

## EXAMPLE 1: RESIDENTIAL FLOOR

Loading

Floor live load  $Q=2.0\text{KPa}$

Superimposed Dead Load =  $G_{sdl} = 0.5\text{kPa}$

Charts allowed for  $0.5\text{KPa}$  superimposed dead load.

Based on 1230mm spacing of joist, then maximum span and limiting criteria for 250 and 400 joists are;

250mm Joist - 75mm topping =

5.4 m limited by defl L/500

5.9 m limited by defl L/360 and or strength

250mm Joist - 90mm topping =

5.25 m limited by defl.L/500

5.85 m limited by defl L/360 and or strength

400mm Joist - 75mm topping =

8.3 m limited by defl L/500

8.65 m limited by defl L/360 and or strength

400mm Joist - 90mm topping =

7.95 m limited by defl L/500

8.35 m limited by defl L/360 and or strength

## EXAMPLE 2: RETAIL FLOOR

$Q = 4.0\text{KPa}$

$G_{sdl} = 2.5\text{KPa}$  (supported by slab topping)

As an example to treat additional superimposed dead load of  $2.0\text{KPa}$  ( $2.5 - .5$ ) as live load

Total load limited by deflection L/360 and or strength is the max of

- for strength =  $4\text{KPa} + (2.0 \times 1.2/1.50) = 5.6\text{KPa}$

- Or for defl L/360 =  $4.0\text{kPa} + (2.0 \times 1.0/0.7) = 6.85\text{KPa}$

And total load limited by defl L/500

For defl L/500 =  $4\text{kPa} + (2.0 \times 1.0/0.4) = 9.0\text{KPa}$

Based on 1230mm spacing of joist, then the maximum span and limiting criteria for 250 and 400 joists are

250mm joist - 75mm topping

4.6 m limited by defl L/360 and or strength

250mm joist - 90mm topping

4.5 m limited by defl L/360 and or strength

400mm joist - 75mm topping

5.9 m limited by defl L/360 and or strength

400mm joist - 90mm topping

5.8 m limited by defl L/360 and or strength

Note: Since the load exceeds  $5.0\text{KPa}$  slab topping requires specific design (for  $5.6\text{KPa}$ ) by Speedfloor engineer

## EXAMPLE 3: OFFICE FLOOR

$Q = 3.0\text{KPa}$

$G_{sdl} = 1.10\text{KPa}$

Since charts allowed for  $0.5\text{kPa}$  superimposed dead load, then treat additional superimposed dead load of  $0.6\text{kPa}$  as live load. The charts are based on load combination of  $1.2G + 1.5Q$  for strength, and short term live load ( $Y_s = 0.7$ ) for deflection limit L/360 and long term live load ( $Y_e = 0.4$ ) for deflection limit L/500

Total load limited by defl L/360 and on strength is the max of

- for strength =  $3\text{KPa} + (0.6 \times 1.2/1.5) = 3.5\text{KPa}$

- Or for defl L/360 =  $3\text{KPa} + (0.6 \times 1.0/0.7) = 3.85\text{KPa}$

And total load limited by defl L/500 =

For defl L/500 =  $3\text{KPa} + (0.6 \times 1.0/0.4) = 4.5\text{KPa}$

Based on 1230 mm spacing of joist, then the maximum span and limiting criteria for 250 and 400 joists are:

250mm joist - 75mm topping

4.95 m limited by defl L/500

5.5 m limited by defl L/360 and or strength

250mm joist - 90mm topping

4.90 m limited by defl L/500

5.45 m limited by defl L/360 and or strength

400mm joist - 75mm topping

7.4 m limited by defl L/360 and or strength

400mm joist - 90mm topping

7.3 m limited by defl L/360 and or strength

