

## Intermediate floor - gdrnxa05a-04

intermediate floor, timber frame construction, suspended, wet, without filling, other surface

### Performance rating

**Fire protection performance** REI 30

maximum span = 5 m; maximum load  $E_{d,fi} = 2,62 \text{ kN/m}^2$  (without floor construction and 12mm OSB; with ceiling beam 60./200); if 200 mm mineral wool  $\geq 1000^\circ\text{C}$  and insulation protection is built-in (metal strip:  $b = 100 \text{ mm}$ ,  $e \leq 300 \text{ mm}$ ;  $d = 0,5\text{-}1,0 \text{ mm}$ ): REI 60; max. Last  $E_{d,fi} = 3,0 \text{ kN/m}^2$

Classified by IBS  
 Classified by HFA

### Germany

F30

Load  $E_{d,fi}$  according to the German certification document

Corresponding proof: DIN 4102-4:2016-05, Tabelle 10.11, Zeile 1

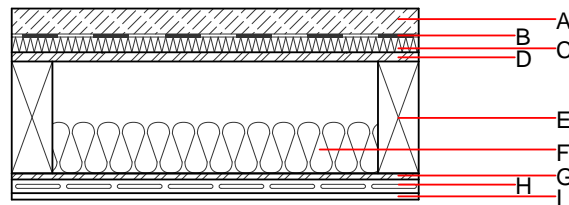
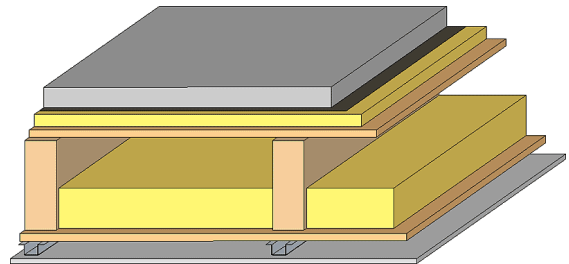
<b>Thermal performance</b>	<b>U Diffusion</b>	0.26 $\text{W}/(\text{m}^2\text{K})$ suitable
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<b>Acoustic performance</b>	$R_w (C; C_{tr})$	58(-1;-7) dB
	$L_{n,w} (C_i)$	61(0)

Assessed by TGM  
 Assessed by Müller-BBM

<b>Mass per unit area</b>	<b>m</b>	157.10 $\text{kg}/\text{m}^2$
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Calculation based on gypsum plaster board type DF



### 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
			$\lambda$	$\mu \text{ min - max}$	$\rho$	c	
A	50.0	anhydrite screed	0.700	10	2200	1.300	A1
B		plastic separation layer	0.200	100000	1400	1.400	E
C	30.0	impact sound absorbing subflooring MW-T	0.035	1	68	1.030	A1
D	18.0	OSB	0.130	200	600	1.700	D
E	220.0	construction timber (80/..; e=625)	0.120	50	450	1.600	D
F	100.0	mineral wool [038; $\geq 33$ ; $\geq 1000^\circ\text{C}$ ]	0.038	1	33	1.030	A1
G	12.0	OSB	0.130	200	600	1.700	D
H	27.0	resilient channel					
I	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
I	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

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

#### Database ecoinvent

**O13<sub>kon</sub>** 45.8

Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

<b>Built-in renewable materials</b>	kg	31.880
<b>Biogenic carbon in <math>\text{kg CO}_2\text{-e.}</math></b>	$\text{kg CO}_2$	48.070
<b>Energy use of Primary Energy</b>	MJ	694.870
<b>Share of renewable PE</b>	%	21.40

Calculated by TUM

## 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		0.194	0.082	2,73E-6	0.049	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	123.274	523.630	646.904	603.588	25.504	629.092

### Database GaBi (ÖKOBAUDAT)

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		0.146	0.021	8,20E-7	0.029	
C1 - C4		0.009	0.003	5,71E-8	0.001	
A1 - C4		0.159	0.025	8,85E-7	0.030	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	147.274	557.158	705.559	531.075	31.377	562.588
C1 - C4	1.020	-550.722	-548.563	9.210	-12.787	12.023
A1 - C4	148.678	6.695	158.123	546.191	18.642	588.708