

## External wall - awrhho05a-10

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

### Performance rating

**Fire protection performance** REI from inside 30  
 REI from outside 30  
 maximum ceiling height = 3 m; maximum load  $E_{d,fi} = 32,0 \text{ kN/m}$   
 Classified by HFA  
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#### Germany

F30 (from inside/from outside)  
 Load  $E_{d,fi}$  according to the German certification document  
 Corresponding proof: DIN 4102-4:2016-05, Tabelle 10.7, Zeile 4

**Thermal performance** U 0.21 W/(m<sup>2</sup>K)  
 Diffusion suitable

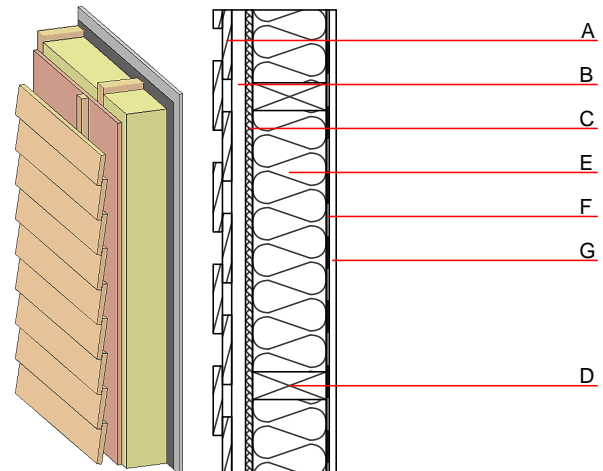
Calculated by TUM

**Acoustic performance**  $R_w (C; C_{tr})$  46(-2;-8) dB  
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

**Mass per unit area** m 50.50 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	
			$\lambda$	$\mu \text{ min} - \text{max}$	$\rho$	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	200.0	construction timber (60/..; e=625)	0.120	50	450	1.600	D	
E	200.0	mineral wool [040; 30; $\geq 1000^\circ\text{C}$ ]	0.040	1	30	1.030	A1	
F		vapour barrier sd $\geq 1 \text{ m}$			1000			
G	15.0	gypsum fibre board or	0.320	21	1000	1.100	A2	
G	15.0	gypsum plaster board type DF	0.250	10	800	1.050	A2	

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

#### Database ecoinvent

OI3<sub>Kon</sub> 32.2

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

**Built-in renewable materials** kg 33.320  
**Biogenic carbon in kg CO<sub>2</sub>-e.** kg CO<sub>2</sub> 47.540  
**Energy use of Primary Energy** MJ 469.130  
**Share of renewable PE** % 31.80

Calculated by TUM

## Details of sustainability rating

### Databaseecoinvent

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		0.165	0.054	1,61E-6	0.061	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	104.861	541.243	646.104	403.444	22.510	425.954

### 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		0.095	0.016	1,60E-6	0.014	
C1 - C4		0.002	0.002	9,99E-8	0.000	
A1 - C4		0.100	0.019	1,71E-6	0.015	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	148.303	561.606	710.185	301.594	32.855	334.540
C1 - C4	0.407	-556.247	-555.841	10.703	-15.100	-4.400
A1 - C4	149.195	5.618	155.089	319.932	17.819	337.840