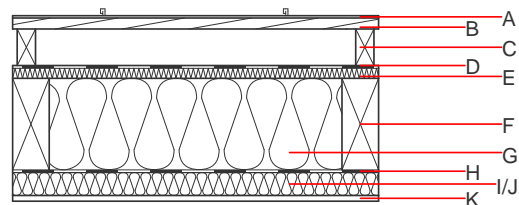
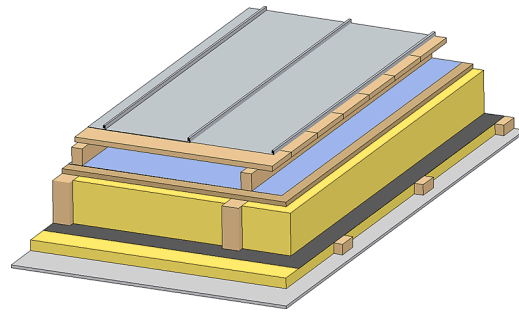


Flat roof - fdrhbi01a-06

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 $E_{d,fi} = 3,66 \text{ kN/m}^2$ Classified by HFA | | |
| Thermal performance | U Diffusion | 0.17 $\text{W}/(\text{m}^2\text{K})$ suitable |
| Calculated by HFA | | |
| Acoustic performance | R_w (C;C _{tr}) $L_{n,w}$ (C) | 50(-3;-8) dB |
| Assessed by TGM | | |
| Mass per unit area | m | 43.10 kg/m^2 |
| Calculation based on GF | | |



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)

| Layer | Thickness | Building material | Thermal performance | | | | Reaction to fire EN |
|-------|-----------|--|---------------------|-----------------|--------|-------|---------------------|
| | | | λ | μ min - max | ρ | c | |
| A | | sheet metal roofing or plastic roofing membrane | | | 7800 | | A1 |
| A | | Plastic roofing membrane | | | | | E |
| 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 | cellulose fibre [040; E] | 0.040 | 1 - 2 | 55 | 2.000 | E |
| H | | vapour barrier $s_d \geq 2\text{m}$ | | | 1000 | | |
| I | 50.0 | spruce wood cross battens (50/80;a=400) | 0.120 | 50 | 450 | 1.600 | D |
| J | 50.0 | cellulose fibre [040; E] or without insulation in type 01 | 0.040 | 1 - 2 | 55 | 2.000 | E |
| K | 12.5 | gypsum fibre board or | 0.320 | 21 | 1000 | 1.100 | A2 |
| K | 12.5 | gypsum plaster board type DF | 0.250 | 10 | 800 | 1.050 | A2 |

Sustainability rating (per m^2)

Database ecoinvent

$O13_{kon}$ 28.6

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 | | 0.148 | 0.068 | 2,21E-6 | 0.028 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 106.396 | 704.892 | 811.288 | 437.957 | 19.383 | 457.340 |