

### External wall - awropi17b-08

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

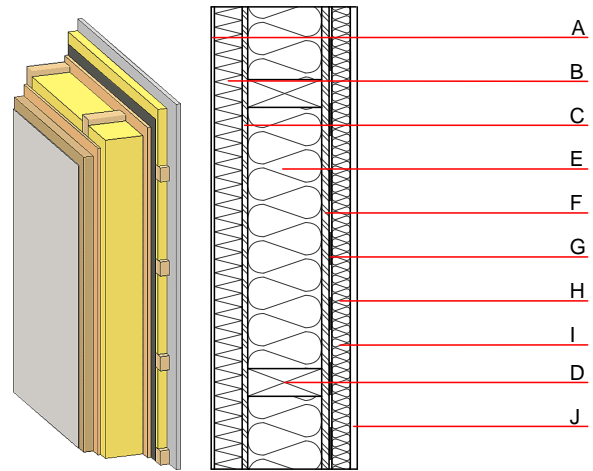
#### Performance rating

**Fire protection performance**  
 REI from inside 60  
 REI from outside 90  
 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(-2;-9) dB  
 $L_{n,w} (C_i)$   
 Vertical battens for the dry lining screwed onto the ledger beams lead to an  $R_w(C;C_{tr})=50(-1;-7)$  dB  
 Assessed by MA39

**Mass per unit area** m 77.10  $\text{kg}/\text{m}^2$   
 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 |
|---|-----------|---|---------------------|-----------------|--------|-------|---------------------|
|   |           |   | $\lambda$           | $\mu$ min - max | $\rho$ | 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     | mineral wool [038; ≥33; ≥1000°C]                    | 0.038               | 1               | 33     | 1.030 | A1                  |
| 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      | mineral wool [038; ≥33; ≥1000°C]                    | 0.038               | 1               | 33     | 1.030 | A1                  |
| J | 15.0      | gypsum plaster board type DF or                     | 0.250               | 10              | 800    | 1.050 | A2                  |
| J | 15.0      | gypsum fibre board                                  | 0.320               | 21              | 1000   | 1.100 | A2                  |

#### Sustainability rating (per $\text{m}^2$ )

##### Database ecoinvent

$OI3_{kon}$  46.8

Calculated by HFA

**Details of sustainability rating**

Database ecoinvent

| Lifecycle<br>(Phases) | GWP<br>[kg CO <sub>2</sub> -e.] | AP<br>[kg SO <sub>2</sub> -e.] | EP<br>[kg PO <sub>4</sub> -e.] | ODP<br>[kg R11-e.] | POCP<br>[kg Ethen-e.] |  |
|-----------------------|---------------------------------|--------------------------------|--------------------------------|--------------------|-----------------------|--|
| A1 - A3               |                                 | 0.212                          | 0.077                          | 3,09E-6            | 0.058                 |  |

| Lifecycle<br>(Phases) | PERE<br>[MJ] | PERM<br>[MJ] | PERT<br>[MJ] | PENRE<br>[MJ] | PENRM<br>[MJ] | PENRT<br>[MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3               | 120.013      | 676.459      | 796.472      | 628.352       | 49.566        | 677.918       |