

External wall - awropo09a-12

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 $E_{d,fi} = 32,0 \text{ kN/m}$
 Classified by HFA
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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

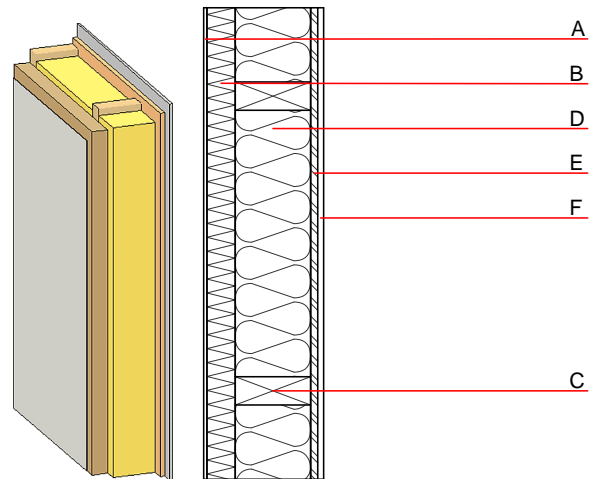
Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 51(-3;11) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 59.80 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 WF-PT [045; 180]	0.045	5 - 7	180	2.100	E
C	200.0	construction timber (60/..; e=625)	0.120	50	450	1.600	D
D	200.0	mineral wool [040; 30; $\geq 1000^\circ\text{C}$]	0.040	1	30	1.030	A1
E	15.0	OSB (sealed with airtight tape)	0.130	200	600	1.700	D
F	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
F	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m^2)

Database ecoinvent

OI3_{kon} 38.5

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 32.260
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 47.480
Energy use of Primary Energy MJ 577.170
Share of renewable PE % 29.13

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		0.173	0.065	2,65E-6	0.046	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	94.307	549.748	644.055	522.794	34.612	557.407

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		0.106	0.018	6,66E-7	0.020	
C1 - C4		0.003	0.002	4,62E-8	0.000	
A1 - C4		0.112	0.020	7,20E-7	0.020	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	166.765	476.835	644.368	391.127	27.494	418.710
C1 - C4	0.964	-470.548	-469.422	11.658	-17.032	-3.170
A1 - C4	168.115	6.545	175.795	409.057	10.513	425.220