

## External wall - awmoho03a-05

external wall, solid wood construction, ventilated, without dry lining, with cladding, wooden surface

### Performance rating

**Fire protection performance** REI from inside 90  
 REI from outside 60  
 maximum ceiling height = 3 m; maximum load  $E_{d,fi} = 35,0$  kN/m  
 Classified by MA39/HFA

#### Germany

REI 90 from inside REI 60 from outside  
 Load  $E_{d,fi}$  according to the German certification document  
 Corresponding proof: manufacturer-specific

**Thermal performance** U Diffusion 0.19 W/(m<sup>2</sup>K)  
 suitable

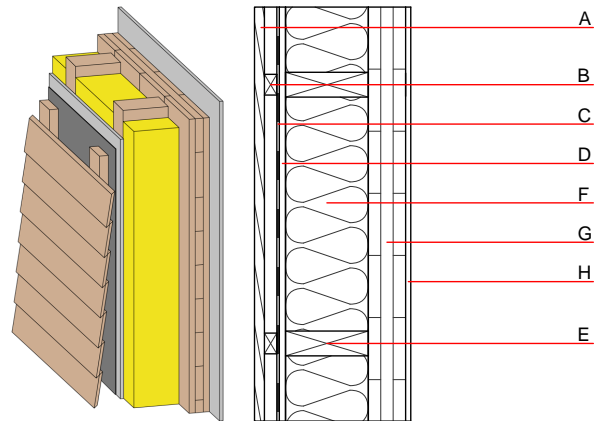
Calculated by TUM

**Acoustic performance**  $R_w$  (C<sub>c</sub>;C<sub>tr</sub>) 47(-1;-4) dB  
 $L_{n,w}$  (C<sub>i</sub>)

Assessed by Müller-BBM

**Mass per unit area** m 105.20 kg/m<sup>2</sup>

Calculation based on gypsum plaster board type DF



**Note: Cross laminated timber:**  
 Variation 00-02 and 04-06: at least 3-layers, top layer at least 30mm;  
 variation 03:  $d \geq 85,0$ ; at least 5-layers, top layer at least 17 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	24.0	larch wood external wall cladding	0.155	150	600	1.600	D
B	30.0	spruce wood battens (30/60)	0.120	50	450	1.600	D
C		vapour-permeable membrane $s_d \leq 0,3m$					
D	15.0	gypsum fibre board	0.320	21	1000	1.100	A2
E	200.0	construction timber (60/200; e= 625)	0.120	50	450	1.600	D
F	200.0	cellulose fibre [R=50; r>5]	0.040	1	50	2.000	B
G	100.0	cross laminated timber	0.130	50	500	1.600	D
H	12.5	gypsum plaster board type DF / gypsum fibre board	0.250	10	800	1.050	A2

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

#### Database ecoinvent

OI3<sub>Kon</sub> 32.3

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

**Built-in renewable materials** kg 80.010  
**Biogenic carbon in kg CO<sub>2</sub>-e.** kg CO<sub>2</sub> 113.460  
**Energy use of Primary Energy** MJ 749.170  
**Share of renewable PE** % 39.45

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		0.187	0.081	3,42E-6	0.052	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	127.279	1179.478	1306.756	612.074	23.584	635.658

#### 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		0.096	0.019	2,89E-6	0.018	
C1 - C4		0.007	0.007	2,34E-7	0.001	
A1 - C4		0.106	0.027	3,14E-6	0.020	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	293.890	1323.310	1615.340	418.520	35.850	453.940
C1 - C4	0.800	-1163.670	-1162.870	23.270	-0.100	23.170
A1 - C4	295.550	160.150	453.840	453.610	35.870	489.050