

Compartment wall - twrxo03b-07

compartment wall, timber frame construction, without dry lining, double-layer, other surface

Performance rating

Fire protection performance REI 90

REI45 apply to each individual load-bearing wall; the whole wall: EI90; maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 50,0 kN/m
 Classified by HFA
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Germany

F90 (for the whole structure)

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

Corresponding proof: manufacturer-specific

Thermal performance U Diffusion 0.17 W/(m²k) suitable

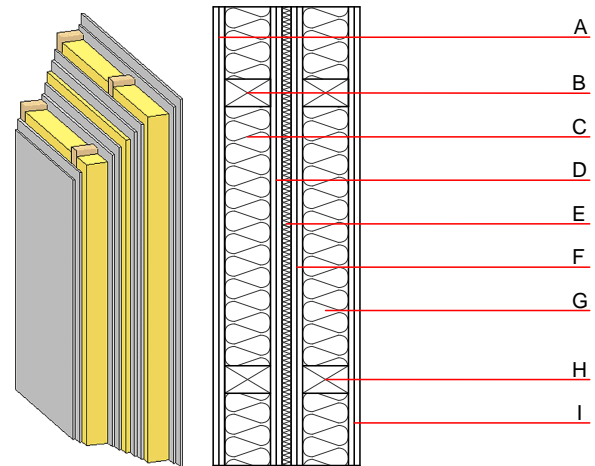
Calculated by TUM

Acoustic performance R_w (C₁;C_{tr}) 61(-2;-9) dB
 $L_{n,w}$ (C₁)

Assessed by Müller-BBM

Mass per unit area m 94.90 kg/m²

Calculation based on gypsum plaster board type DF



Note: layer A, I: planking 2x18mm; e=625

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	36.0	gypsum plaster board type DF or	0.250	10	800	1.050	A2
A	36.0	gypsum fibre board	0.320	21	1000	1.100	A2
B	100.0	construction timber (60/100; e=*)	0.120	50	450	1.600	D
C	100.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
D	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
D	12.5	gypsum fibre board	0.320	21	1000	1.100	A2
E	30.0	mineral wool [040; ≥ 16 ; <1000°C]	0.040	1	16	1.030	A1
F	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
F	12.5	gypsum fibre board	0.320	21	1000	1.100	A2
G	100.0	construction timber (60/100; e=*)	0.120	50	450	1.600	D
H	100.0	Wood fibre insulation [039; 45]	0.039	1 - 2	45	2.100	E
I	36.0	gypsum plaster board type DF or	0.250	10	800	1.050	A2
I	36.0	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

O13_{kon} 28.0
 Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	kg	21.060
Biogenic carbon in kg CO₂-e.	kg CO ₂	30.420
Energy use of Primary Energy	MJ	1013.290
Share of renewable PE	%	31.96

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		0.092	0.043	3,03E-6	0.015	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	61.729	305.488	367.217	474.296	14.005	488.301

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		0.103	0.024	5,16E-7	0.020	
C1 - C4		0.007	0.002	1,90E-7	0.001	
A1 - C4		0.122	0.029	7,65E-7	0.022	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	319.151	727.153	1047.071	609.413	44.975	654.480
C1 - C4	1.666	-696.069	-694.402	37.831	-37.383	0.450
A1 - C4	323.875	32.637	357.280	689.411	8.000	697.500