

## Flat roof - fdmbi01a-01

flat roof, solid wood construction, not ventilated, with dry lining, suspended, other surface

### Performance rating

**Fire protection performance** REI 60

maximum span = 5 m; maximum load  $E_{d,fi} = 5 \text{ kN/m}^2$   
Classified by HFA

**Thermal performance** U Diffusion 0.13 W/(m<sup>2</sup>K)  
suitable

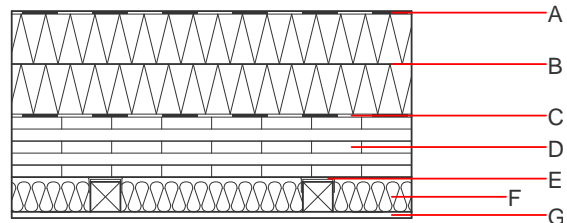
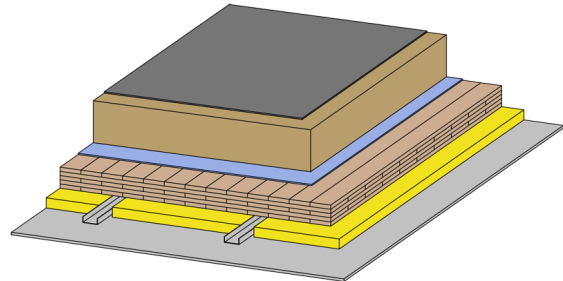
Calculated by HFA

**Acoustic performance**  $R_w (C; C_{tr})$  48(-3;-9) dB  
 $L_{n,w} (C_i)$

Assessed by TU-GRAZ

**Mass per unit area** m 89.40 kg/m<sup>2</sup>

Calculation based on gypsum plaster board type DF



Note: Attention: REI60 (from inside) in Germany possible with 2x12,5mm gypsum plaster board type DF/ gypsum fibre board resp. B=XPS

### 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		sealing sheet $s_d \geq 100\text{m}$ e.g. EPDM membrane					
B	200.0	Polystyrene EPS-W [R=15] (2*100)	0.040	20 - 50	15	1.450	E
C		sealing sheet e.g. bitumen					
D	125.0	cross laminated timber $\geq 125,0$ ; at least 5-layers, top layer at least 27,5 mm)	0.130	50	500	1.600	D
E	70.0	acoustic hanger (suspension); e=415;					
F	60.0	mineral wool [040; 20]	0.040	1	20	1.030	A2
G	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
G	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

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

#### Database ecoinvent

OI3<sub>Kon</sub> 70.5

calculated with gypsum plaster fire protection board (GKF/DF); this data includes 3-, 5-, and 7-ply cross laminated timber elements; if using XPS: OI3 61; GWP -46,25; AP 0,35; PEI ne 1749,10; PEI e 1422,7; EP 0,06; POCP 0,11  
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		0.263	0.097	6,02E-6	0.088	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	47.900	855.000	902.900	919.291	323.190	1242.480