External wall - awropi02a-04

external wall, timber frame construction, not ventilated, with dry lining, with rendering, other surface

Performance rating

Fire protection performance	**REI from inside**	45
	REI from outside	30

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

Thermal performance	**U**	0.13 W/(m²K)
	Diffusion	suitable

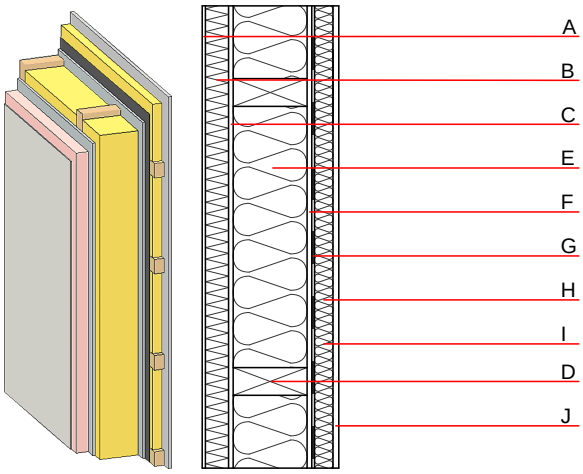
Calculated by HFA

Acoustic performance	**R_w ($C;C_{tr}$)**	47(-3;-6) dB
	$L_{n,w}$ (C_I)	

Vertical battens for the dry lining screwed onto the ledger beams lead to an Rw(C;Ctr)=44(-1;-5) dB
Assessed by MA39

Mass per unit area	**m**	55.80 kg/m²

Calculation based on GF



Note: e=625

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	4.0	plaster	1.000	10 - 35	2000	1.130	A1
B	50.0	Polystyrene EPS-F [0,040]	0.040	20 - 50	17	1.450	E
C	12.5	gypsum fibre board	0.320	21	1000	1.100	A2
D	240.0	construction timber (60/..; e=*)	0.120	50	450	1.600	D
E	240.0	mineral wool [040; ≥16; <1000°C]	0.040	1	16	1.030	A1
F	10.0	gypsum fibre board	0.320	21	1000	1.100	A2
G		vapour barrier sd≥ 13m			1000		
H	40.0	spruce wood cross battens (a=400) or battens offset)	0.120	50	450	1.600	D
I	40.0	mineral wool [040; ≥16; <1000°C] or air layer in type 02	0.040	1	16	1.030	A1
J	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
J	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	33.4

Calculated by HFA

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		0.124	0.053	2,57E-6	0.024	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	58.110	229.620	287.729	452.226	36.048	488.275