

Pitched roof - sdmhzi02a-04

pitched roof, solid wood construction, ventilated, with dry lining, not suspended, other surface

Performance rating

Fire protection performance REI 60

maximum span = 5 m; maximum load $E_{d,fi}$ = 5 kN/m² (without roof structure)
Classified by HFA

Germany

REI60

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

Corresponding proof: manufacturer-specific

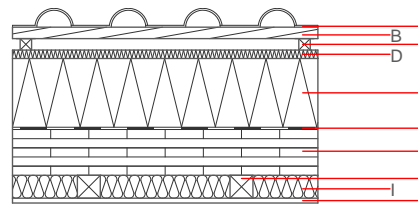
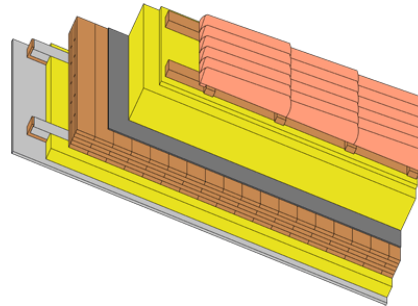
Thermal performance U Diffusion 0.13 W/(m²K) suitable

Calculated by TUM

Acoustic performance R_w (C ; C_{tr}) 46(-1;-7) dB
 $L_{n,w}$ (C_i)

Assessed by Müller-BBM

Mass per unit area m 162.00 kg/m²



Note: The design of the under-roof construction and of the counter-battens have to be specified according to the roof pitch and the national requirements.

Underlay laminated on insulation board

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 | |
| A | | concrete roof tile /tiled roof | | | 2100 | | A1 |
| B | 30.0 | spruce wood battens (30/50) | 0.120 | 50 | 450 | 1.600 | D |
| C | 30.0 | spruce wood counter battens (Germany 30mm); Austria: minimum 50mm | 0.120 | 50 | 450 | 1.600 | D |
| D | | sarking membrane $s_d \leq 0,3m$ | | | 1000 | | E |
| E | 200.0 | mineral wool [040; 130] on-roof insulation | 0.040 | 1 | 130 | 1.030 | |
| F | 0.2 | sealing sheet (air tight) | | | | | |
| G | 120.0 | cross laminated timber | 0.130 | 50 | 500 | 1.600 | D |
| H | 60.0 | spruce wood battens (60/60; e=400) | 0.120 | 50 | 450 | 1.600 | D |
| I | 60.0 | mineral wool [040; 11; <1000°C] | 0.040 | 1 | 11 | 1.030 | A1 |
| J | 12.5 | gypsum plaster board type DF | 0.250 | 10 | 800 | 1.050 | A2 |

Sustainability rating (per m²)

Databaseecoinvent

Ol3_{Kon} 95.7

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 66.520
Biogenic carbon in kg CO₂-e. kg CO₂ 95.930
Energy use of Primary Energy MJ 1426.590
Share of renewable PE % 23.20

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 | | 0.454 | 0.149 | 5,27E-6 | 0.173 | |
| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
| A1 - A3 | 80.991 | 958.764 | 1039.756 | 1117.655 | 33.300 | 1150.955 |

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 | | 0.323 | 0.049 | 4,23E-6 | 0.031 | |
| C1 - C4 | | 0.011 | 0.010 | 1,91E-7 | 0.002 | |
| A1 - C4 | | 0.338 | 0.060 | 4,43E-6 | 0.032 | |
| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
| A1 - A3 | 327.524 | 1139.465 | 1464.107 | 1043.713 | 55.144 | 1098.187 |
| C1 - C4 | 2.422 | -1129.448 | -1127.025 | 36.008 | 0.000 | 36.008 |
| A1 - C4 | 331.033 | 10.276 | 338.427 | 1095.557 | 55.196 | 1150.082 |