

TYPICAL INTERSPAN SECTION

NTS

GENERAL INFORMATION

Topping thickness: 75mm; Propping requirements: depending on span, one to four props may be required. Rib Centres: Generally 900mm - may vary depending on loading; Fire Rating: 60-minutes

DESCRIPTION

The TiltUp Interspan Flooring System consists of prestressed concrete ribs spaced at 900mm centres with 25mm thick timber formwork placed between them. A minimum 75mm thick in-situ concrete topping is cast over the panel, producing a composite and versatile flooring solution. TiltUp Interspan Ribs are manufactured at a depth that meets the projects specific load/span requirements. The depth of TiltUp Interspan Beams can vary from 125mm to 300mm, depending on design loads. This multi-piece system is tied together with a minimum 75mm in situ concrete topping and mesh reinforcing, and has the benefit of being suitable for difficult sites where access is a problem or poor foundation conditions dictate the use of a comparatively lightweight floor.

FLEXIBLE

TiltUp Interspan Ribs can be easily adapted to various floor plans. Additional capacity for concentrated loads can easily be achieved by doubling up the ribs while maintaining consistent floor depth. Floor openings of up to 700mm between beams can be easily accommodated.

TIMBER INFILLS

Timber infill planks are typically H3 treated sawn timber. The infill plank depth is usually 25mm; although this does vary depending on availability. Timber infills should be dampened prior to placing the concrete topping. Timber is a natural material with defects. Any knots greater than ¼ of the

board width should be rejected. We recommend builders do not stand on the timbers infills during construction. 25mm thick infills with a clear span greater than 750mm need to be propped.

MATERIAL

Tilt Up Interspan ribs are manufactured with 45 MPa at 28 day concrete strength. Topping concrete strength of 25 MPa (as required by NZS 3101:2006)

SOUND TRANSMISSION CLASS (STC)

Reduce noise transmission to a STC rating of 55dB with a 75mm topping and plaster board ceiling. STC of 53dB can be achieved without a ceiling.

FIRE RESISTANCE RATING

TiltUp Interspan Ribs have a 60-minute fire rating in accordance with NZS3101. The overall fire ratings of the floor system will depend on the concrete topping thickness and strand positions.

INTERSPAN RIB – SAFE LOAD/SPAN TABLES

Safe superimposed live load in kPa with 75mm topping on 25mm timber infill assuming SDL on the composite section of 0.5kPa									
Depths		Span - Simply Supported Meters							
Rib Depth	Total Depth	5	6	7	8	9	10	11	12
125	225	9.0	6.0	3.5					
150	250		7.0	5.0	3.0				
175	275			8.0	5.0				
200	300			8.5	6.0	4.5			
225	325				8.0	5.5	3.5		
250	350					7.0	5.0	3.0	
275	375					9.0	6.5	4.5	3.0

The table above maximises the unfactored live load for individual simply supported ribs of various depths and span. Load/span to the right of the zigzag line of the above table, exceed the maximum recommended span overall depth ratio of 32 as well as vibration limits using a dampening ratio of 0.05 that assumes full height partitions. For spans exceeding these values, please contact TiltUp for specific design information.

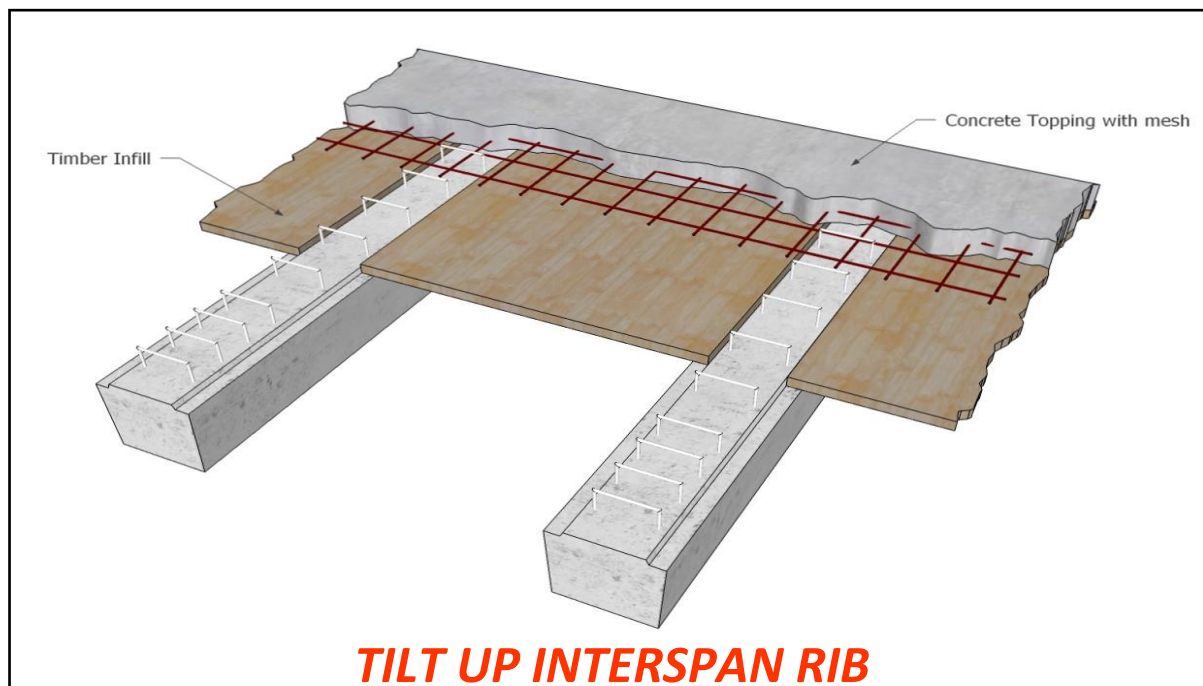
INTERSPAN RIB – SECTION PROPERTIES

Section properties are based on a 900mm wide section of floor with a 75mm topping on a 25mm timber infill. The modular ratio for 25MPa topping is assumed to be 0.75mm, for the calculation of composite properties below.												
Depths		Bare Unit				Composite Unit						900 wide
Rib Depth	Total Depth	Mass (kg/m) bare rib	Yb (mm)	I (x10 ⁹ mm ⁴)	Zb (x10 ⁶ mm ³)	A' (x10 ³ mm ²)	Yb' (mm)	Yt' (mm)	I' (x10 ⁶ mm ³)	Zb' (x10 ⁶ mm ³)	Zt' (x10 ⁶ mm ³)	Weight (kPa)
125	225	64	63	0.033	0.519	71.3	145	80	0.319	2.198	3.99	2.76
150	250	76.5	75	0.566	0.752	76.6	161	89	0.438	2.728	4.92	2.87
175	275	89	88	0.091	1.033	8.17	176	99	0.583	3.319	5.89	3.01

200	300	102	100	0.136	1.360	86.6	190	110	0.754	3.960	6.85		3.16
225	325	115	113	0.196	1.732	91.2	205	120	0.953	4.651	7.94		3.29
250	350	128	126	0.269	2.141	96.4	220	130	1.182	5.383	9.09		3.42
275	375	141	138	0.360	2.601	99.4	234	141	1.443	6.175	10.23		3.56

TRANSPORT/HANDLING/ERECTION

TiltUp Interspan Ribs must be handled at the strand lifting eyes and stacked at the two points directly under or beside the lifting eyes. It is recommended that TiltUp Interspan Beams are seated 75mm onto concrete supports or 60mm onto steel beams with bearing strips to ensure an even bearing at the correct level.



QUOTATION AND PRELIMINARY DESIGN

TiltUp will give a free quote and preliminary design. All you need to do is provide your house/building plans. TiltUp will design the Interspan Floor System for floor loadings only. It is best for an engineer to design cantilever reinforcing, as this can help save time and design costs.

INSTALLATION & ERECTION

TiltUp have a professionally trained and certified erection team. If you would like your quotation to include crane lifting & erection please state this in your enquiry.

QUOTATION ACCEPTANCE

Before TiltUp can start preparing the final design and the shop drawings for the Interspan Floor layout you are required to sign a copy of the quote and return it to TiltUp, showing your acceptance of the order. You will then be required to provide a full set of 'for construction' building plans and any design notes from your engineer showing design loads that the floor is to be designed for and a time when the Interspan Floor System will be required, along with site contact details.

INSTALLATION & CONSTRUCTION

Before placing TiltUp Interspan Ribs.

1. Props must be installed to the required levels. This should be achieved to within $\pm 3\text{mm}$. The propping system (designed by others) must be adequate to carry all construction loads. Props should not be removed until the in situ topping has reached 75% of the specified concrete strength.
2. Placement of topping reinforcing to the engineers' specification.
3. In-situ concrete topping should be water or membrane cured for at least 7 days. Refer to NZS 3109
4. Drilling holes through or cutting TiltUp Interspan Ribs is not recommended and should only be undertaken with written approval from the TiltUp engineer.
5. For temporary storage of TiltUp Interspan Ribs, you must provide bearers close to the lifting eyes on level ground.

FURTHER TECHNICAL INFORMATION

TiltUp has qualified, experienced staff available to discuss design details with you.

Paul Brewer | General Manager

PH: 07 925 0383 | **M:** 021 403 497 | **E:** paul@tiltup.co.nz

POSTAL ADDRESS: PO Box 174, Tauranga

SITE ADDRESS: 38 Poturi Street, Tauranga

Thomas Razak | Engineering Manager/ Estimator

PH: 07 925 0383 | **M:** 021 403 417 | **E:** thomas@tiltup.co.nz

POSTAL ADDRESS: PO Box 174, Tauranga

SITE ADDRESS: 38 Poturi Street, Tauranga

Reviewed 17 February 2017