

External wall - awropi17a-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 $E_{d,fi} = 32,0 \text{ kN/m}$
 Classified by HFA

Thermal performance U 0.17 $\text{W}/(\text{m}^2\text{K})$
 Diffusion suitable

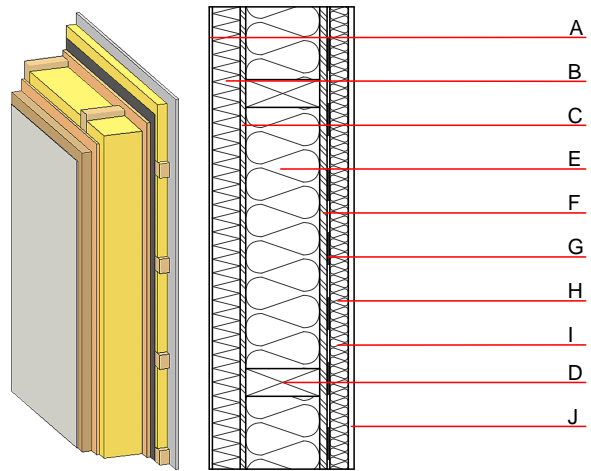
Calculated by HFA

Acoustic performance $R_w (C;C_{tr})$ 52(-3;-10) dB
 $L_{n,w} (C_i)$

Vertical battens for the dry lining screwed onto the ledger beams lead to an $R_w(C;C_{tr})=49(-1;-7)$ dB
 Assessed by MA39

Mass per unit area m 76.70 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 | μ min - 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 | 12.0 | OSB | 0.130 | 200 | 600 | 1.700 | D |
| 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 | 15.0 | OSB | 0.130 | 200 | 600 | 1.700 | D |
| G | | vapour barrier $s_d \geq 10\text{m}$ | | | | 1000 | |
| H | 40.0 | spruce wood cross battens (a=400) or battens offset) | 0.120 | 50 | 450 | 1.600 | D |
| I | 40.0 | 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^2)

Database ecoinvent

$OI3_{kon}$ 33.6

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 | | 0.158 | 0.067 | 2,95E-6 | 0.025 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 124.338 | 777.180 | 901.518 | 534.011 | 49.566 | 583.577 |