



# V-SPAN

## TECHNICAL INFORMATION

### APPLICATION

V-Span is ideal for suspended flooring in residential houses and apartment-when long span with steps in the topping concrete, for balcony weathering, are required. The surface of the topping can be constructed to accommodate changes in level at weather steps. This is achieved by reducing, or even deleting, the depth of the polystyrene voids. The result is a lighter overall weight because less concrete topping is required. V-Span provides the customer with an economical and efficient design.

### 250 V-SPAN SAFE LOAD/SPAN TABLES

The tables are based on a specified 28 day concrete topping strength of 20 MPa. Maximum superimposed uniformly distributed live loads by span are shown in the table

V-Span 250 thick DesignSpan (m)	8.0	8.5	9.0	9.5	10.0	10.5	11	
Uniformly Distributed Live Loads (KPa)	8.0	6.5	5.5	4.3	3.3	2.5	2.0	Minimum Topping Mesh 665
Propping Precamber (mm)	20	20	20	20	25	25	25	Precamber required at the time of construction
Estimated Live Load Deflections (mm)	12	13	13	13	12	11	11	

Other depths, greater loads and spans may be possible by specific design. Loading conditions, such as point and line loads from upper floors or roof, or modified or reduced cross-sectional properties, may reduce the load carrying capacity of the floor. Please consult with Tilt Up's Engineer for more information.

Where these special designed cases occur, a structural check must be carried out. Please consult Tilt Up.

### SOUND TRANSMISSION CLASS (STC)

A concrete floor such as V-Span is ideal for residential housing because it's mass reduces sound transmission.

### TEMPORARY PROPPING DURING CONSTRUCTION

Specific propping requirements for given loads and spans will be detailed on the shop drawings and are usually in the order of:

- One row of props for spans up to and including 6 metres.
- Two rows are required for spans greater than 6 metres.

A suitably qualified engineer will need to be consulted for the design of the propping system. Precambers to set the level of the props will be shown on the shop drawings. Propping is required to be

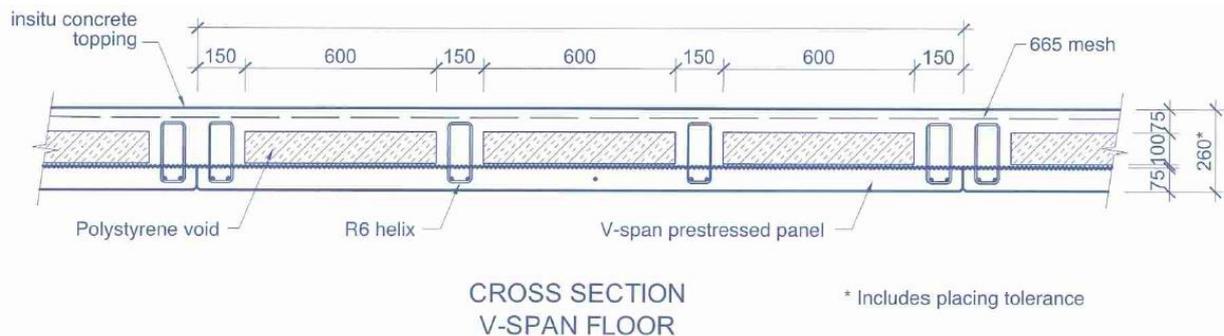
in place prior to placing the V-Span on-site. For multiple story buildings back propping should be in place for a minimum of two levels below the level being constructed, or to solid ground. Load on the back-props from the finished floors should be relieved, remaining snug, prior to the props supporting the level being constructed to take the wet concrete topping load. The propping can be removed when the topping concrete strength has reached 15MPa

### HANDLING AND STORAGE

TiltUp V-Span is designed to be lifted using hooks and chains to strand lifting eyes located at ends or length divided by five from each end. V-Span is to be dunnaged as close as possible to the lifting locations and with blocks in line with the block below, on solid and even ground. Ensure lifting equipment is regularly checked.

### DESIGN NOTES

1. The maximum safe loads shown are based on simply supported spans for both serviceability limit states (SLS) and ultimate limit states (ULS). Design for longer spans may be possible where structural continuity is available. The section properties are based on transformed sections for maximum spans.
2. The load/span table is based on simply supported spans up to a floor thickness of span/44. Spans with floor thickness less than span/44 will require continuity. Contact TiltUp's technical team for advice
3. Calculated deflection due to live load has been limited to span/500. If design is required for sustained super dead and/or live loads, then long term creep deflection must be checked. This may result in a requirement for a more robust unit.
4. Camber over temporary props is approximately 5mm per metre of span over 4 metres and will be shown on shop drawings.
5. The minimum mesh conditions shown in the Load Span table are specified in accordance with NZS 3101:Part 1:2006. Cl. 8.8 – Shrinkage and temperature reinforcement. If required, heavier mesh sizes may be used.



### SECTION PROPERTIES (composite section)

These are based on a 2400mm wide floor module. The I, Zb, Zt properties shown in the table are the composite properties for the 250 V-Span. Concrete density assumed at 24 kN/cu.m.

2400 module	Bare Unit Area m <sup>2</sup>	Composite Unit Area m <sup>2</sup>	Yb mm	I 10 <sup>-3</sup> m <sup>4</sup>	Zb 10 <sup>-2</sup> (m <sup>3</sup> )	Zt 10 <sup>-2</sup> (m <sup>3</sup> )	Bare Unit kg/m	Composite Unit kPa	Bare Unit kPa
250 deep V-Span 75 topping, 100 polystyrene	0.180	0.42	108	2.428	2.246	1.711	441	4.2	1.8

## **DURABILITY**

The 250 V-Span Load/Span table is based on the durability requirements specified in NZS 3101:2006 for an A1 internal environment exposure classification. Where a more severe exposure classification is specified the load/span table live loads may require downgrading. Weathering details, such as weather steps cast into the topping, remain the responsibility of the building designer. V-Span can also be adapted for corrosive industrial floor applications.

## **DESIGN**

TiltUp can supply a Producer Statement for the design of the V-Span floor and the manufacture of the V-Span units.

## **SITE ERECTION**

TiltUp can undertake the erection of the V-Span slabs – please request an “in-place” quotation.

## **QUOTATIONS AND PRELIMINARY DESIGN**

TiltUp has a free quotation and preliminary design service. The preliminary design, which is based on spans and loadings provided by the customer, will indicate the topping thickness, propping and topping concrete strength required.

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## **FURTHER TECHNICAL INFORMATION**

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

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