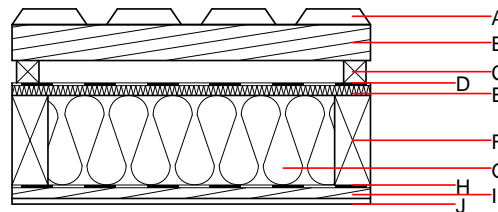
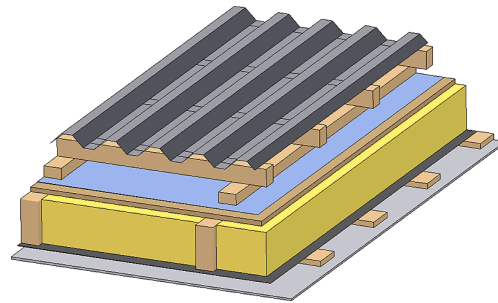


### Flat roof - fdrhbi05a-03

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

#### Performance rating

<b>Fire protection performance</b>	REI	30
maximum span = 5 m; maximum load $E_{d,fi} = 3,66 \text{ kN/m}^2$ 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>	$R_w (C;C_{tr})$ $L_{n,w} (C_i)$	49(-2;-7) dB
Assessed by TGM		
<b>Mass per unit area</b>	m	38.00 $\text{kg}/\text{m}^2$
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)

Thickness	Building material	Thermal performance				Reaction to fire EN
		$\lambda$	$\mu$ min – 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	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	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 $\text{m}^2$ )

##### Database ecoinvent

$OI3_{kon}$  92.2

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		0.363	0.175	5,31E-6	0.057	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	98.338	385.006	483.344	1129.304	19.383	1148.687