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Designation: awrhhi04a-13
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, SP

External wall - awrhhi04a-13

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	30

maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 19,2 kN/m
Classified by HFA
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Germany

F60 (from inside)/F30 (from outside)

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

Corresponding proof: F60 (from inside): manufacturer-specific; F30 (from outside): DIN 4102-4:2016-05

Thermal performance	**U**	0.18 W/(m²K)
	Diffusion	suitable

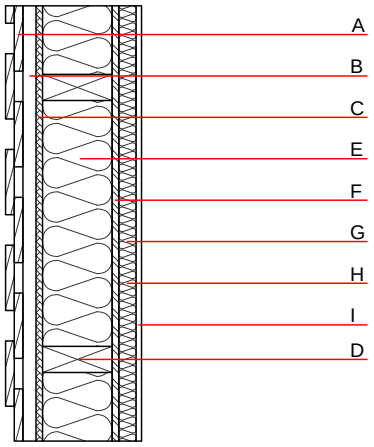
Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	51(-3;-10) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	61.20 kg/m²

Calculation based on gypsum plaster board type DF



Note: dry lining ≥ 40 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
			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	spruce wood battens offset (30/50; 30/80) - ventilation	0.120	50	450	1.600	D
C	15.0	fibreboard (MDF)	0.140	11	600	1.700	D
D	200.0	construction timber (60/..; e=625)	0.120	50	450	1.600	D
E	200.0	mineral wool [040; 30; ≥1000°C]	0.040	1	30	1.030	A1
F	15.0	OSB	0.130	200	600	1.700	D
G	40.0	spruce wood cross battens (a=400) ≥ 40mm	0.120	50	450	1.600	D
H	40.0	mineral wool [040; 30; ≥1000°C]	0.040	1	30	1.030	A1
I	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
I	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	27.1

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	46.680
Biogenic carbon in kg CO_2-e.	**kg CO_2**	67.820
Energy use of Primary Energy	**MJ**	662.040
Share of renewable PE	**%**	30.61

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		0.152	0.053	1,67E-6	0.052	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	126.221	736.891	863.112	397.483	28.891	426.374

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		0.127	0.022	1,80E-6	0.026	
C1 - C4		0.002	0.003	1,06E-7	0.000	
A1 - C4		0.132	0.025	1,91E-6	0.026	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	201.394	792.808	994.209	440.426	33.732	474.250
C1 - C4	0.845	-787.179	-786.335	12.416	-21.420	-9.000
A1 - C4	202.628	5.888	208.521	459.408	12.364	471.860