

External wall - awrhh11a-03

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 kN/m
 Classified by HFA

Germany

F30 (from inside/from outside)

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

Corresponding proof: DIN 4102-4:2016-05, Tabelle 10.6, Zeile 12

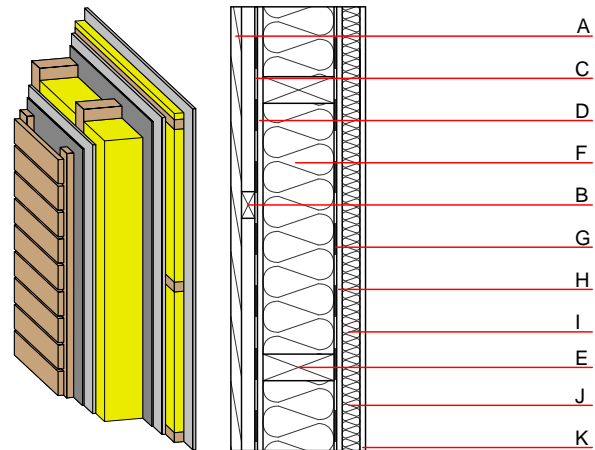
Thermal performance U Diffusion 0.18 W/(m²K)
 suitable

Calculated by TUM

Acoustic performance R_w (C_c;C_{tr}) 59(-1;-6) dB
 $L_{n,w}$ (C_i)

Assessed by Müller-BBM

Mass per unit area m 63.40 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 | 200.0 | construction timber (60/-; e=625) | 0.120 | 50 | 450 | 1.600 | D |
| F | 200.0 | mineral wool [040; 30; $\geq 1000^\circ\text{C}$] | 0.040 | 1 | 30 | 1.030 | A1 |
| G | | vapour barrier sd $\geq 5\text{m}$ | | | 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) $\geq 40\text{mm}$ | 0.120 | 50 | 450 | 1.600 | D |
| J | 40.0 | mineral wool [040; 30; $\geq 1000^\circ\text{C}$] $\geq 40\text{mm}$ | 0.040 | 1 | 30 | 1.030 | A1 |
| K | 12.5 | gypsum plaster board type A | 0.250 | 4 - 10 | 680 | 1.050 | A2 |

Sustainability rating (per m²)

Database ecoinvent

Ol3_{Kon} 31.9

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 26.620
Biogenic carbon in kg CO₂-e. kg CO₂ 38.880
Energy use of Primary Energy MJ 466.260
Share of renewable PE % 29.62

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 | | 0.158 | 0.050 | 2.03E-6 | 0.031 | |
| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
| A1 - A3 | 72.697 | 444.783 | 517.480 | 399.886 | 10.862 | 410.748 |

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 | | 0.106 | 0.017 | 8.92E-7 | 0.011 | |
| C1 - C4 | | 0.004 | 0.003 | 1.29E-7 | 0.001 | |
| A1 - C4 | | 0.114 | 0.021 | 1.04E-6 | 0.012 | |
| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
| A1 - A3 | 136.519 | 476.587 | 612.812 | 296.178 | 48.515 | 344.790 |
| C1 - C4 | 0.454 | -459.777 | -459.323 | 14.938 | -0.100 | 14.840 |
| A1 - C4 | 138.120 | 17.586 | 155.413 | 328.142 | 48.572 | 376.810 |