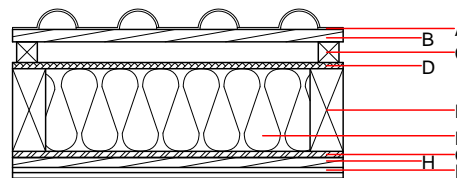
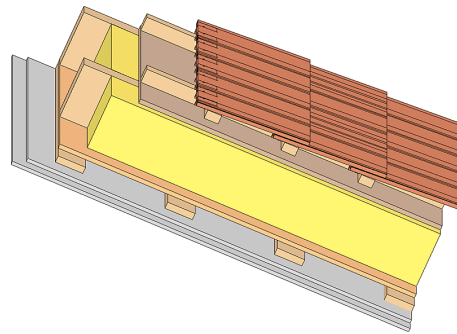


### Pitched roof - sdrhzi09b-01

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

#### Performance rating

<b>Fire protection performance</b>	REI	60
maximum span = 5 m; maximum load $E_{d,fi} = 3,66 \text{ kN/m}^2$ Classified by HFA		
<b>Thermal performance</b>	U Diffusion	0.19 $\text{W}/(\text{m}^2\text{K})$ suitable
Calculated by HFA		
<b>Acoustic performance</b>	$R_w (C;C_{tr})$ $L_{n,w} (C_i)$	53(-1;-7) dB
with a tiled roof $R_w = 51 (-1; -7)$ dB Assessed by TGM		
<b>Mass per unit area</b>	m	55.90 $\text{kg}/\text{m}^2$
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	
			$\lambda$	$\mu$ min – 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	15.0	fibreboard (MDF)	0.140	11	600	1.700	D	
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	15.0	OSB (sealed with airtight tape)	0.130	200	600	1.700	D	
H	24.0	spruce wood cladding with spacing of cladding boards(24/100); a=400	0.120	50	450	1.600	D	
I	25.0	gypsum plaster board type DF (2x12,5 mm) or	0.250	10	800	1.050	A2	
I	25.0	gypsum fibre board (2x12,5 mm)	0.320	21	1000	1.100	A2	

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

##### Database ecoinvent

$OI3_{kon}$  31.9

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		0.137	0.061	3,07E-6	0.024	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	106.089	606.061	712.150	510.293	28.891	539.184