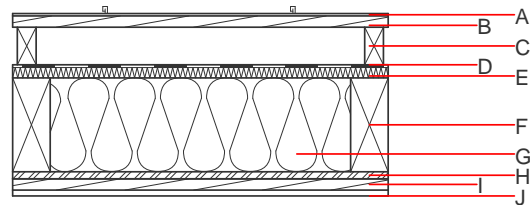
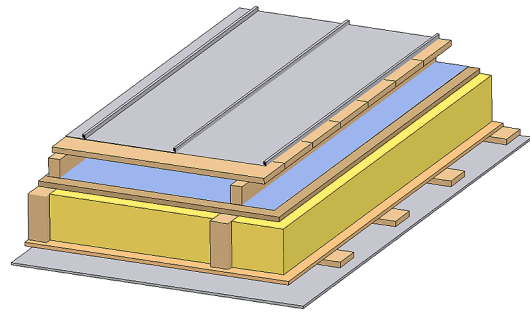


Flat roof - fdrhbi04a-03

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

Performance rating

| | | |
|--|-------------------------------------|--|
| Fire protection performance | REI | 30 |
| maximum span = 5 m; maximum load $E_{d,fi} = 2,62 \text{ kN/m}^2$ Classified by HFA | | |
| Thermal performance | U Diffusion | 0.18 $\text{W}/(\text{m}^2\text{K})$ suitable |
| Calculated by HFA | | |
| Acoustic performance | $R_w (C;C_{tr})$ $L_{n,w} (C_i)$ | 47(-2;-6) dB |
| Assessed by TGM | | |
| Mass per unit area | m | 47.50 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 | Plastic roofing membrane or | | | | | E |
| A | sheet metal roofing | | | 7800 | | A1 |
| B 24.0 | spruce wood closed cladding without spacing of cladding boards | 0.120 | 50 | 450 | 1.600 | D |
| C 80.0 | 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 200.0 | construction timber (80/..; e=800) | 0.120 | 50 | 450 | 1.600 | D |
| G 200.0 | mineral wool [035; 50; <1000°C] | 0.035 | 1 | 50 | 1.030 | A1 |
| H 15.0 | OSB (sealed with airtight tape) | 0.130 | 200 | 600 | 1.700 | D |
| I 24.0 | spruce wood cladding with spacing of cladding boards(24/100); a=400 | 0.120 | 50 | 450 | 1.600 | D |
| J 12.5 | gypsum plaster board type DF or | 0.250 | 10 | 800 | 1.050 | A2 |
| J 12.5 | gypsum fibre board | 0.320 | 21 | 1000 | 1.100 | A2 |

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{Kon}$ 59.8

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 | | 0.259 | 0.120 | 4,33E-6 | 0.043 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 136.131 | 695.300 | 831.431 | 824.695 | 25.765 | 850.459 |