

## Intermediate floor - gdrnxa07a-04

intermediate floor, timber frame construction, suspended, wet, with filling, other surface

### Performance rating

**Fire protection performance** REI 30

maximum span = 5 m; maximum load  $E_{d,fi} = 3,66 \text{ kN/m}^2$  (without floor construction; with ceiling beam 80/200); REI60: if 200 mm mineral wool  $\geq 1000^\circ\text{C}$  and insulation protection is built-in (metal strip:  $b = 100 \text{ mm}$ ,  $e \leq 300 \text{ mm}$ ;  $d = 0,5-1,0 \text{ mm}$ ), maximum span = 5 m; maximum load  $E_{d,fi} = 3,0 \text{ kN/m}^2$   
 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 10.12, Zeile 1

<b>Thermal performance</b>	<b>U Diffusion</b>	0.26 $\text{W}/(\text{m}^2\text{K})$ suitable
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Calculated by HFA

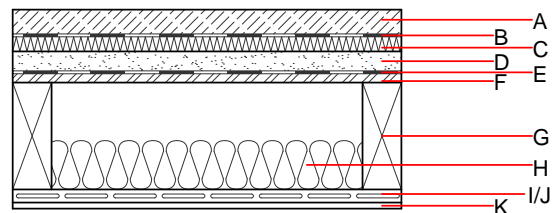
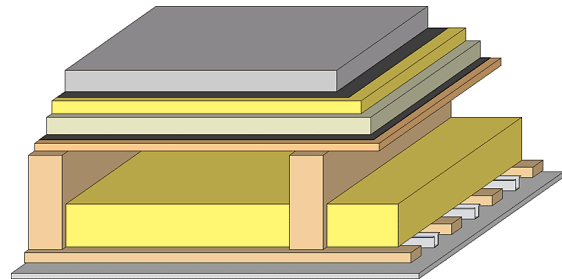
<b>Acoustic performance</b>	$R_w (C; C_{tr})$	70(-1;-5) dB
	$L_{n,w} (C_i)$	41(1)

Assessed by TGM

Assessed by Müller-BBM

<b>Mass per unit area</b>	<b>m</b>	216.90 $\text{kg}/\text{m}^2$
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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	cement screed or anhydrite screed	1.330	50 - 100	2000	1.080	A1
B		plastic separation layer	0.200	100000	1400	1.400	E
C	30.0	impact sound absorbing subflooring MW-T [ $s' = 10 \text{ MN}/\text{m}^3$ ]	0.035	1	68	1.030	A1
D	40.0	fill loose	0.700	1	1800	1.000	A1
E		trickling protection					E
F	18.0	OSB	0.130	200	600	1.700	D
G	220.0	construction timber (80/...; $e=625$ )	0.120	50	450	1.600	D
H	100.0	mineral wool [038; $\geq 33$ ; $\geq 1000^\circ\text{C}$ ]	0.038	1	33	1.030	A1
I	24.0	spruce wood cladding with spacing of cladding boards(24/100); $a=400$	0.120	50	450	1.600	D
J	27.0	resilient channel placed between cladding with spacing	0.156				
K	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
K	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

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

Database ecoinvent

O13 <sub>Kon</sub>	42.0
Calculated by HFA	

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	27.590
Biogenic carbon in kg CO <sub>2</sub> -e.	kg CO <sub>2</sub>	41.210
Energy use of Primary Energy	MJ	678.440
Share of renewable PE	%	21.30

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		0.176	0.076	2,52E-6	0.043	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	107.456	455.553	563.008	550.596	20.654	571.250

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	8,86E-7	0.023	
C1 - C4		0.015	0.005	6,46E-8	0.002	
A1 - C4		0.165	0.027	9,59E-7	0.024	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	141.936	483.451	626.814	505.514	54.730	560.380
C1 - C4	2.205	-476.814	-473.469	22.441	-7.731	30.310
A1 - C4	144.526	6.896	154.473	533.918	47.052	604.846