INTERNAL LOAD BEARING
ON CONCRETE FLOOR SLABS

★ Covers floor thickening and supporting stud requirements.
★ Covers floor slabs on buildings complying with NZS 3604:2011.
★ All concrete slabs to be constructed as per NZS 3604:2011.
★ Thickening requirements apply to reinforced floor slabs.
★ Provides solutions for stud requirements where point loads exceed 10kN.
★ All slabs assumed to be supported on soils that have Ultimate Bearing Capacity of 300kPa ($\varnothing_b=0.50$).

SCAN FOR INSTALLATION VIDEO
https://vimeo.com/117353607
Establishing Thickening & Stud Requirements

1. Establish the type of load applied to the floor as being either a UDL (uniformly distributed load) or a concentrated load. Girder trusses will always give concentrated loads and a run of two or more trusses with the same loads will give a UDL.

2. Establish the maximum load value via the MiTek 20/20® Truss Design Software by using the Truss Bearings Exceeding 10kN Report (see example below). Choose the maximum DOWN value in kN.

3. Go to the Slab Thickening & Stud Requirement Table on the next page and choose from the appropriate section; either no change for up to 10kN, FP1 and FS1 for up to 20kN, or FP2 and FS2 for up to 30kN.

4. Choose from the selection of stud options (height, centres and grade).

5. Apply the relevant slab and stud requirements as specified and detailed on the next page.

6. Where the maximum positive bearing reaction exceeds 10kN (uplift), refer to MiTek for Special Design.

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MiTek 20/20® Example Selection

TRUSS BEARINGS EXCEEDING 10kN REPORT

<table>
<thead>
<tr>
<th>Critical Trusses</th>
<th>Qty</th>
<th>Span (mm)</th>
<th>Joint</th>
<th>Bearing Reactions (kN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT01</td>
<td>1</td>
<td>8000</td>
<td>J</td>
<td>Down: 16.177, Uplift: 7.292</td>
</tr>
</tbody>
</table>

Girder truss GT01

Maximum down value = -16.177kN

375 x 375 Square pad as per detail FP1

2 Studs required under truss

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SINGLE STUD OPTION

Top plate arrangement as per NZS 3604:2011

Truss can be located anywhere on the top plate

MULTIPLE STUD OPTION

* Max. 50mm tolerance for truss location

Multiple studs as indicated by design table on the next page
Slab Thickening & Stud Requirement Table

CONSTRUCTION SPECIFICATIONS
Max. truss crs. @ 1200mm, Min. truss crs. @ 600mm.
Assume walls are fully lined on at least one face.
Assume full bearing on top plate (i.e. no eccentric loading).

<table>
<thead>
<tr>
<th>TIMBER SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber properties based on NZS 3603:1993 Amendment No.4 March 2005. Minimum grade specified is SG8 unless otherwise noted. For SG6 use the studs for the next highest category. i.e. - For loads up to 10kN select studs from the 20kN table. - For loads up to 20kN select studs from the 30kN table. - For loads above 20kN Special Design is required.</td>
</tr>
</tbody>
</table>

Slab Thickening Details

CONCRETE PAD OPTIONS
(for concentrated loads)

CONTINUOUS CONCRETE THICKENING OPTIONS
(for uniformly distributed loads)

*Note: The stud requirement for 20kN & 30kN bearing reactions can be applied to external walls as well.
Retro Fitted Load Bearing Option

Note:
- Covers slab details where no thickening has been built into the foundation.
- For loads exceeding 10kN install bottom lintel (300 x 100) between two adjacent studs as detailed below. For loads 30kN or more, special design is required.
- Ensure the studs comply with requirements on the previous page and are located directly under concentrated loads. This may require on-site installation of these studs.

Concentrated Load

2 / 300 x 50 or 1 / 300 x 100 SG8 bottom lintel. Nail as standard pre-cut details

TRUSS BEARING LOAD

6 x 90mm nails through studs into bottom lintel at each end

LUMBERLOK CPC80 each side

Uniformly Distributed Loads

Internal load bearing wall

Number of studs shown indicative only

6 x 90mm nails through studs into bottom lintel at each end

2 / 300 x 50 or 1 / 300 x 100 SG8 bottom lintel. Nail as standard pre-cut details

MiTek New Zealand Limited