

### External wall - awmopo01a-06

external wall, solid wood construction, not ventilated, without dry lining, with rendering, wooden surface

#### Performance rating

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

#### Germany

REI60 (from inside/from outside)  
 Load  $E_{d,fi}$  according to the German certification document  
 Corresponding proof: manufacturer-specific

**Thermal performance** U Diffusion 0.25  $\text{W}/(\text{m}^2\text{K})$   
 suitable

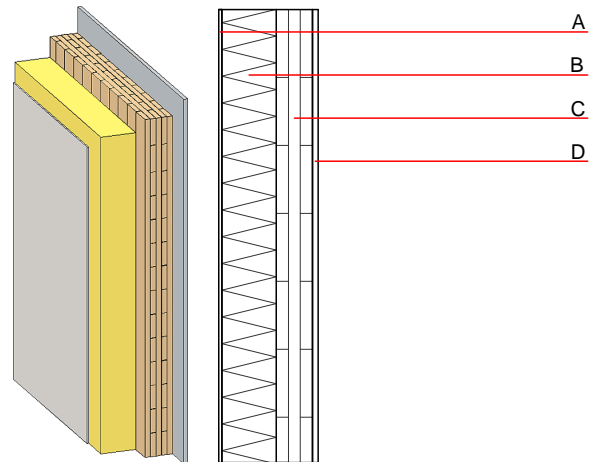
Calculated by HFA  
 Calculated by TUM

**Acoustic performance**  $R_w (C; C_{tr})$  39(-1;-6) dB  
 $L_{n,w} (C_i)$

$R_w=37\text{dB}$  if a lightweight ETICS insulation panel ( $\rho$  approx.  $90\text{kg}/\text{m}^3$ ) is applied.  
 Assessed by Müller-BBM

**Mass per unit area** m 89.60  $\text{kg}/\text{m}^2$

Calculation based on gypsum plaster board type DF



**Note: Cross laminated timber:**

Variation 00-03:  $d \geq 78,0$ ; at least 3-layers, top layer at least 25 mm; variation 04-07: at least 3-layers, top layer at least 30 mm

#### 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	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	120.0	mineral wool MW-PT [040; 155]	0.040	1	155	1.030	A1
C	100.0	solid glued wood (e.g. cross laminated timber)	0.130	50	500	1.600	D
D	12.5	gypsum plaster board type DF / gypsum fibre board	0.250	10	800	1.050	A2

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

##### Database ecoinvent

$OI3_{kon}$  71.3  
 Calculated by HFA

##### Database GaBi (ÖKOBAUDAT)

**Built-in renewable materials** kg 46.000  
**Biogenic carbon in  $\text{kg CO}_2\text{-e}$ .**  $\text{kg CO}_2$  66.220  
**Energy use of Primary Energy** MJ 754.000  
**Share of renewable PE** % 28.54

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		0.343	0.111	3,77E-6	0.129	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	45.000	684.000	729.000	826.784	17.714	844.498

### 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		0.188	0.030	2,98E-6	0.018	
C1 - C4		0.004	0.005	1,38E-7	0.001	
A1 - C4		0.196	0.036	3,13E-6	0.019	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	214.155	787.178	999.454	516.855	31.383	547.710
C1 - C4	0.688	-779.260	-778.408	15.993	0.000	18.200
A1 - C4	215.227	8.177	221.892	538.770	31.435	575.260