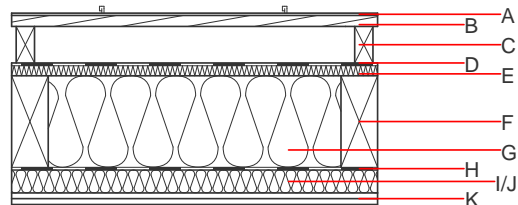
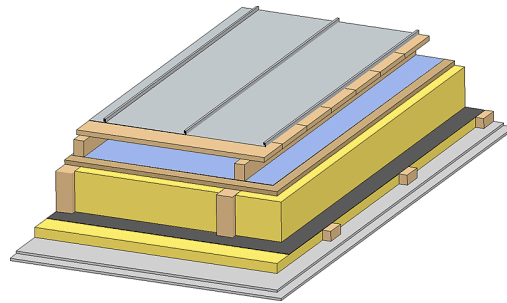


## Flat roof - fdrhbi01b-04

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

### Performance rating

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Fire protection performance</b>   | REI                                 | 60   |
| maximum span = 5 m; maximum load $E_{d,fi} = 3,66 \text{ kN/m}^2$<br>Classified by HFA |                                     |  |
| <b>Thermal performance</b>   | U<br>Diffusion                      | 0.16 $\text{W}/(\text{m}^2\text{K})$<br>suitable |
| Calculated by HFA  |                                     |  |
| <b>Acoustic performance</b>  | $R_w (C;C_{tr})$<br>$L_{n,w} (C_i)$ | 52(-3;-8) dB                                     |
| Assessed by TGM  |                                     |  |
| <b>Mass per unit area</b>  | m                                   | 52.00 $\text{kg}/\text{m}^2$                     |
| 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 |
|-------|-----------|--|---------------------|--------------------------------|--------|-------|---------------------|
|       |           |  | $\lambda$           | $\mu \text{ min} - \text{max}$ | $\rho$ | 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     | mineral wool [035; 50; <1000°C]                                  | 0.035               | 1                              | 50     | 1.030 | A1                  |
| 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      | mineral wool [035; 50; <1000°C] or without insulation in type 01 | 0.035               | 1                              | 50     | 1.030 | A1                  |
| K     | 25.0      | gypsum fibre board (2x12,5 mm) or                                | 0.320               | 21                             | 1000   | 1.100 | A2                  |
| K     | 25.0      | gypsum plaster board type DF (2x12,5 mm)                         | 0.250               | 10                             | 800    | 1.050 | A2                  |

### Sustainability rating (per $\text{m}^2$ )

#### Database ecoinvent

$OI3_{kon}$  67.0

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               |                                 | 0.278                          | 0.130                          | 4,83E-6            | 0.044                 |  |

| Lifecycle<br>(Phases) | PERE<br>[MJ] | PERM<br>[MJ] | PERT<br>[MJ] | PENRE<br>[MJ] | PENRM<br>[MJ] | PENRT<br>[MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3               | 118.895      | 581.542      | 700.437      | 897.661       | 19.383        | 917.044       |