

## External wall - awrhh11a-08

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 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

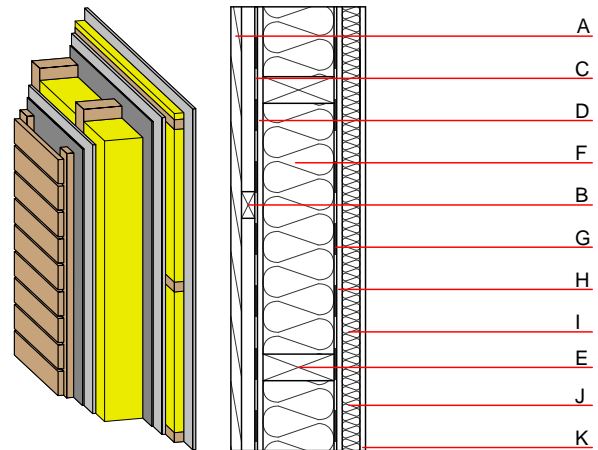
**Thermal performance** U 0.16 W/(m<sup>2</sup>K)  
 Diffusion suitable

Calculated by TUM

**Acoustic performance**  $R_w$  (C;C<sub>tr</sub>) 60(-1;-6) dB  
 $L_{n,w}$  (C<sub>i</sub>)

Assessed by Müller-BBM

**Mass per unit area** m 70.00 kg/m<sup>2</sup>



### 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	240.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
F	240.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
G		vapour barrier sd $\geq$ 5m			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) $\geq$ 40mm	0.120	50	450	1.600	D
J	40.0	Wood fibre insulation [039; 45] $\geq$ 40mm	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 m<sup>2</sup>)

#### Database ecoinvent

IO<sub>3</sub><sub>Kon</sub> 24.2

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 43.250  
 Biogenic carbon in kg CO<sub>2</sub>-e. kg CO<sub>2</sub> 62.750  
 Energy use of Primary Energy MJ 1115.300  
 Share of renewable PE % 39.70

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		0.120	0.050	2,43E-6	0.006	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	102.604	682.130	784.734	429.967	30.302	460.269

### 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		0.125	0.027	8,20E-7	0.026	
C1 - C4		0.004	0.001	1,34E-7	0.000	
A1 - C4		0.133	0.029	9,76E-7	0.027	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	439.612	1185.057	1624.529	623.570	84.559	708.240
C1 - C4	2.059	-1169.614	-1167.555	33.230	-47.513	-14.280
A1 - C4	442.809	16.220	458.889	672.488	37.202	709.800