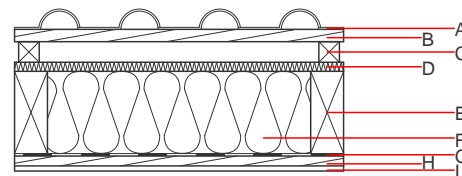
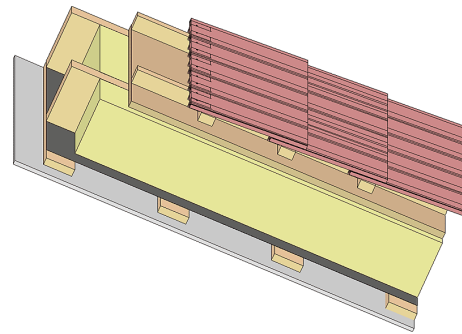


**Pitched roof - sdrhzi01 a-01**

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

**Performance rating**

|  |                                     |  |
|--|-------------------------------------|--|
| <b>Fire protection performance</b>   | REI                                 | 30   |
| maximum span = 5 m; maximum load $E_{d,fi} = 3,66 \text{ kN/m}^2$<br>Classified by HFA |                                     |  |
| <b>Thermal performance</b>   | U Diffusion                         | 0.18 $\text{W}/(\text{m}^2\text{K})$<br>suitable |
| Calculated by HFA  |                                     |  |
| <b>Acoustic performance</b>  | $R_w (C;C_{tr})$<br>$L_{n,w} (C_i)$ | 50(-3;-9) dB                                     |
| with a tiled roof $R_w = 48 (-3; -9) \text{ dB}$<br>Assessed by TGM                    |                                     |  |
| <b>Mass per unit area</b>  | m                                   | 32.80 $\text{kg}/\text{m}^2$                     |
| 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 |
|---|-----------|--|---------------------|--------------------------------|--------|-------|---------------------|
|   |           |  | $\lambda$           | $\mu \text{ min} - \text{max}$ | $\rho$ | c     |                     |
| A |           | concrete roof tile or tiled roof                                       |                     |                                |        | 2100  | A1                  |
| B | 30.0      | spruce wood battens (30/50)  | 0.120               | 50                             | 450    | 1.600 | D                   |
| C | 50.0      | spruce wood counter battens (minimum height 50 mm)                     | 0.120               | 50                             | 450    | 1.600 | D                   |
| D | 22.0      | softboard [045; 250] - rigid underlay                                  | 0.045               | 5                              | 250    | 2.100 | E                   |
| E | 220.0     | construction timber (80/..; e=800)                                     | 0.120               | 50                             | 450    | 1.600 | D                   |
| F | 220.0     | mineral wool [040; $\geq 16$ ; $< 1000^\circ\text{C}$ ]                | 0.040               | 1                              | 16     | 1.030 | A1                  |
| G |           | vapour barrier $s_d \geq 1 \text{ m}$                                  |                     |                                |        | 1000  |                     |
| H | 24.0      | spruce wood cladding with spacing of cladding boards(24/100);<br>a=400 | 0.120               | 50                             | 450    | 1.600 | D                   |
| I | 12.5      | gypsum plaster board type DF or  | 0.250               | 10                             | 800    | 1.050 | A2                  |
| I | 12.5      | gypsum fibre board   | 0.320               | 21                             | 1000   | 1.100 | A2                  |

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

**Database ecoinvent**

$O13_{kon}$  27.4

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               |                                 | 0.112                          | 0.052                          | 2,68E-6            | 0.020                 |  |

| Lifecycle<br>(Phases) | PERE<br>[MJ] | PERM<br>[MJ] | PERT<br>[MJ] | PENRE<br>[MJ] | PENRM<br>[MJ] | PENRT<br>[MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3               | 72.567       | 402.613      | 475.180      | 415.594       | 12.980        | 428.574       |