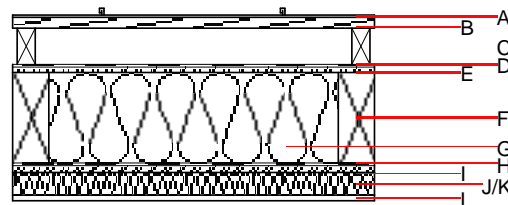
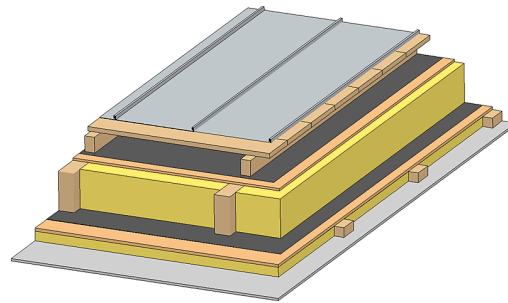


### Flat roof - fdrhbi06a-06

flat 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 $E_{d,fi} = 2,62 \text{ kN/m}^2$ Classified by HFA		
<b>Thermal performance</b>	U Diffusion	0.18 $\text{W}/(\text{m}^2\text{K})$ suitable
Calculated by HFA		
<b>Acoustic performance</b>	$R_w (C;C_{tr})$ $L_{n,w} (C_i)$	46(-2;-6) dB
Assessed by TGM		
<b>Mass per unit area</b>	m	55.00 $\text{kg}/\text{m}^2$
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)

Layer	Thickness	Building material	Thermal performance				Reaction to fire EN
			$\lambda$	$\mu \text{ min} - \text{max}$	$\rho$	c	
A		sheet metal roofing or			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	15.0	OSB	0.130	200	600	1.700	D
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 $s_d \geq 8\text{m}$			1000		
I	15.0	OSB	0.130	200	600	1.700	D
J	50.0	spruce wood cross battens (50/80;a=400)	0.120	50	450	1.600	D
K	50.0	cellulose fibre [040; E]	0.040	1 - 2	55	2.000	E
L	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
L	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

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

##### Database ecoinvent

$OI_{3kon}$  30.2

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		0.163	0.072	2,41E-6	0.033	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	147.636	878.415	1026.051	485.219	31.226	516.444