

## External wall - awropi02b-09

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 $E_{d,fi} = 50,0 \text{ kN/m}$ Classified by HFA		

Thermal performance	U	0.17 W/(m <sup>2</sup> K)
	Diffusion	suitable

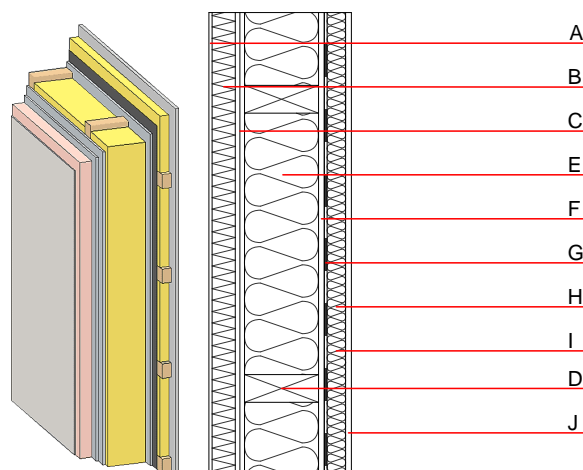
Calculated by HFA

Acoustic performance	$R_w (C; C_{tr})$	47(-2;-5) dB
	$L_{n,w} (C_i)$	

Vertical battens for the dry lining screwed onto the ledger beams lead to an  $R_w(C;C_{tr})=44(-1;-5) \text{ dB}$   
 Assessed by MA39

Mass per unit area	m	70.30 kg/m <sup>2</sup>
--------------------	---	-------------------------

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 EN
			$\lambda$	$\mu \text{ min} - \text{max}$	$\rho$	c	
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	25.0	gypsum fibre board (2x10 mm)	0.320	21	1000	1.100	A2
D	160.0	construction timber (60/...; e=*)	0.120	50	450	1.600	D
E	160.0	cellulose fibre [0,040; R=55]	0.040	1 - 2	55	2.000	B
F	12.5	gypsum fibre board	0.320	21	1000	1.100	A2
G		vapour barrier $s_{d \geq 13m}$			1000		
H	40.0	spruce wood cross battens (a=400) or battens offset)	0.120	50	450	1.600	D
I	40.0	cellulose fibre [040; E]	0.040	1 - 2	55	2.000	E
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 m<sup>2</sup>)

#### Database ecoinvent

O13 <sub>Kon</sub>	23.8
--------------------	------

Calculated by HFA

## Details of sustainability rating

### Database ecoinvent

Lifecycle (Phases)	GWP [kg CO <sub>2</sub> -e.]	AP [kg SO <sub>2</sub> -e.]	EP [kg PO <sub>4</sub> -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.090	0.036	2,05E-6	0.018	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	49.960	267.449	317.410	341.527	36.048	377.575