

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 kN/m² (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 mm, e \leq 300 mm; d = 0,5-1,0 mm): REI 60; max. Last $E_{d,fi}$ = 3,0 kN/m²

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

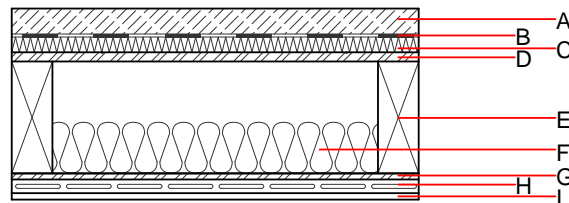
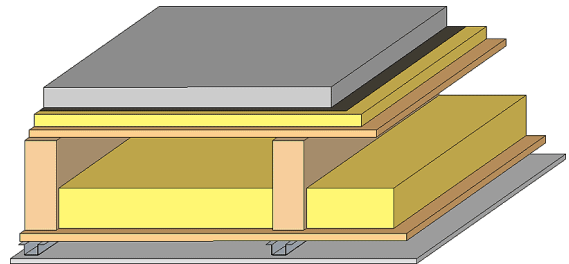
Thermal performance U 0.26 W/(m²K)
Diffusion suitable

Acoustic performance R_w (C;C_{tr}) 58(-1;-7) dB
 $L_{n,w}$ (C_i) 61(0)

Assessed by TGM
Assessed by Müller-BBM

Mass per unit area m 157.10 kg/m²

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
			λ	μ min – max	ρ	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; ≥ 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 m²)

Database ecoinvent

Ol3_{Kon} 45.8

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 31.880
Biogenic carbon in kg CO₂-e. kg CO₂ 48.070
Energy use of Primary Energy MJ 694.870
Share of renewable PE % 21.40

Calculated by TUM

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		0.194	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 ₂ -e.]	AP [kg SO ₂ -e.]	EP [kg PO ₄ -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