

External wall - awropi16b-03

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

Performance rating

Fire protection performance	REI from inside	60
	REI from outside	60

maximum ceiling height = 3 m; maximum load $E_{d,fi} = 32,0 \text{ kN/m}$
Classified by HFA

Thermal performance	U	0.15 W/(m ² K)
	Diffusion	suitable

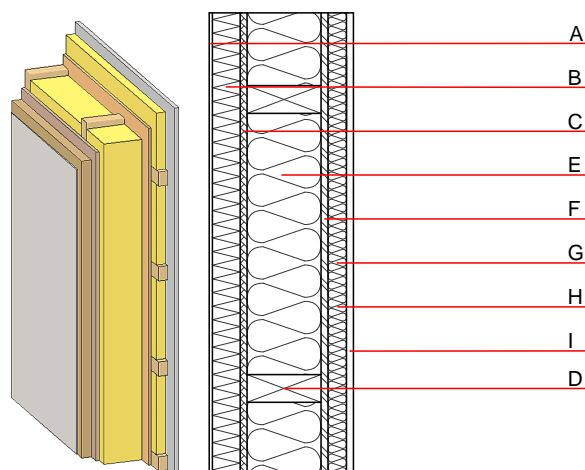
Calculated by HFA

Acoustic performance	$R_w (C; C_{tr})$	53(-2;-9) dB
	$L_{n,w} (C_i)$	

Vertical battens for the dry lining screwed onto the ledger beams lead to an $R_w(C; C_{tr})=51(-1;-7)$ dB
Assessed by MA39

Mass per unit area	m	77.70 kg/m ²
--------------------	---	-------------------------

Calculation based on gypsum plaster board type DF



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 EN
			λ	$\mu \text{ min} - \text{max}$	ρ	c	
A	7.0	plaster	1.000	10 - 35	2000	1.130	A1
B	60.0	wood-fibre insulation board WF-PT [045; 180]	0.045	5 - 7	180	2.100	E
C	15.0	fibreboard (MDF)	0.140	11	600	1.700	D
D	200.0	construction timber (60/-; e=*)	0.120	50	450	1.600	D
E	200.0	mineral wool [040; ≥ 16 ; $< 1000^\circ\text{C}$]	0.040	1	16	1.030	A1
F	15.0	OSB (sealed with airtight tape)	0.130	200	600	1.700	D
G	40.0	spruce wood cross battens (a=400) or battens offset)	0.120	50	450	1.600	D
H	40.0	mineral wool [040; ≥ 16 ; $< 1000^\circ\text{C}$]	0.040	1	16	1.030	A1
I	15.0	gypsum plaster board type DF or	0.250	10	800	1.050	A2
I	15.0	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

OI3 _{Kon}	44.8
--------------------	------

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		0.192	0.085	3,55E-6	0.028	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	118.596	737.830	856.426	673.731	58.943	732.674