

Pitched roof - sdmhbo01-00

pitched roof, solid wood construction, ventilated, without dry lining, without lining, wooden surface

Performance rating

Fire protection performance REI 30

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

Germany

REI30

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

Corresponding proof: manufacturer-specific

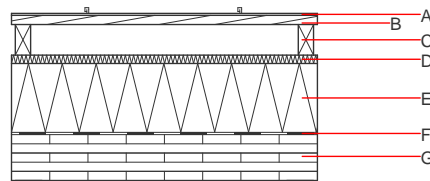
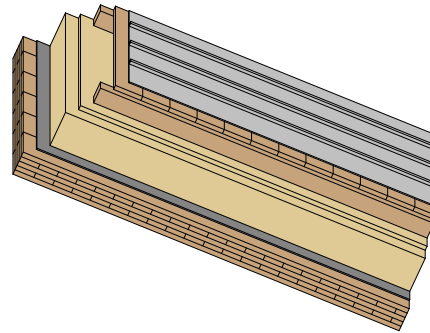
Thermal performance U Diffusion 0.16 $\text{W}/(\text{m}^2\text{K})$ suitable

Calculated by TUM

Acoustic performance $R_w (C; C_{tr})$ 46(-1;-6) dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 124.30 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 | μ min – max | ρ | c | |
| A | | sheet metal roofing on 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 | 22.0 | softboard [045; 250] - rigid underlay | 0.045 | 5 | 250 | 2.100 | E |
| E | 180.0 | 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 |

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{kon}$ 64.6

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 131.720
Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 185.190
Energy use of Primary Energy MJ 1687.260
Share of renewable PE % 35.09

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 | | 0.317 | 0.141 | 5,38E-6 | 0.076 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 142.594 | 1680.839 | 1823.433 | 1091.074 | 85.612 | 1176.686 |

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 | | 0.207 | 0.040 | 4,73E-6 | 0.044 | |
| C1 - C4 | | 0.002 | 0.000 | 2,09E-7 | 0.000 | |
| A1 - C4 | | 0.210 | 0.040 | 4,94E-6 | 0.045 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 590.037 | 1966.843 | 2555.890 | 1065.255 | 129.988 | 1194.572 |
| C1 - C4 | 1.956 | -1968.202 | -1966.246 | 30.012 | -53.836 | -23.824 |
| A1 - C4 | 591.993 | -1.359 | 589.644 | 1095.267 | 76.152 | 1170.748 |