

## External wall - awmopi03a-02

external wall, solid wood construction, not ventilated, with dry lining, with rendering, other surface

### Performance rating

**Fire protection performance**      **REI from inside**      90  
   **REI from outside**      90  
maximum ceiling height = 3 m; maximum load  $E_{d,fi} = 35,0 \text{ kN/lm}$   
Classified by HFA

#### Germany

REI60 (from inside)/REI90 (from outside); Attention: REI90 (from inside) possible with 2x12,5mm gypsum plaster board type DF/gypsum fibre board  
Load  $E_{d,fi}$  according to the German certification document  
Corresponding proof: manufacturer-specific

**Thermal performance**      **U**      0.08 W/(m<sup>2</sup>K)  
   **Diffusion**      suitable

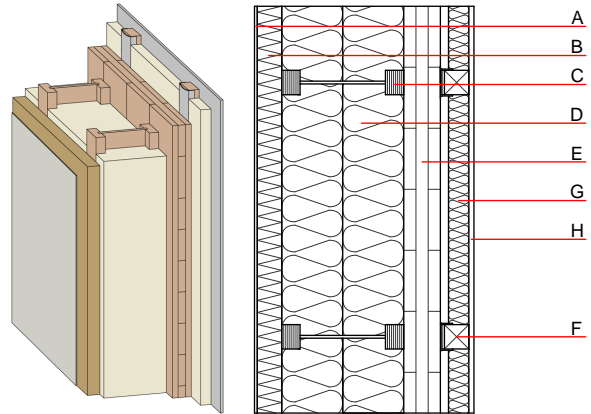
The stated thermal characteristics in the product data sheet are specified for the hard board intermediate web; the flanges are calculated with solid wood.  
Calculated by HFA  
Calculated by TUM

**Acoustic performance**      **R<sub>w</sub> (C<sub>i</sub>;C<sub>tr</sub>)**      63(-2;-7) dB  
   **L<sub>n,w</sub> (C<sub>i</sub>)**

Assessed by Müller-BBM

**Mass per unit area**      **m**      97.10 kg/m<sup>2</sup>

Calculation based on gypsum plaster board type DF



**Note: Attention: REI 90 (from inside) in Germany possible with 2x12,5mm gypsum plaster board type DF/gypsum fibre board**

### 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
			$\lambda$	$\mu \text{ min} - \text{max}$	$\rho$	$c$	
A	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	60.0	wood-fibre insulation board [045; 190]	0.045	5 - 7	190	2.100	E
C	300.0	Light composite wood-based beams (I-beams) with solid wood flanges (60/45) and hard board intermediate web ( $\geq 6,7$ ) $e=625$	0.400	20 - 30	800	1.700	D
D	300.0	mineral wool [034; 18; <1000°C]	0.034	1	18	1.030	A1
E	100.0	cross laminated timber $\geq 94,0$ ; at least 3-layers, top layer at least 30 mm	0.130	50	500	1.600	D
F	70.0	spruce wood Battens on resilient clips (60/60; $e=625$ )	0.120	50	450	1.600	D
G	50.0	mineral wool [034; 18; <1000°C]	0.034	1	18	1.030	A1
H	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
H	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

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

#### Database ecoinvent

**O13<sub>Kon</sub>**      57.8  
calculated with gypsum plaster fire protection board (GKF/DF); this data includes 3-, 5-, and 7-ply cross laminated timber elements;  
Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

**Built-in renewable materials**      kg      71.880  
**Biogenic carbon in kg CO<sub>2</sub>-e.**      kg CO<sub>2</sub>      103.420  
**Energy use of Primary Energy**      MJ      1167.250  
**Share of renewable PE**      %      39.79

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		0.264	0.117	4,97E-6	0.055	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	83.283	976.247	1059.530	891.096	34.421	925.518

### 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		0.197	0.034	3,47E-6	0.027	
C1 - C4		0.004	0.004	1,48E-7	0.001	
A1 - C4		0.205	0.039	3,62E-6	0.028	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	462.868	1145.830	1605.824	674.433	44.270	718.210
C1 - C4	1.178	-1138.277	-1136.935	21.149	-18.587	4.770
A1 - C4	464.439	7.812	469.745	702.809	25.735	733.630