

## External wall - awrho01a-17

external wall, timber frame construction, ventilated, without dry lining, with cladding, other surface

### Performance rating

**Fire protection performance** REI from inside 60  
REI from outside 30  
maximum ceiling height = 3 m; maximum load  $E_{d,fi}$  = 32 kN/m  
Classified by HFA  
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#### Germany

F60 (from inside)/F30 (from outside)  
Load  $E_{d,fi}$  according to the German certification document  
Corresponding proof: manufacturer-specific

**Thermal performance** U 0.18 W/(m<sup>2</sup>K)  
Diffusion suitable

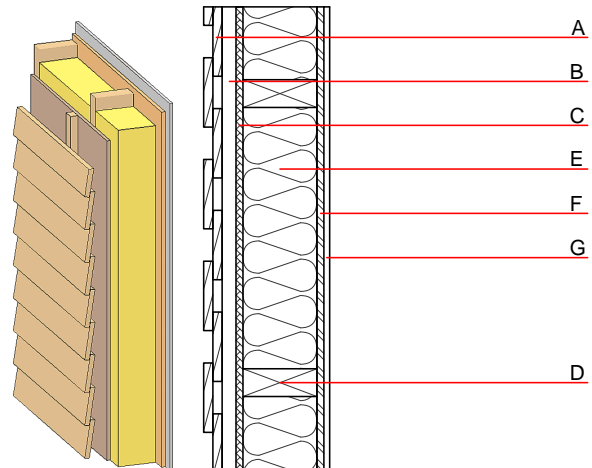
Calculated by TUM

**Acoustic performance**  $R_w$  (C;C<sub>tr</sub>) 49(-2;-8) dB  
 $L_{n,w}$  (C<sub>i</sub>)

Assessed by Müller-BBM

**Mass per unit area** m 64.40 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	
			$\lambda$	$\mu$ min – max	$\rho$	c	EN	
A	24.0	larch wood external wall cladding	0.155	150	600	1.600	D	
B	30.0	spruce wood battens offset (30/50; 30/80) - ventilation	0.120	50	450	1.600	D	
C	15.0	fibreboard (MDF)	0.140	11	600	1.700	D	
D	240.0	construction timber (60/-; e=625)	0.120	50	450	1.600	D	
E	240.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E	
F	15.0	OSB (sealed with airtight tape)	0.130	200	600	1.700	D	
G	15.0	gypsum plaster board type DF or	0.250	10	800	1.050	A2	
G	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> 20.1

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 56.140  
Biogenic carbon in kg CO<sub>2</sub>-e. kg CO<sub>2</sub> 81.300  
Energy use of Primary Energy MJ 1137.620  
Share of renewable PE % 37.85

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		0.114	0.050	1,99E-6	0.025	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	139.856	897.114	1036.970	410.398	45.697	456.096

### 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		0.128	0.028	1,62E-6	0.036	
C1 - C4		0.002	0.000	9,99E-8	0.000	
A1 - C4		0.132	0.028	1,73E-6	0.036	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	428.169	1297.066	1725.665	675.752	60.756	736.620
C1 - C4	2.085	-1292.771	-1290.686	26.006	-59.814	-33.810
A1 - C4	430.634	4.554	435.617	706.987	0.994	708.090