

Internal wall - iwrxo06a-08

internal wall, timber frame construction, without dry lining, other surface

Performance rating

Fire protection performance REI 60
 maximum ceiling height = 3 m; maximum load $E_{d,fi} = 19,2 \text{ kN/m}$
 Classified by HFA
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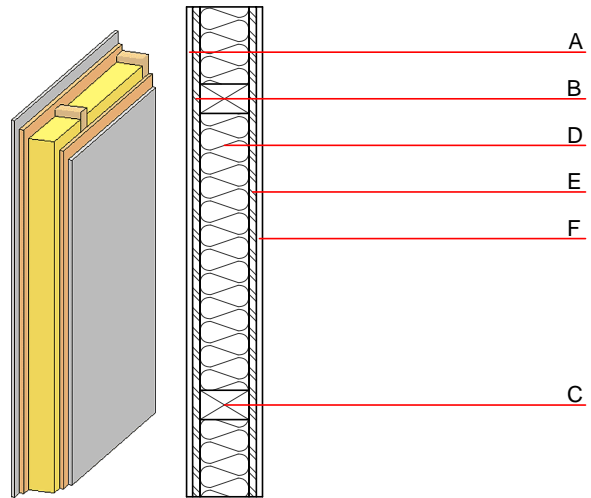
Germany
 F60
 Load $E_{d,fi}$ according to the German certification document
 Corresponding proof: manufacturer-specific

Acoustic performance $R_w (C; C_{tr})$ 50 dB
 $L_{n,w} (C_i)$

Assessed by Müller-BBM

Mass per unit area m 48.30 kg/m^2

Calculation based on gypsum plaster board type DF



Note: The fire resistance is only valid when wall is used as partition with only one side exposed to fire.

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 | 15.0 | gypsum fibre board or | 0.320 | 21 | 1000 | 1.100 | A2 |
| A | 15.0 | gypsum plaster board type DF | 0.250 | 10 | 800 | 1.050 | A2 |
| B | 15.0 | OSB | 0.130 | 200 | 600 | 1.700 | D |
| C | 100.0 | construction timber (60/100 or 60/160; e=*) | 0.120 | 50 | 450 | 1.600 | D |
| D | 100.0 | Wood fibre insulation [039; 50] | 0.039 | 1 - 2 | 50 | 2.100 | E |
| E | 15.0 | OSB | 0.130 | 200 | 600 | 1.700 | D |
| F | 15.0 | gypsum fibre board or | 0.320 | 21 | 1000 | 1.100 | A2 |
| F | 15.0 | gypsum plaster board type DF | 0.250 | 10 | 800 | 1.050 | A2 |

Sustainability rating (per m^2)

Database ecoinvent

$OI3_{kon}$ 15.3
 Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials kg 27.700
 Biogenic carbon in $\text{kg CO}_2\text{-e}$. kg CO_2 41.840
 Energy use of Primary Energy MJ 706.530
 Share of renewable PE % 29.15

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 | | 0.070 | 0.029 | 1,57E-6 | 0.014 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 83.573 | 445.772 | 529.344 | 285.094 | 28.684 | 313.778 |

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 | | 0.083 | 0.015 | 3,55E-7 | 0.028 | |
| C1 - C4 | | 0.003 | 0.001 | 6,42E-8 | 0.000 | |
| A1 - C4 | | 0.089 | 0.017 | 4,37E-7 | 0.029 | |

| Lifecycle (Phases) | PERE [MJ] | PERM [MJ] | PERT [MJ] | PENRE [MJ] | PENRM [MJ] | PENRT [MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3 | 203.545 | 631.635 | 835.564 | 471.362 | 31.054 | 502.460 |
| C1 - C4 | 1.454 | -621.266 | -619.814 | 16.026 | -28.680 | -12.650 |
| A1 - C4 | 205.955 | 10.886 | 217.224 | 500.572 | 2.502 | 503.120 |