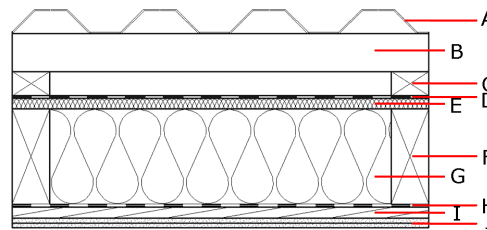
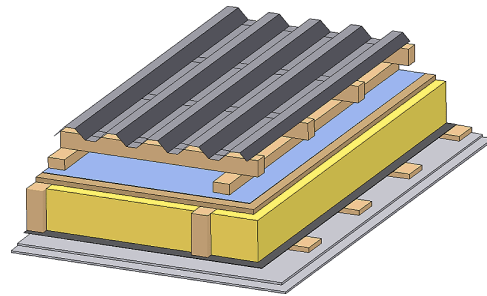


Flat roof - fdrhbi05b-01

flat roof, timber frame construction, ventilated, with dry lining, not suspended, other surface

Performance rating

| | | |
|--|-------------------------------------|--|
| Fire protection performance | REI | 60 |
| maximum span = 5 m; maximum load $E_{d,fi} = 3,66 \text{ kN/m}^2$ Classified by IBS | | |
| Thermal performance | U Diffusion | 0.18 $\text{W}/(\text{m}^2\text{K})$ suitable |
| Calculated by HFA | | |
| Acoustic performance | $R_w (C;C_{tr})$ $L_{n,w} (C_i)$ | 49(-2;-7) dB |
| Assessed by TGM | | |
| Mass per unit area | m | 43.20 kg/m^2 |
| Calculation based on gypsum plaster board type DF | | |



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 | trapezoidal sheet metal roofing | | | | | A1 |
| B 80.0 | spruce wood battens (80/50) | 0.120 | 50 | 450 | 1.600 | D |
| C 50.0 | spruce wood counter battens (ventilation) | 0.120 | 50 | 450 | 1.600 | D |
| D | sarking membrane $s_d \leq 0,3\text{m}$ | | | 1000 | | E |
| E 22.0 | softboard [045; 250] - rigid underlay | 0.045 | 5 | 250 | 2.100 | E |
| F 220.0 | construction timber (80/..; e=800) | 0.120 | 50 | 450 | 1.600 | D |
| G 220.0 | mineral wool [040; ≥ 16 ; $< 1000^\circ\text{C}$] | 0.040 | 1 | 16 | 1.030 | A1 |
| I 24.0 | spruce wood cladding with spacing of cladding boards(24/100); a=400 | 0.120 | 50 | 450 | 1.600 | D |
| I | vapour barrier $s_d \geq 2\text{m}$ | | | 1000 | | |
| J 25.0 | gypsum plaster board type DF (2x12,5 mm) or | 0.250 | 10 | 800 | 1.050 | A2 |
| J 25.0 | gypsum fibre board (2x12,5 mm) | 0.320 | 21 | 1000 | 1.100 | A2 |

Sustainability rating (per m^2)

Database ecoinvent

| | |
|--------------------------|------|
| O13_{Kon} | 69.4 |
| Calculated by HFA | |

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 | 16.062 | 0.277 | 0.130 | 4,26E-6 | 0.021 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 57.366 | 416.093 | 473.459 | 869.069 | 22.867 | 891.936 |