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Designation: sdmhbi02a-00
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, PLB

# Pitched roof - sdmhbi02a-00

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

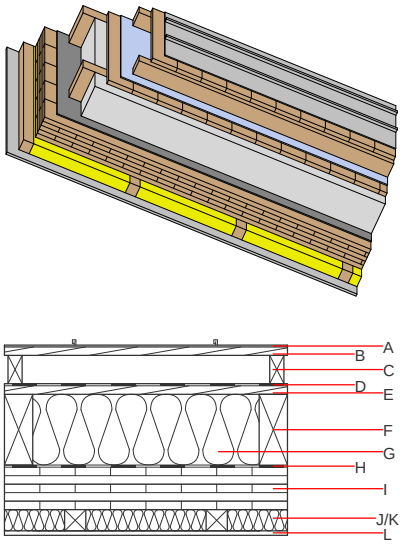
| | | |
|---|---|---|
| **Thermal performance** | **U** | 0.15 W/(m²K) |
| | **Diffusion** | suitable |

Calculated by TUM

| | | |
|---|---|---|
| **Acoustic performance** | **$R_w$ ($C;C_{tr}$)** | 48(-1;-6) dB |
| | **$L_{n,w}$ ($C_I$)** | |

Assessed by Müller-BBM

| | | |
|---|---|---|
| **Mass per unit area** | **m** | 119.10 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.**

## 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 | | sheet metal roofing structured separation layer | | | 7800 | | A1 |
| B | 24.0 | spruce wood formwork | 0.120 | 50 | 450 | 1.600 | D |
| C | 80.0 | spruce wood counter battens (40/80) | 0.120 | 50 | 450 | 1.600 | D |
| D | | sarking membrane sd ≤ 0,3m | | | 1000 | | E |
| E | 24.0 | planking spruce wood full formwork | 0.120 | 50 | 450 | 1.600 | D |
| F | 180.0 | construction timber (80/..; e=800) | 0.120 | 50 | 450 | 1.600 | D |
| G | 180.0 | Cellulose fibre [040; 50] | 0.040 | 1 | 50 | 2.000 | E |
| H | 0.2 | sealing sheet (air tight) | | | | | |
| I | 120.0 | cross laminated timber | 0.130 | 50 | 500 | 1.600 | D |
| J | 60.0 | spruce wood (battens 60/60; e=400) | 0.120 | 50 | 450 | 1.600 | D |
| K | 60.0 | mineral wool [040; 11; <1000°C] | 0.040 | 1 | 11 | 1.030 | A1 |
| L | 12.5 | gypsum plaster board type DF | 0.250 | 10 | 800 | 1.050 | A2 |

## Sustainability rating (per m²)

**Database ecoinvent**

| | |
|---|---|
| **OI3$_{Kon}$** | 42.8 |

Calculated by HFA

**Database GaBi (ÖKOBAUDAT)**

| | | |
|---|---|---|
| **Built-in renewable materials** | **kg** | 111.030 |
| **Biogenic carbon in kg $CO_2$-e.** | **kg $CO_2$** | 158.890 |
| **Energy use of Primary Energy** | **MJ** | 1245.330 |
| **Share of renewable PE** | **%** | 36.17 |

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 | | 0.262 | 0.115 | 4,11E-6 | 0.076 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|---|---|---|---|---|---|---|
| A1 - A3 | 169.778 | 1696.072 | 1865.850 | 804.993 | 33.300 | 838.293 |

**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 | | 0.183 | 0.031 | 4,09E-6 | 0.032 | |
| C1 - C4 | | 0.006 | 0.006 | 2,86E-7 | 0.001 | |
| A1 - C4 | | 0.191 | 0.038 | 4,38E-6 | 0.033 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|---|---|---|---|---|---|---|
| A1 - A3 | 448.992 | 1858.738 | 2308.225 | 762.953 | 84.494 | 846.886 |
| C1 - C4 | 1.095 | -1723.821 | -1722.727 | 26.364 | -0.119 | 26.245 |
| A1 - C4 | 450.468 | 135.176 | 586.139 | 794.860 | 84.426 | 878.726 |