	1.600	D
G	40.0	mineral wool [040; ≥ 16 ; <1000°C]	0.040	1	16	1.030	A1
H	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
H	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

O13_{Kon} 37.0

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	34.730
Biogenic carbon in kg CO₂-e.	kg CO ₂	51.090
Energy use of Primary Energy	MJ	597.880
Share of renewable PE	%	29.82

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		0.157	0.070	3,11E-6	0.024	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	97.401	559.248	656.649	554.336	34.612	588.948

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		0.111	0.018	6,94E-7	0.020	
C1 - C4		0.003	0.002	5,25E-8	0.000	
A1 - C4		0.118	0.022	7,56E-7	0.021	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	176.909	519.574	696.828	400.938	28.204	429.220
C1 - C4	0.995	-513.240	-512.082	12.292	-17.012	-2.510
A1 - C4	178.291	6.593	185.596	419.588	11.243	436.480