

### External wall - awropi04a-14

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

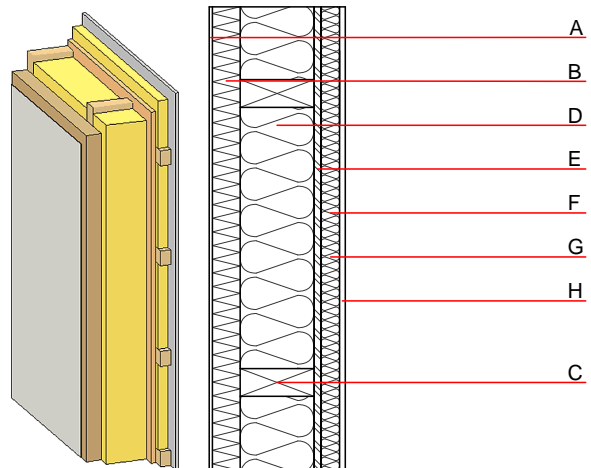
Calculated by TUM

**Acoustic performance**  $R_w (C;C_{tr})$  52(-3;-11) dB  
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

**Mass per unit area** m 62.60  $\text{kg}/\text{m}^2$

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
			$\lambda$	$\mu$ min - 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	160.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
D	160.0	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	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
H	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

#### Sustainability rating (per $\text{m}^2$ )

##### Database ecoinvent

$OI3_{kon}$  31.7

Calculated by HFA

##### Database GaBi (ÖKOBAUDAT)

**Built-in renewable materials** kg 45.490  
**Biogenic carbon in  $\text{kg CO}_2\text{-e}$ .** kg  $\text{CO}_2$  66.500  
**Energy use of Primary Energy** MJ 1045.320  
**Share of renewable PE** % 34.60

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		0.140	0.062	2,87E-6	0.023	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	107.199	706.556	813.755	525.204	48.527	573.731

**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		0.117	0.025	5,62E-7	0.030	
C1 - C4		0.003	0.000	5,28E-8	0.000	
A1 - C4		0.122	0.026	6,22E-7	0.030	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	390.534	1012.820	1403.698	621.923	53.210	675.210
C1 - C4	2.141	-1007.646	-1005.341	25.118	-51.615	-24.290
A1 - C4	393.054	5.433	399.200	652.270	1.647	659.570