

External wall - awrhh11a-01

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

Performance rating

Fire protection performance REI from inside 30
REI from outside 30
maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 19,2 kN/m
Classified by HFA

Germany

F30 (from inside/from outside)

Load $E_{d,fi}$ according to the German certification document

Corresponding proof: manufacturer-specific

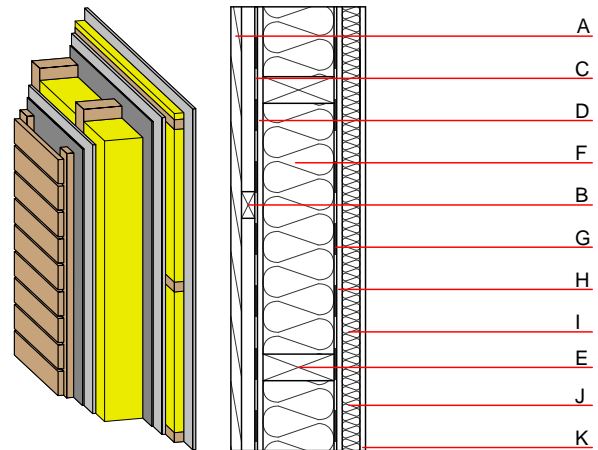
Thermal performance U Diffusion 0.21 W/(m²K)
suitable

Calculated by TUM

Acoustic performance R_w (C;C_{tr}) 58(-1;-6) dB
 $L_{n,w}$ (C_i)

Assessed by Müller-BBM

Mass per unit area m 64.20 kg/m²



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 | | wind barrier | | | 1000 | | |
| D | 12.5 | gypsum fibre board | 0.320 | 21 | 1000 | 1.100 | A2 |
| E | 160.0 | construction timber (60/-; e=625) | 0.120 | 50 | 450 | 1.600 | D |
| F | 160.0 | Cellulose fibre [040; 50] | 0.040 | 1 | 50 | 2.000 | E |
| G | | vapour barrier sd \geq 5m | | | 1000 | | |
| H | 12.5 | gypsum plaster board type DF | 0.250 | 10 | 800 | 1.050 | A2 |
| I | 40.0 | spruce wood cross battens (a=400) \geq 40mm | 0.120 | 50 | 450 | 1.600 | D |
| J | 40.0 | Cellulose fibre [040; 50] \geq 40mm | 0.040 | 1 | 50 | 2.000 | E |
| K | 12.5 | gypsum plaster board type A | 0.250 | 4 - 10 | 680 | 1.050 | A2 |

Sustainability rating (per m²)

Database ecoinvent

OI3_{Kon} 18.4

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 37.440
Biogenic carbon in kg CO₂-e. kg CO₂ 52.060
Energy use of Primary Energy MJ 357.900
Share of renewable PE % 36.05

Calculated by TUM

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 | | 0.098 | 0.042 | 1,96E-6 | 0.005 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 78.505 | 513.388 | 591.893 | 324.979 | 10.862 | 335.841 |

Database GaBi (ÖKOBAUDAT)

| 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 | | 0.052 | 0.010 | 5,44E-7 | 0.008 | |
| C1 - C4 | | 0.007 | 0.008 | 1,46E-7 | 0.001 | |
| A1 - C4 | | 0.064 | 0.019 | 7,11E-7 | 0.010 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 127.464 | 604.132 | 731.192 | 196.067 | 37.126 | 233.270 |
| C1 - C4 | 0.414 | -427.107 | -426.693 | 17.128 | -0.080 | 17.050 |
| A1 - C4 | 129.016 | 177.802 | 306.414 | 228.882 | 37.202 | 266.160 |