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Designation: awmoho05a-02
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, PLB

# External wall - awmoho05a-02

external wall, solid wood construction, ventilated, without dry lining, with cladding, wooden surface

## Performance rating

| | | |
|---|---|---|
| **Fire protection performance** | **REI from inside** | 60 |
| | **REI from outside** | 60 |

maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 35,0 kN/m
Classified by HFA

| | | |
|---|---|---|
| **Thermal performance** | **U** | 0.15 W/(m²K) |
| | **Diffusion** | suitable |

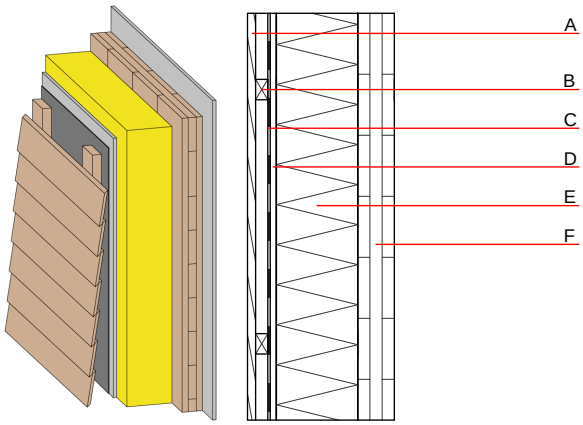
Calculated by HFA

| | | |
|---|---|---|
| **Acoustic performance** | **$R_w$ ($C;C_{tr}$)** | 43 dB |
| | **$L_{n,w}$ ($C_I$)** | |

Assessed by TU-GRAZ

| | | |
|---|---|---|
| **Mass per unit area** | **m** | 96.90 kg/m² |

Calculation based on gypsum plaster board type DF




**Note: Cross laminated timber:**
**Variation 00-01: d ≥ 94,0; at least 3-layers, top layer at least 30mm; variation 02: d ≥ 85,0; at least 5-layers, top layer at least 17 mm**
**F= at least 5-layers cross laminated timber**

## 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 |
|---|---|---|---|---|---|---|---|
| | | | λ | μ min – max | ρ | c | EN |
| A | 20.0 | larch wood external wall cladding | 0.155 | 150 | 600 | 1.600 | D |
| B | 30.0 | spruce wood battens | 0.120 | 50 | 450 | 1.600 | D |
| C | | vapour-permeable membrane sd ≤ 0,3m | | | | | |
| D | 12.5 | gypsum fibre board | 0.320 | 21 | 1000 | 1.100 | A2 |
| E | 200.0 | mineral wool [035; 130; ≥1000°C] | 0.035 | 1 | 130 | 1.030 | A1 |
| F | 90.0 | cross laminated timber | 0.130 | 50 | 500 | 1.600 | D |
| G | 12.5 | gypsum plaster board type DF / gypsum fibre board | 0.250 | 10 | 800 | 1.050 | A2 |

## Sustainability rating (per m²)

**Database ecoinvent**

| | |
|---|---|
| **$OI3_{Kon}$** | 87.6 |

calculated with gypsum plaster fire protection board (GKF/DF); this data includes 3-, 5-, and 7-ply cross laminated timber elements;
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 | | 0.436 | 0.123 | 4,08E-6 | 0.131 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|---|---|---|---|---|---|---|
| A1 - A3 | 95.676 | 782.074 | 877.750 | 924.761 | 21.007 | 945.768 |