External wall - awrhhi12a-06

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 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 10.7, Zeile 1

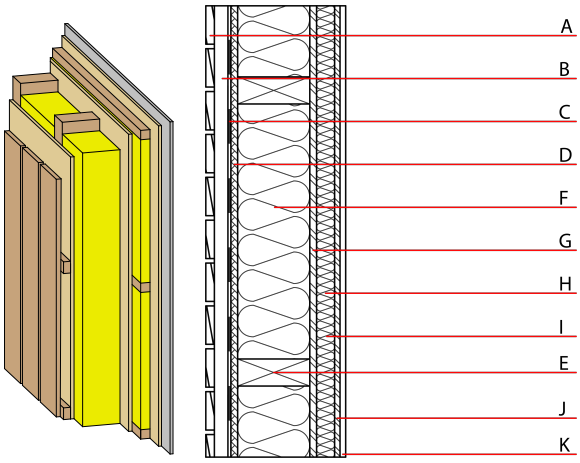
Thermal performance	**U**	0.15 W/(m²K)
	Diffusion	suitable

Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	54(-1;-6) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	70.30 kg/m²



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
			λ	μ min – max	ρ	c	EN
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	240.0	construction timber (60/..; e=625)	0.120	50	450	1.600	D
F	240.0	mineral wool [040; 30; ≥1000°C]	0.040	1	30	1.030	A1
G	15.0	OSB	0.130	200	600	1.700	D
H	40.0	spruce wood cross battens (a=400) ≥ 40mm	0.120	50	450	1.600	D
I	40.0	mineral wool [040; 30; ≥1000°C]	0.040	1	30	1.030	A1
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 m²)

Database ecoinvent

$OI3_{Kon}$	49.1

Calculated by TUM

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	55.770
Biogenic carbon in kg CO_2-e.	**kg CO_2**	81.710
Energy use of Primary Energy	**MJ**	820.200
Share of renewable PE	**%**	29.34

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		0.263	0.076	2,44E-6	0.049	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	126.796	865.840	992.636	590.956	48.370	639.326

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		0.156	0.026	1,95E-6	0.035	
C1 - C4		0.003	0.003	1,11E-7	0.000	
A1 - C4		0.161	0.029	2,08E-6	0.035	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	239.099	950.156	1189.416	558.803	40.582	599.500
C1 - C4	1.184	-944.305	-943.122	13.944	-26.497	-12.550
A1 - C4	240.673	6.110	246.943	579.522	14.137	593.770