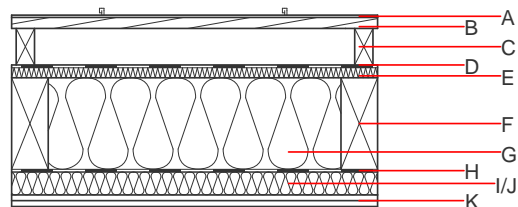
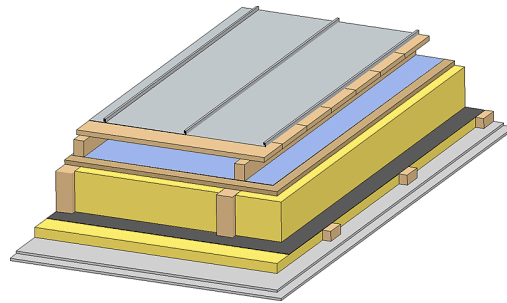


Flat roof - fdrhbi01b-02

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 Diffusion	0.16 $\text{W}/(\text{m}^2\text{K})$ suitable
Calculated by HFA		
Acoustic performance	$R_w (C;C_{tr})$ $L_{n,w} (C_i)$	51 (-2;-7) dB
Assessed by TGM		
Mass per unit area	m	45.80 kg/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
			λ	$\mu \text{ min - max}$	ρ	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	220.0	construction timber (80/*; e=800)	0.120	50	450	1.600	D
G	220.0	mineral wool [040; ≥ 16 ; $<1000^\circ\text{C}$]	0.040	1	16	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 [040; ≥ 16 ; $<1000^\circ\text{C}$] or without insulation in type 01	0.040	1	16	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 m^2)

Database ecoinvent

$OI3_{kon}$ 40.6

Calculated by HFA

Details of sustainability rating

Database ecoinvent

Lifecycle (Phases)	GWP [kg CO ₂ -e.]	AP [kg SO ₂ -e.]	EP [kg PO ₄ -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.178	0.084	3,10E-6	0.033	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	107.216	597.920	705.136	592.915	19.383	612.298