Loading Guide: Typical House Loadings

Note
This guide is indicative only and was prepared for the purpose of giving pre-design structural element sizing information and as an educational tool. Evolution does not burden accountability for the misuse of misinterpretation of the information presented herein with.
1.0 – Modern house loads

Roof Loads:

Example = Attic space below (roof).
Description = Concrete tiles on battens on counter battens on 3 layers of felt on plywood sheeting on rafters.

Loads = 
- Tiles = 0.55 kN/m²
- Battens/ Counters = 0.05 kN/m²
- Felt = 0.11 kN/m²
- Sheeting = 0.05 kN/m²
- Rafters* = 0.07 kN/m²

TOTAL = 0.83 kN/m²

* = Assume 125mm x 50mm @ 600mm c/c

Weight = \( \frac{bd \times 000.7}{5} \)

Ceiling Loads:

Example = Ceiling.
Description = Insulation, plasterboard and services on joists.

Loads = 
- Plasterboard (12mm) = 0.13 kN/m²
- Joists = 0.06 kN/m²
  (100mm x 50mm @ 600mm c/c)
- Services = 0.10 kN/m²
- Insulation (18mm) = 0.06 kN/m²

TOTAL = 0.35 kN/m²
Floor Loads:

Example = Upper floor.

Description = Timber boards on joists with ceiling and services hung under joists.

Loads = Timber boarding = 0.07 kN/m²
         Joists = 0.12 kN/m²
(150mm x 50mm @ 450mm c/c)

Ceiling (plasterboard) = 0.13 kN/m²
Services = 0.10 kN/m²
Total = 0.42 kN/m²

Example = Ground floor.

Description = Timber boards on joists with under hanging services.

Loads = Timber boarding = 0.07 kN/m²
         Joists = 0.12 kN/m²
(150mm x 50mm @ 450mm c/c)

Services = 0.05 kN/m²
TOTAL = 0.24 kN/m²

Wall Loads:

<table>
<thead>
<tr>
<th>Construction</th>
<th>Load (kN/m²/mm [thickness])</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick</td>
<td>0.021</td>
</tr>
<tr>
<td>Block</td>
<td>0.013</td>
</tr>
<tr>
<td>Additions</td>
<td></td>
</tr>
<tr>
<td>Plaster (per side)</td>
<td>0.22</td>
</tr>
<tr>
<td>Roughcast (per side)</td>
<td>0.40</td>
</tr>
<tr>
<td>Timber stud (with plasterboard either side)</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Note: If the position of the internal stud is unknown, conservatively assume a load of 1.0 kN/m² onto floor.
## 2.0 – Older house loads

### Roof Loads:

- **Example:** Attic space below (roof).
- **Description:** Concrete tiles on battens on counter battens on 3 layers of felt on plywood sheeting on rafters.

<table>
<thead>
<tr>
<th>Loads</th>
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<th>Load (kN/m²)</th>
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<tbody>
<tr>
<td>Tiles</td>
<td>0.55 kN/m²</td>
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</tr>
<tr>
<td>Battens/ Counters</td>
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<td></td>
</tr>
<tr>
<td>Felt</td>
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<td></td>
</tr>
<tr>
<td>Sheeting</td>
<td>0.05 kN/m²</td>
<td></td>
</tr>
<tr>
<td>Rafters*</td>
<td>0.07 kN/m²</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL = 0.83 kN/m²**

*Assume 125mm x 50mm @ 600mm c/c*

### Ceiling Loads:

- **Example:** Ceiling.
- **Description:** Lath and plaster on joists with under hanging services and ash deafening.

<table>
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<td></td>
</tr>
<tr>
<td>Joists</td>
<td>0.06 kN/m²</td>
<td></td>
</tr>
<tr>
<td>(100mm x 50mm @ 600mm c/c)</td>
<td>0.10 kN/m²</td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>0.06 kN/m²</td>
<td></td>
</tr>
<tr>
<td>Insulation (18mm)</td>
<td>0.06 kN/m²</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL = 0.35 kN/m²**
Floor Loads:

Example = Upper floor.
Description = Timber boards on joists with ceiling and services hung under joists.

Loads =
- Timber boarding = 0.07 kN/m²
- Joists = 0.12 kN/m²
  (150mm x 50mm @ 450mm c/c)
- Ceiling (plasterboard) = 0.13 kN/m²
- Services = 0.10 kN/m²

TOTAL = 0.42 kN/m²

Example = Ground floor.
Description = Timber boards on joists with under hanging services.

Loads =
- Timber boarding = 0.07 kN/m²
- Joists = 0.12 kN/m²
  (150mm x 50mm @ 450mm c/c)
- Services = 0.05 kN/m²

TOTAL = 0.24 kN/m²

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Note: If the position of the internal stud is unknown, conservatively assume a load of 1.0 kN/m² onto floor.
3.0 – Tenement building loads

**Roof Loads:** As per modern house loads.

**Ceiling Loads:** As per older house loads

**Floor Loads:**

Example = Upper floor.

<table>
<thead>
<tr>
<th>Loads</th>
<th>Timber boarding</th>
<th>0.07 kN/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joists</td>
<td>0.23 kN/m²</td>
<td></td>
</tr>
<tr>
<td>(300mm x 50mm @ 450mm c/c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ash deafening</td>
<td>0.10 kN/m²</td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>0.10 kN/m²</td>
<td></td>
</tr>
<tr>
<td>Lath and plaster</td>
<td>0.45 kN/m²</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.95 kN/m²</td>
<td></td>
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</tbody>
</table>

Example = Ground floor.

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</tr>
<tr>
<td>(150mm x 50mm @ 450mm c/c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>0.10 kN/m</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.29 kN/m²</td>
<td></td>
</tr>
</tbody>
</table>

**Wall Loads:** As per older house loads.
Tenement building loads

Roof Loads:
As per modern house loads.

Ceiling Loads:
As per older house loads

Floor Loads:
Example = Upper floor.

- Timber boarding = 0.07 kN/m
- Joists = 0.23 kN/m
  (300mm x 50mm @ 450mm c/c)
- Ash deafening = 0.10 kN/m
- Services = 0.10 kN/m
- Lath and plaster = 0.45 kN/m
- TOTAL = 0.95 kN/m

Example = Ground floor.

- Timber boarding = 0.07 kN/m
- Joists = 0.12 kN/m
  (150mm x 50mm @ 450mm c/c)
- Services = 0.10 kN/m
- TOTAL = 0.29 kN/m

Wall Loads:
As per older house loads.