

## Intermediate floor - gdrnx10b-02

intermediate floor, timber frame construction, suspended, wet, without filling, Gipsplatte

### Performance rating

**Fire protection performance** REI 60

maximum span = 5 m; maximum load  $E_{d,fi}$  = 3,66 kN/m<sup>2</sup> (without floor construction, with ceiling beam 80/200)  
 Classified by HFA

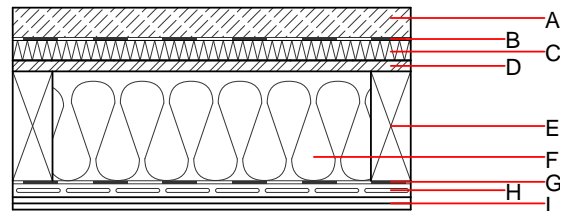
#### Germany

F60

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

Corresponding proof: DIN 4102-4:2016-05, Tabelle 10.12, Zeile 4

|                             |   |                          |
|-----------------------------|---|--------------------------|
| <b>Thermal performance</b>  | <b>U Diffusion</b>  |                          |
| <b>Acoustic performance</b> | $R_w$ (C;C <sub>tr</sub> )<br>$L_{n,w}$ (C <sub>i</sub> ) | 73(-1;-6) dB<br>51(2)    |
| Assessed by Müller-BBM      |   |                          |
| <b>Mass per unit area</b>   | <b>m</b>  | 186.20 kg/m <sup>2</sup> |



### 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 |
|---|-----------|---|---------------------|-----------------|--------|-------|---------------------|
|   |           |   | $\lambda$           | $\mu$ min – max | $\rho$ | c     |                     |
| A | 60.0      | anhydrite screed or cement screed                                 | 0.700               | 10              | 2200   | 1.300 | A1                  |
| B | 0.2       | plastic separation layer  | 0.200               | 100000          | 1400   | 1.400 | E                   |
| C | 40.0      | impact sound absorbing subflooring MW [s' = 7 MN/m <sup>2</sup> ] | 0.033               | 1               | 30     | 0.030 | A1                  |
| D | 22.0      | OSB   | 0.130               | 200             | 600    | 1.700 | D                   |
| E | 240.0     | construction timber (80/...; e=625)                               | 0.120               | 50              | 450    | 1.600 | D                   |
| F | 200.0     | Wood fibre insulation [039; 45]                                   | 0.039               | 1 - 2           | 45     | 2.100 | E                   |
| G | 0.2       | trickling protection  |                     |                 |        |       | E                   |
| H | 27.0      | resilient channel   | 0.156               |                 |        |       |                     |
| I | 25.0      | gypsum plaster board type DF (2x...mm)                            | 0.250               | 10              | 800    | 1.050 | A2                  |

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

#### Database ecoinvent

**OI3<sub>Kon</sub>** 48.2  
 Calculated by HFA

#### Database GaBi (ÖKOBAUDAT)

**Built-in renewable materials** kg 34.440  
**Biogenic carbon in kg CO<sub>2</sub>-e.** kg CO<sub>2</sub> 51.130  
**Energy use of Primary Energy** MJ 1147.230  
**Share of renewable PE** % 29.31  
 Calculated by TUM

## Details of sustainability rating

### Database ecoinvent

| Lifecycle<br>(Phases) | GWP<br>[kg CO <sub>2</sub> -e.] | AP<br>[kg SO <sub>2</sub> -e.] | EP<br>[kg PO <sub>4</sub> -e.] | ODP<br>[kg R11-e.] | POCP<br>[kg Ethen-e.] |  |
|-----------------------|---------------------------------|--------------------------------|--------------------------------|--------------------|-----------------------|--|
| A1 - A3               |                                 | 0.188                          | 0.091                          | 3,46E-6            | 0.033                 |  |

| Lifecycle<br>(Phases) | PERE<br>[MJ] | PERM<br>[MJ] | PERT<br>[MJ] | PENRE<br>[MJ] | PENRM<br>[MJ] | PENRT<br>[MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3               | 131.066      | 609.464      | 740.531      | 702.433       | 37.054        | 739.487       |

### Database GaBi (ÖKOBAUDAT)

| Lifecycle<br>(Phases) | GWP<br>[kg CO <sub>2</sub> -e.] | AP<br>[kg SO <sub>2</sub> -e.] | EP<br>[kg PO <sub>4</sub> -e.] | ODP<br>[kg R11-e.] | POCP<br>[kg Ethen-e.] |  |
|-----------------------|---------------------------------|--------------------------------|--------------------------------|--------------------|-----------------------|--|
| A1 - A3               |                                 | 0.181                          | 0.031                          | 7,87E-7            | 0.035                 |  |
| C1 - C4               |                                 | 0.011                          | 0.003                          | 7,32E-8            | 0.001                 |  |
| A1 - C4               |                                 | 0.198                          | 0.036                          | 8,75E-7            | 0.036                 |  |

| Lifecycle<br>(Phases) | PERE<br>[MJ] | PERM<br>[MJ] | PERT<br>[MJ] | PENRE<br>[MJ] | PENRM<br>[MJ] | PENRT<br>[MJ] |
|-----------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| A1 - A3               | 333.518      | 891.583      | 1226.019     | 776.451       | 58.530        | 835.092       |
| C1 - C4               | 1.944        | -880.272     | -876.962     | 23.864        | -41.386       | 1.198         |
| A1 - C4               | 336.222      | 11.829       | 350.916      | 811.004       | 17.248        | 856.851       |