

## External wall - awrhh08b-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 | 60 |

maximum ceiling height = 3 m; maximum load  $E_{d,fi} = 19,2 \text{ kN/m}$   
 Classified by HFA

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

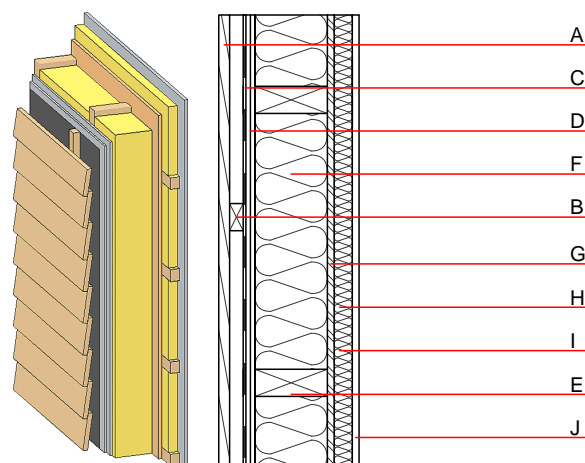
Calculated by HFA

|                      |                   |              |
|----------------------|-------------------|--------------|
| Acoustic performance | $R_w (C; C_{tr})$ | 52(-2;-8) dB |
|                      | $L_{n,w} (C_i)$   |              |

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  $R_w(C;C_{tr})=45(-1;-5)$  dB  
 Assessed by MA39

|                    |   |                         |
|--------------------|---|-------------------------|
| Mass per unit area | m | 64.90 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 | 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 |           | wind barrier  |                     |                                | 1000   |       |                     |
| D | 20.0      | gypsum fibre board (2x10 mm)                            | 0.320               | 21                             | 1000   | 1.100 | A2                  |
| E | 160.0     | cellulose fibre [040; E]                                | 0.040               | 1 - 2                          | 55     | 2.000 | E                   |
| F | 160.0     | construction timber (60.; e=*)                          | 0.120               | 50                             | 450    | 1.600 | D                   |
| G | 15.0      | OSB (sealed with airtight tape)                         | 0.130               | 200                            | 600    | 1.700 | D                   |
| 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 | 15.0      | gypsum fibre board or                                   | 0.320               | 21                             | 1000   | 1.100 | A2                  |
| J | 15.0      | gypsum plaster board type DF                            | 0.250               | 10                             | 800    | 1.050 | A2                  |

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

#### Database ecoinvent

|                    |      |
|--------------------|------|
| 013 <sub>Kon</sub> | 19.4 |
|--------------------|------|

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               |                                 | 0.109                          | 0.047                          | 2,19E-6            | 0.007                 |               |
| Lifecycle<br>(Phases) | PERE<br>[MJ]                    | PERM<br>[MJ]                   | PERT<br>[MJ]                   | PENRE<br>[MJ]      | PENRM<br>[MJ]         | PENRT<br>[MJ] |
| A1 - A3               | 104.620                         | 668.077                        | 772.698                        | 366.537            | 19.334                | 385.872       |