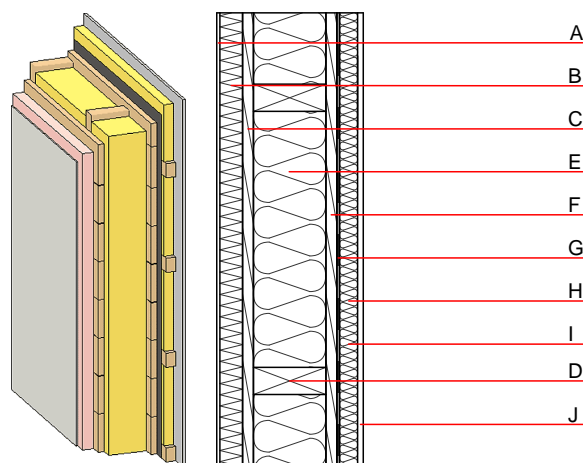


## External wall - awropi03a-13

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

### Performance rating

<b>Fire protection performance</b>	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		
<b>Thermal performance</b>	U	0.17 W/(m <sup>2</sup> K)
	Diffusion	suitable
Calculated by HFA		
<b>Acoustic performance</b>	$R_w$ (C;C <sub>tr</sub> )	48(-3;-6) dB
	$L_{n,w}$ (C <sub>i</sub> )	
EPS-F with a dynamic stiffness of $s' = 20 \text{ MN/m}^3$ . Vertical battens for the dry lining screwed onto the structural timber lead to an $R_w(C;C_{tr}) = 42(-1;-5)$ dB		
Assessed by MA39		
<b>Mass per unit area</b>	m	50.80 kg/m <sup>2</sup>
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
			$\lambda$	$\mu$ min – 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	planking spruce wood	0.120	50	450	1.600	D
D	160.0	construction timber (60/...; e=*)	0.120	50	450	1.600	D
E	160.0	mineral wool [040; $\geq 16$ ; <1000°C]	0.040	1	16	1.030	A1
F	25.0	planking spruce wood	0.120	50	450	1.600	D
G		vapour barrier $s_d \geq 16 \text{ m}$			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; $\geq 16$ ; <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 m<sup>2</sup>)

#### Database ecoinvent

013<sub>Kon</sub> 23.0

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		0.113	0.047	2,01E-6	0.029	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	102.109	576.178	678.287	370.382	36.048	406.430