

## External wall - awrhh11a-02

external wall, timber frame construction, ventilated, with 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  $E_{d,fi} = 19,2 \text{ kN/m}$   
 Classified by HFA

#### Germany

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

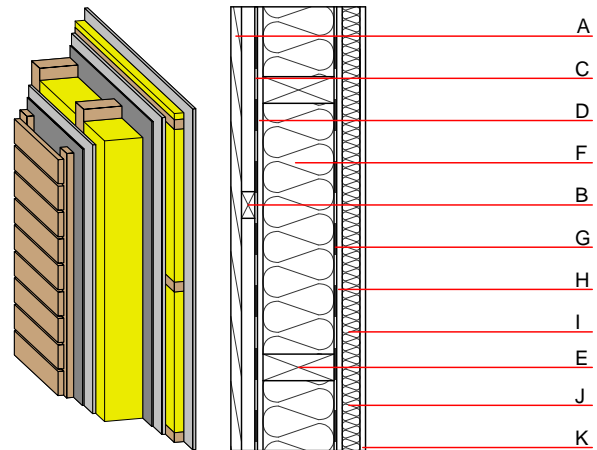
**Thermal performance** U Diffusion 0.21  $\text{W}/(\text{m}^2\text{K})$   
 suitable

Calculated by TUM

**Acoustic performance**  $R_w (C; C_{tr})$  58(-1;-6) dB  
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

**Mass per unit area** m 63.30  $\text{kg}/\text{m}^2$



### 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
			$\lambda$	$\mu$ 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	160.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
F	160.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
G		vapour barrier $s_d \geq 5\text{m}$			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	Wood fibre insulation [039; 45] $\geq 40\text{mm}$	0.039	1 - 2	45	2.100	E
K	12.5	gypsum plaster board type A	0.250	4 - 10	680	1.050	A2

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

#### Database ecoinvent

$OI3_{Kon}$  20.9

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

**Built-in renewable materials** kg 35.480  
**Biogenic carbon in  $\text{kg CO}_2\text{-e}$ .** kg  $\text{CO}_2$  51.530  
**Energy use of Primary Energy** MJ 877.520  
**Share of renewable PE** % 39.01

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		0.101	0.042	2,12E-6	0.005	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	90.561	559.716	650.277	370.425	24.700	395.125

**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		0.099	0.021	6,52E-7	0.020	
C1 - C4		0.003	0.001	1,24E-7	0.000	
A1 - C4		0.107	0.023	7,98E-7	0.021	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	339.644	936.939	1276.135	492.446	71.728	564.250
C1 - C4	1.566	-921.512	-919.946	27.038	-34.682	-7.640
A1 - C4	342.348	16.204	358.104	535.172	37.202	572.450