

External wall - awropi04a-16

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 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 0.15 $\text{W}/(\text{m}^2\text{K})$
 Diffusion suitable

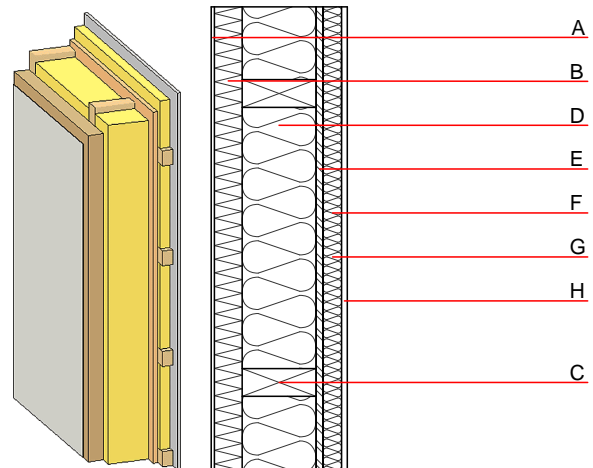
Calculated by TUM

Acoustic performance $R_w (C;C_{tr})$ 53(-3;-11) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 65.90 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	
			λ	μ min - max	ρ	c	EN	
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	40.0	spruce wood cross battens (a=400) or battens offset)	0.120	50	450	1.600	D	
G	40.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E	
H	15.0	gypsum plaster board type DF or	0.250	10	800	1.050	A2	
H	15.0	gypsum fibre board	0.320	21	1000	1.100	A2	

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{kon}$ 33.8

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 49.370
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 72.110
Energy use of Primary Energy MJ 1173.740
Share of renewable PE % 37.83

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		0.149	0.066	3,08E-6	0.024	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	116.572	767.654	884.226	563.314	51.328	614.642

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		0.131	0.028	6,48E-7	0.033	
C1 - C4		0.003	0.000	6,31E-8	0.000	
A1 - C4		0.137	0.029	7,21E-7	0.034	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	441.211	1136.879	1578.588	694.201	59.871	754.160
C1 - C4	2.396	-1131.697	-1129.137	28.863	-58.030	-26.960
A1 - C4	444.085	5.441	450.392	729.657	1.904	737.230