

External wall - awrhh11a-03

external wall, timber frame construction, ventilated, with dry lining, with cladding, other surface

Performance rating

Fire protection performance REI from inside 60
 REI from outside 60
 maximum ceiling height = 3 m; maximum load $E_{d,fi} = 19,2 \text{ kN/m}$
 Classified by HFA

Germany

F30 (from inside/from outside)

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

Corresponding proof: DIN 4102-4:2016-05, Tabelle 10.6, Zeile 12

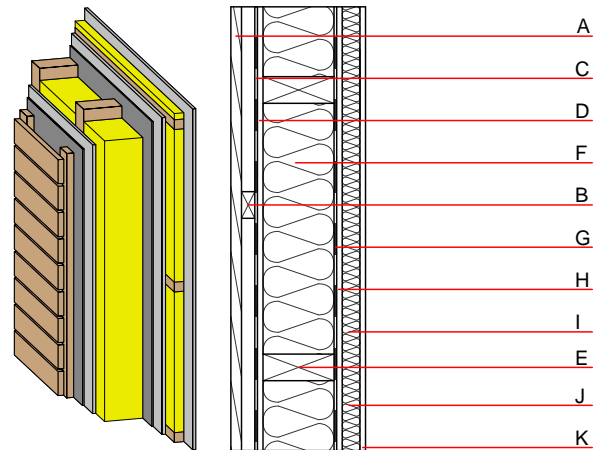
Thermal performance U Diffusion 0.18 $\text{W}/(\text{m}^2\text{K})$
 suitable

Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 59(-1;-6) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 63.40 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	$\mu \text{ min} - \text{max}$	ρ	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	200.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
F	200.0	mineral wool [040; 30; $\geq 1000^\circ\text{C}$]	0.040	1	30	1.030	A1
G		vapour barrier $s_d \geq 5\text{m}$			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) $\geq 40\text{mm}$	0.120	50	450	1.600	D
J	40.0	mineral wool [040; 30; $\geq 1000^\circ\text{C}$] $\geq 40\text{mm}$	0.040	1	30	1.030	A1
K	12.5	gypsum plaster board type A	0.250	4 - 10	680	1.050	A2

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{kon}$ 31.9

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 26.620
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 38.880
Energy use of Primary Energy MJ 466.260
Share of renewable PE % 29.62

Calculated by TUM

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		0.158	0.050	2,03E-6	0.031	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	72.697	444.783	517.480	399.886	10.862	410.748

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		0.106	0.017	8,92E-7	0.011	
C1 - C4		0.004	0.003	1,29E-7	0.001	
A1 - C4		0.114	0.021	1,04E-6	0.012	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	136.519	476.587	612.812	296.178	48.515	344.790
C1 - C4	0.454	-459.777	-459.323	14.938	-0.100	14.840
A1 - C4	138.120	17.586	155.413	328.142	48.572	376.810