

External wall - awrhh11a-07

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 $E_{d,fi} = 19,2 \text{ kN/m}$
 Classified by HFA

Germany

F30 (from inside/from outside)
 Load $E_{d,fi}$ according to the German certification document
 Corresponding proof: manufacturer-specific

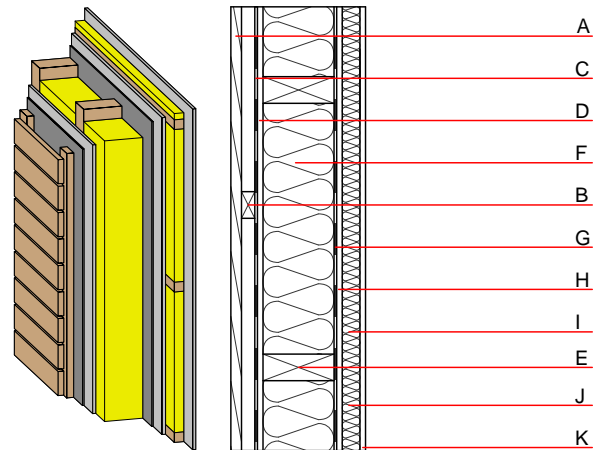
Thermal performance U Diffusion 0.16 $\text{W}/(\text{m}^2\text{K})$
 suitable

Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 60(-1;-6) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 71.30 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	μ min - 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	240.0	construction timber (60/...; e=625)	0.120	50	450	1.600	D
F	240.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
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	Cellulose fibre [040; 50] $\geq 40\text{mm}$	0.040	1	50	2.000	E
K	12.5	gypsum plaster board type A	0.250	4 - 10	680	1.050	A2

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{Kon}$ 20.7

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 45.930
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 63.470
Energy use of Primary Energy MJ 403.590
Share of renewable PE % 37.32

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		0.117	0.049	2,19E-6	0.006	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	85.667	617.047	702.714	366.122	10.862	376.985

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		0.061	0.012	6,73E-7	0.009	
C1 - C4		0.008	0.010	1,63E-7	0.001	
A1 - C4		0.074	0.023	8,58E-7	0.011	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	148.999	729.225	878.143	217.632	37.165	254.910
C1 - C4	0.481	-492.448	-491.966	19.656	-0.119	19.540
A1 - C4	150.618	237.555	388.092	252.976	37.202	290.290