

External wall - awropo09a-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 $E_{d,fi} = 32,0 \text{ kN/m}$
 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

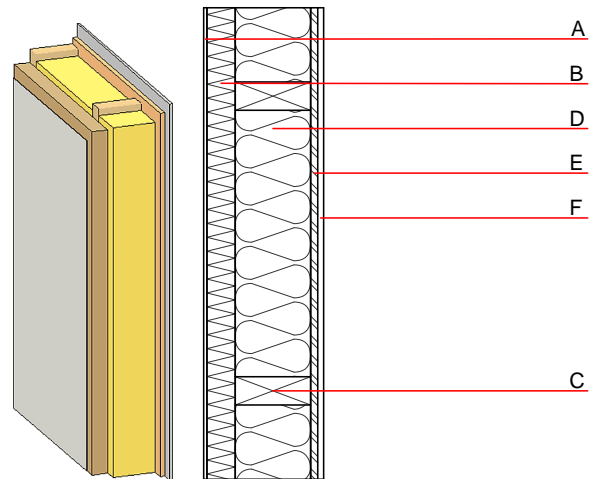
Calculated by TUM

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 62.50 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	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
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

OI_{3kon} 32.0

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 42.210
 Biogenic carbon in $\text{kg CO}_2\text{-e.}$ kg CO_2 61.720
 Energy use of Primary Energy MJ 990.680
 Share of renewable PE % 37.00

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		0.140	0.062	2,87E-6	0.022	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	106.766	698.008	804.774	526.540	48.617	575.157

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	0.023	5,44E-7	0.029	
C1 - C4		0.003	0.000	4,64E-8	0.000	
A1 - C4		0.116	0.024	5,97E-7	0.029	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	364.185	932.666	1297.619	595.349	50.603	646.040
C1 - C4	2.023	-927.452	-925.265	23.511	-49.010	-23.300
A1 - C4	366.588	5.473	373.196	624.089	1.645	631.390