

## Flat roof - fdrhbi05a-02

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 0.17 W/(m<sup>2</sup>K)  
**Diffusion** suitable

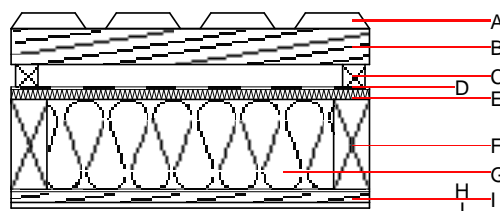
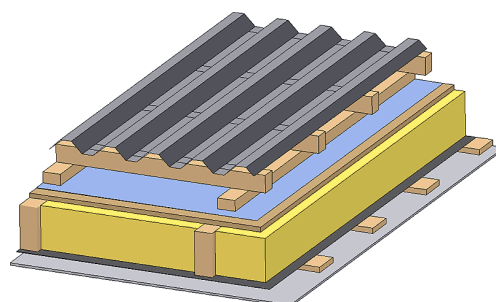
Calculated by HFA

**Acoustic performance**  $R_w (C; C_{tr})$  49(-3;-8) dB  
 $L_{n,w} (C_i)$

Assessed by TGM

**Mass per unit area** m 34.50 kg/m<sup>2</sup>

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 |
|---|-----------|---|---------------------|--------------------------------|--------|-------|---------------------|
|   |           |   | $\lambda$           | $\mu \text{ min} - \text{max}$ | $\rho$ | 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 | 240.0     | construction timber (80/..; e=800)                                  | 0.120               | 50                             | 450    | 1.600 | D                   |
| G | 240.0     | mineral wool [040; $\geq 16$ ; $< 1000^\circ\text{C}$ ]             | 0.040               | 1                              | 16     | 1.030 | A1                  |
| H |           | vapour barrier $s_d \geq 2\text{m}$                                 |                     |                                | 1000   |       |                     |
| 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<sup>2</sup>)

#### Database ecoinvent

013<sub>Kon</sub> 72.1

Calculated by HFA

## Details of sustainability rating

### Database ecoinvent

| Lifecycle<br>(Phases) | GWP<br>[kg CO <sub>2</sub> -e.] | AP<br>[kg SO <sub>2</sub> -e.] | EP<br>[kg PO <sub>4</sub> -e.] | ODP<br>[kg R11-e.] | POCP<br>[kg Ethen-e.] |  |
|-----------------------|---------------------------------|--------------------------------|--------------------------------|--------------------|-----------------------|--|
| A1 - A3               |                                 | 0.288                          | 0.140                          | 4,01E-6            | 0.050                 |  |

| Lifecycle<br>(Phases) | PERE<br>[MJ] | PERM<br>[MJ] | PERT<br>[MJ] | PENRE<br>[MJ] | PENRM<br>[MJ] | PENRT<br>[MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3               | 92.502       | 417.762      | 510.264      | 900.302       | 19.383        | 919.685       |