

Pitched roof - sdmhzi02a-01

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

Performance rating

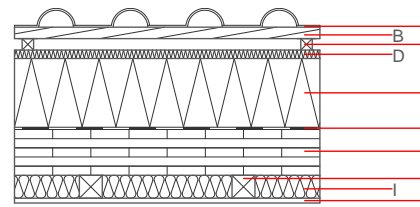
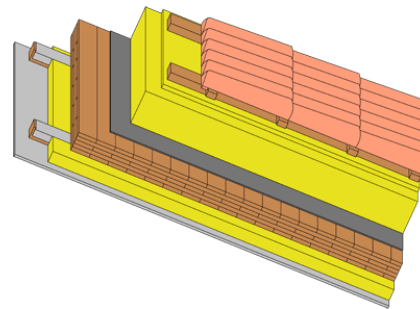
Fire protection performance REI 60
 maximum span = 5 m; maximum load $E_{d,fi} = 5 \text{ kN/m}^2$ (without roof structure)
 Classified by HFA

Germany
 REI60
 Load $E_{d,fi}$ according to the German certification document
 Corresponding proof: manufacturer-specific

Thermal performance U Diffusion 0.12 $\text{W}/(\text{m}^2\text{K})$ suitable
 Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 53(-1;-7) dB
 $L_{n,w} (C_i)$
 Assessed by Müller-BBM

Mass per unit area m 176.00 kg/m^2



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.

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 | $\mu \text{ min - max}$ | 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 22.0 | softboard [045; 250] - rigid underlay | 0.045 | 5 | 250 | 2.100 | E |
| E 200.0 | wood-fibre insulation board [0,040; R=200] on-roof insulation | 0.040 | 5 - 7 | 200 | 2.100 | E |
| 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 m^2)

Database ecoinvent

| | |
|------------|------|
| OI_{kon} | 66.0 |
|------------|------|

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

| | | |
|--|------------------|----------|
| Built-in renewable materials | kg | 128.750 |
| Biogenic carbon in $\text{kg CO}_2\text{-e}$. | kg CO_2 | 183.850 |
| Energy use of Primary Energy | MJ | 1833.000 |
| Share of renewable PE | % | 32.33 |

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 | | 0.305 | 0.135 | 6,28E-6 | 0.072 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 137.302 | 1639.381 | 1776.682 | 1133.047 | 91.189 | 1224.235 |

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 | | 0.197 | 0.041 | 4,64E-6 | 0.042 | |
| C1 - C4 | | 0.008 | 0.002 | 2,12E-7 | 0.001 | |
| A1 - C4 | | 0.209 | 0.044 | 4,86E-6 | 0.042 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 588.090 | 1891.109 | 2476.757 | 1180.276 | 70.048 | 1249.652 |
| C1 - C4 | 3.427 | -1886.892 | -1883.465 | 45.450 | -57.374 | -11.924 |
| A1 - C4 | 592.596 | 4.476 | 594.630 | 1240.402 | 12.726 | 1252.457 |