

External wall - awropo22b-14

external wall, timber frame construction, not ventilated, without 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 $E_{d,fi} = 32 \text{ kN/m}$

Classified by HFA

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 Diffusion 0.17 $\text{W}/(\text{m}^2\text{K})$
 suitable

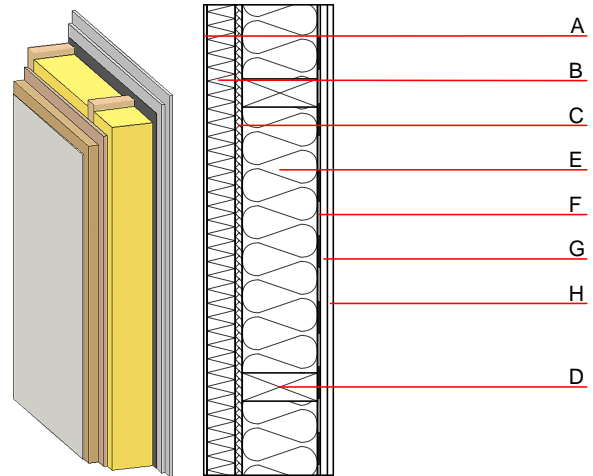
Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 52(-2;-8) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 76.80 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 EN
			λ	μ min - max	ρ	c	
A	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	60.0	wood-fibre insulation board [055; 200]	0.055	5 - 7	200	2.100	E
C	15.0	fibreboard (MDF)	0.140	11	600	1.700	D
D	200.0	construction timber (60/..; e=625)	0.120	50	450	1.600	D
E	200.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
F		vapour barrier $s_d \geq 3\text{m}$			1000		
G	15.0	gypsum fibre board	0.320	21	1000	1.100	A2
H	12.5	gypsum fibre board or	0.320	21	1000	1.100	A2
H	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2

Sustainability rating (per m^2)

Database ecoinvent

$O13_{kon}$ 36.6

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 44.270
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 62.850
Energy use of Primary Energy MJ 1053.500
Share of renewable PE % 36.27

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		0.155	0.066	3,14E-6	0.021	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	138.632	629.749	768.381	572.840	53.779	626.619

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		0.117	0.026	1,36E-6	0.026	
C1 - C4		0.004	0.001	9,01E-8	0.000	
A1 - C4		0.125	0.028	1,46E-6	0.026	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	379.532	953.270	1333.870	632.433	68.172	700.700
C1 - C4	1.751	-943.715	-941.798	27.103	-57.690	-28.380
A1 - C4	382.141	10.074	393.651	671.358	10.598	687.630