

## External wall - awrhh03a-09

external wall, timber frame construction, ventilated, with dry lining, with cladding, other surface

### Performance rating

|   |                  |    |
|---|------------------|----|
| Fire protection performance                                       | 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   |                  |    |

|                     |           |                           |
|---------------------|-----------|---------------------------|
| Thermal performance | U         | 0.21 W/(m <sup>2</sup> K) |
|                     | Diffusion | suitable                  |

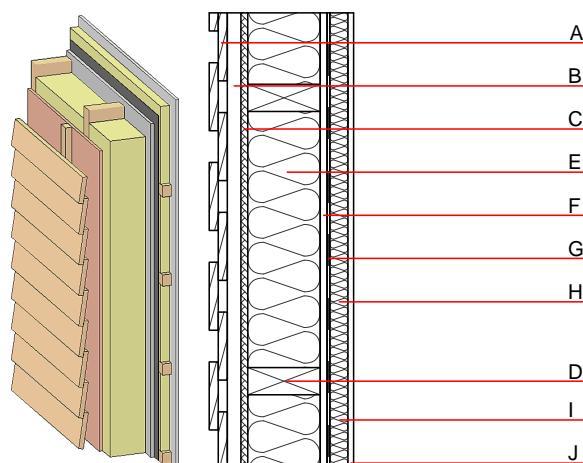
Calculated by HFA

|                      |                             |               |
|----------------------|-----------------------------|---------------|
| Acoustic performance | $R_w$ (C;C <sub>tr</sub> )  | 50(-3;-10) dB |
|                      | $L_{n,w}$ (C <sub>i</sub> ) |               |

Battens for the ventilation space screwed onto the structural timber together with vertical battens for the dry lining screwed directly onto the ledger beams will result in  $R_w(C;C_{tr})=43(-1;-5)$  dB  
Assessed by MA39

|                    |   |                         |
|--------------------|---|-------------------------|
| Mass per unit area | m | 54.20 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 |
|---|-----------|---|---------------------|-----------------|--------|-------|---------------------|
|   |           |   | $\lambda$           | $\mu$ min – max | $\rho$ | c     |                     |
| A | 24.0      | larch wood external wall cladding                       | 0.155               | 150             | 600    | 1.600 | D                   |
| B | 30.0      | spruce wood battens offset (30/50; 30/80) - ventilation | 0.120               | 50              | 450    | 1.600 | D                   |
| C | 15.0      | fibreboard (MDF)  | 0.140               | 11              | 600    | 1.700 | D                   |
| D | 160.0     | construction timber (60/...; e=*)                       | 0.120               | 50              | 450    | 1.600 | D                   |
| E | 160.0     | cellulose fibre [040; E]                                | 0.040               | 1 - 2           | 55     | 2.000 | E                   |
| F | 15.0      | gypsum fibre board                                      | 0.320               | 21              | 1000   | 1.100 | A2                  |
| G |           | vapour barrier sd $\geq$ 1m                             |                     |                 |        | 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] or air layer in type 02        | 0.040               | 1 - 2           | 55     | 2.000 | E                   |
| J | 12.5      | gypsum fibre board or                                   | 0.320               | 21              | 1000   | 1.100 | A2                  |
| J | 12.5      | gypsum plaster board type DF                            | 0.250               | 10              | 800    | 1.050 | A2                  |

### Sustainability rating (per m<sup>2</sup>)

#### Database ecoinvent

|                    |      |
|--------------------|------|
| OI3 <sub>Kon</sub> | 17.3 |
|--------------------|------|

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               |                                 | 0.097                          | 0.041                          | 1,66E-6            | 0.019                 |               |
| Lifecycle<br>(Phases) | PERE<br>[MJ]                    | PERM<br>[MJ]                   | PERT<br>[MJ]                   | PENRE<br>[MJ]      | PENRM<br>[MJ]         | PENRT<br>[MJ] |
| A1 - A3               | 100.436                         | 659.091                        | 759.527                        | 318.339            | 30.791                | 349.130       |