

External wall - awrhh12a-04

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 $E_{d,fi} = 32 \text{ kN/m}$
 Classified by HFA

Germany

F30 (from inside/from outside)

Load $E_{d,fi}$ according to the German certification document

Corresponding proof: manufacturer-specific

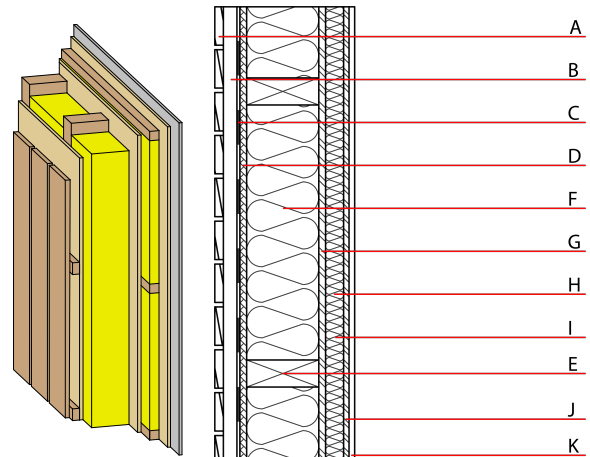
Thermal performance U Diffusion 0.17 $\text{W}/(\text{m}^2\text{K})$
 suitable

Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 53(-1;-6) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 71.80 kg/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
			λ	$\mu \text{ min - max}$	ρ	c	
A	24.0	larch wood external wall cladding	0.155	150	600	1.600	D
B	30.0	larch wood battens offset (30/50; 30/80) - ventilation	0.155	150	600	1.600	D
C		wind barrier			1000		
D	15.0	fibreboard (MDF)	0.140	11	600	1.700	D
E	200.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
F	200.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
G	15.0	OSB	0.130	200	600	1.700	D
H	40.0	spruce wood cross battens (a=400) $\geq 40\text{mm}$	0.120	50	450	1.600	D
I	40.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
J	12.0	OSB	0.130	200	600	1.700	D
K	12.5	gypsum plaster board type A	0.250	4 - 10	680	1.050	A2

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{kon}$ 26.2

Calculated by TUM

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 68.950
 Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 97.820
 Energy use of Primary Energy MJ 698.490
 Share of renewable PE % 33.19

Details of sustainability rating

Database ecoinvent

Lifecycle (Phases)	GWP [kg CO ₂ -e.]	AP [kg SO ₂ -e.]	EP [kg PO ₄ -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.160	0.060	2,21E-6	0.008	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	132.220	954.719	1086.939	453.292	48.370	501.661

Database GaBi (ÖKOBAUDAT)

Lifecycle (Phases)	GWP [kg CO ₂ -e.]	AP [kg SO ₂ -e.]	EP [kg PO ₄ -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.095	0.018	1,56E-6	0.031	
C1 - C4		0.006	0.008	1,31E-7	0.001	
A1 - C4		0.103	0.027	1,70E-6	0.032	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	230.312	1107.356	1337.725	444.757	27.419	472.270
C1 - C4	1.143	-911.635	-910.493	16.672	-26.477	-9.800
A1 - C4	231.834	195.980	427.870	466.658	0.994	467.750