

## External wall - awropi04a-18

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 0.13 W/(m<sup>2</sup>K)  
Diffusion suitable

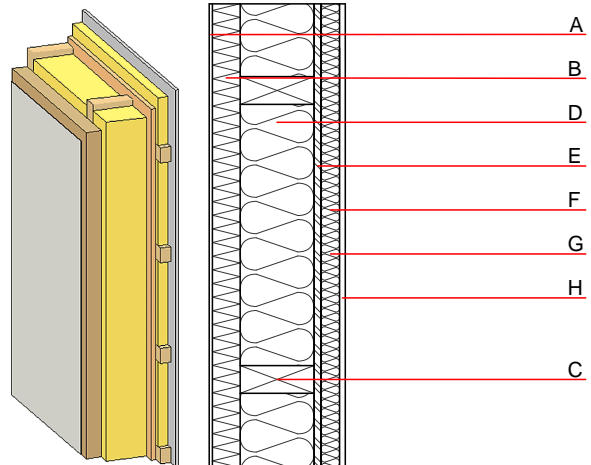
Calculated by TUM

**Acoustic performance**  $R_w (C; C_{tr})$  54(-3;-11) dB  
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

**Mass per unit area** m 69.30 kg/m<sup>2</sup>

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
			$\lambda$	$\mu \text{ min} - \text{max}$	$\rho$	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	240.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
D	240.0	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
I	15.0	gypsum fibre board	0.320	21	1000	1.100	A2

### Sustainability rating (per m<sup>2</sup>)

#### Database ecoinvent

OI3<sub>Kon</sub> 35.4

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 53.260  
Biogenic carbon in kg CO<sub>2</sub>-e. kg CO<sub>2</sub> 77.730  
Energy use of Primary Energy MJ 1292.630  
Share of renewable PE % 38.24

Calculated by TUM

## Details of sustainability rating

### Database ecoinvent

Lifecycle (Phases)	GWP [kg CO <sub>2</sub> -e.]	AP [kg SO <sub>2</sub> -e.]	EP [kg PO <sub>4</sub> -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.158	0.070	3,23E-6	0.026	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	125.540	828.752	954.292	593.761	54.129	647.890

### Database GaBi (ÖKOBAUDAT)

Lifecycle (Phases)	GWP [kg CO <sub>2</sub> -e.]	AP [kg SO <sub>2</sub> -e.]	EP [kg PO <sub>4</sub> -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.144	0.031	7,32E-7	0.036	
C1 - C4		0.003	0.001	6,82E-8	0.000	
A1 - C4		0.150	0.032	8,10E-7	0.036	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	491.195	1260.938	1752.785	759.763	66.286	826.160
C1 - C4	2.642	-1255.748	-1252.942	31.959	-64.446	-30.280
A1 - C4	494.316	5.449	500.784	798.314	1.904	805.910