

## Flat roof - fdrhbi02b-01

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

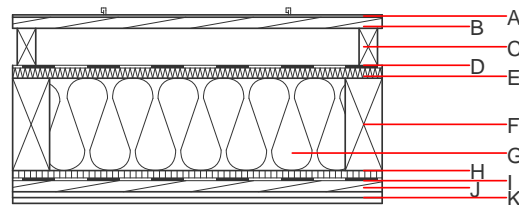
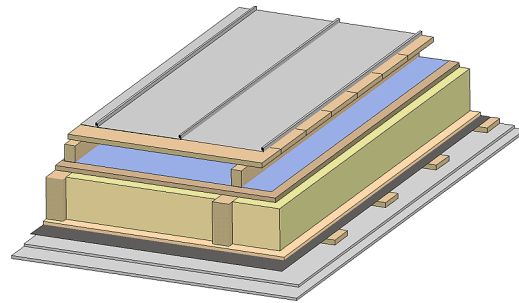
### Performance rating

**Fire protection performance** REI 60  
maximum span = 5 m; maximum load  $E_{d,fi} = 3,66 \text{ kN/m}^2$   
Classified by HFA

**Thermal performance** U 0.18 W/(m<sup>2</sup>K)  
Diffusion suitable  
Calculated by HFA

**Acoustic performance**  $R_w (C; C_{tr})$  48(-3;-7) dB  
 $L_{n,w} (C_i)$   
Assessed by TGM

**Mass per unit area** m 54.20 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		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	220.0	construction timber (80/*; e=800)	0.120	50	450	1.600	D
G	220.0	mineral wool [040; $\geq 16$ ; <1000°C]	0.040	1	16	1.030	A1
H	16.0	particleboard	0.130	50 - 100	700	1.700	D
I		vapour barrier $s_d \geq 1\text{m}$			1000		
J	24.0	spruce wood cladding with spacing of cladding boards(24/100); a=400	0.120	50	450	1.600	D
K	25.0	gypsum plaster board type DF (2x12,5 mm) or	0.250	10	800	1.050	A2
K	25.0	gypsum fibre board (2x12,5 mm)	0.320	21	1000	1.100	A2

### Sustainability rating (per m<sup>2</sup>)

#### Database ecoinvent

013<sub>Kon</sub> 42.9

Calculated by HFA

## Details of sustainability rating

### Database ecoinvent

Lifecycle (Phases)	GWP [kg CO <sub>2</sub> -e.]	AP [kg SO <sub>2</sub> -e.]	EP [kg PO <sub>4</sub> -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.185	0.087	3.15E-6	0.037	
Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	105.577	728.532	834.108	658.271	43.985	702.256