

## External wall - awrhh11a-06

external wall, timber frame construction, ventilated, with dry lining, with cladding, other surface

### Performance rating

**Fire protection performance** REI from inside 60  
 REI from outside 60  
 maximum ceiling height = 3 m; maximum load  $E_{d,fi} = 19,2 \text{ kN/m}$   
 Classified by HFA

#### Germany

F30 (from inside/from outside)

Load  $E_{d,fi}$  according to the German certification document

Corresponding proof: DIN 4102-4:2016-05, Tabelle 10.6, Zeile 12

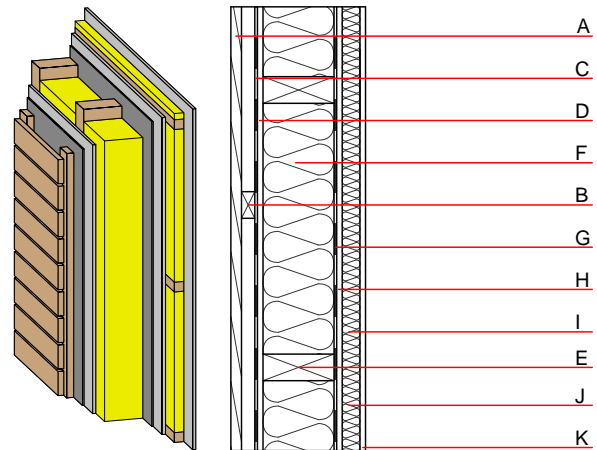
**Thermal performance** U Diffusion 0.16  $\text{W}/(\text{m}^2\text{K})$   
 suitable

Calculated by TUM

**Acoustic performance**  $R_w (C; C_{tr})$  60(-1;-6) dB  
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

**Mass per unit area** m 66.20  $\text{kg}/\text{m}^2$



### 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
			$\lambda$	$\mu \text{ min - max}$	$\rho$	c	
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		wind barrier			1000		
D	12.5	gypsum fibre board	0.320	21	1000	1.100	A2
E	240.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
F	240.0	mineral wool [040; 30; $\geq 1000^\circ\text{C}$ ]	0.040	1	30	1.030	A1
G		vapour barrier $sd \geq 5\text{m}$			1000		
H	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2
I	40.0	spruce wood cross battens (a=400) $\geq 40\text{mm}$	0.120	50	450	1.600	D
J	40.0	mineral wool [040; 30; $\geq 1000^\circ\text{C}$ ] $\geq 40\text{mm}$	0.040	1	30	1.030	A1
K	12.5	gypsum plaster board type A	0.250	4 - 10	680	1.050	A2

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

#### Database ecoinvent

$\text{OI3}_{\text{Kon}}$  35.2

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

**Built-in renewable materials** kg 28.510  
**Biogenic carbon in  $\text{kg CO}_2\text{-e}$ .** kg  $\text{CO}_2$  41.650  
**Energy use of Primary Energy** MJ 502.450  
**Share of renewable PE** % 29.59

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		0.176	0.054	2,14E-6	0.036	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	74.697	476.338	551.035	429.604	10.862	440.467

### 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	0.018	1,00E-6	0.012	
C1 - C4		0.004	0.003	1,34E-7	0.001	
A1 - C4		0.126	0.023	1,16E-6	0.013	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	147.019	509.479	656.358	320.896	50.309	371.320
C1 - C4	0.489	-492.448	-491.959	15.664	-0.119	15.540
A1 - C4	148.657	17.809	166.325	353.793	50.345	404.250