

External wall - awrhh04a-01

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 $E_{d,fi} = 19,2 \text{ kN/m}$
 Classified by MA39
 Classified by HFA

| | | |
|----------------------------|-----------|--------------------------------------|
| Thermal performance | U | 0.25 $\text{W}/(\text{m}^2\text{K})$ |
| | Diffusion | suitable |

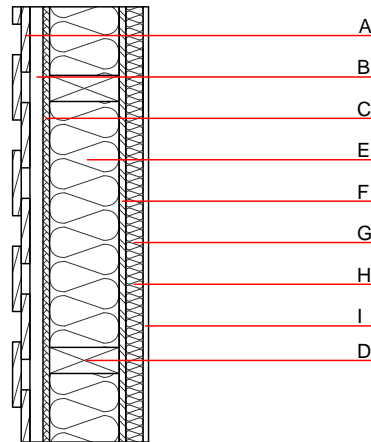
Calculated by HFA

| | | |
|-----------------------------|-----------------------------|--------------|
| Acoustic performance | R_w (C;C _{tr}) | 49(-2;-9) 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 $R_w(C;C_{tr})=42(-1;-5)$
 Assessed by MA39

| | | |
|---------------------------|---|------------------------------|
| Mass per unit area | m | 39.30 kg/m^2 |
|---------------------------|---|------------------------------|

Calculation based on gypsum plaster board type DF



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 | 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 | 120.0 | construction timber (60/..; e=625) | 0.120 | 50 | 450 | 1.600 | D |
| E | 120.0 | mineral wool [040; ≥ 16 ; $< 1000^\circ\text{C}$] | 0.040 | 1 | 16 | 1.030 | A1 |
| F | 15.0 | OSB | 0.130 | 200 | 600 | 1.700 | D |
| G | 40.0 | spruce wood cross battens (a=400) resp. battens offset | 0.120 | 50 | 450 | 1.600 | D |
| H | 40.0 | mineral wool [040; ≥ 16 ; $< 1000^\circ\text{C}$] | 0.040 | 1 | 16 | 1.030 | A1 |
| I | 12.5 | gypsum plaster board type DF or | 0.250 | 10 | 800 | 1.050 | A2 |
| I | 12.5 | gypsum fibre board | 0.320 | 21 | 1000 | 1.100 | A2 |

Sustainability rating (per m^2)

Database ecoinvent

| | |
|---------------------------|------|
| OI3_{Kon} | 20.4 |
|---------------------------|------|

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 | | 0.110 | 0.048 | 1,82E-6 | 0.022 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 115.317 | 673.999 | 789.316 | 364.145 | 28.891 | 393.037 |