



DOUBLE TEE

TECHNICAL INFORMATION

SAFE LOAD/SPAN TABLES

The safe load/span table below shows the maximum un-factored superimposed live loads (kPa) for simply supported spans for both serviceability (SLS) and ultimate limit state (ULS) for different depth Double Tee Units with 75mm topping. Increased live loads and/or spans may be possible by specific design, please check with TiltUp. The engineer will specify topping reinforcing.

Design Span (m)	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
205mm deep	16.3	10.2	6.5	4.1											
255mm deep		13.3	8.0	6.0	4.0	2.5									
305mm deep				9.5	8.0	5.0	3.3	2.0							
355mm deep					11.0	9.3	5.6	4	3.5	2.5					
405mm deep						8.7	7.9	6	4.4	2.8	1.9				
455mm deep							12.6	9.9	7.8	5.4	4.0	3.0	2.0		
505mm deep							17.2	12.9	10.0	8.0	6.2	3.3	2.4	1.5	
555mm deep								14.0	11.0	9.0	7.0	5.5	4.0	3.3	1.5
605mm deep									15.0	11.0	9.0	7.4	6.0	4.5	3.7

The load/span table is based on a 75mm topping concrete a minimum of 25MPa as per cl 5.2.1 NZS 3101 - Part1: 2006. Floor reinforcement should be designed and shown on the Consulting Engineers drawings. Topping concrete depths detailed are minimums and topping screeds are to be set to allow for the camber and deflection when the topping concrete is placed. Care should be taken to cure the concrete correctly -refer to NZS 3109. It is good trade practice to seal the joints between units prior to placement of the topping reinforcement.

DURABILITY

The load/span table is based on the durability requirements specified in NZS 3101:2006 for a 50-year design life in a B2 environment exposure classification. Where a more severe exposure classification is specified, live loads may require downgrading.

CAMBER

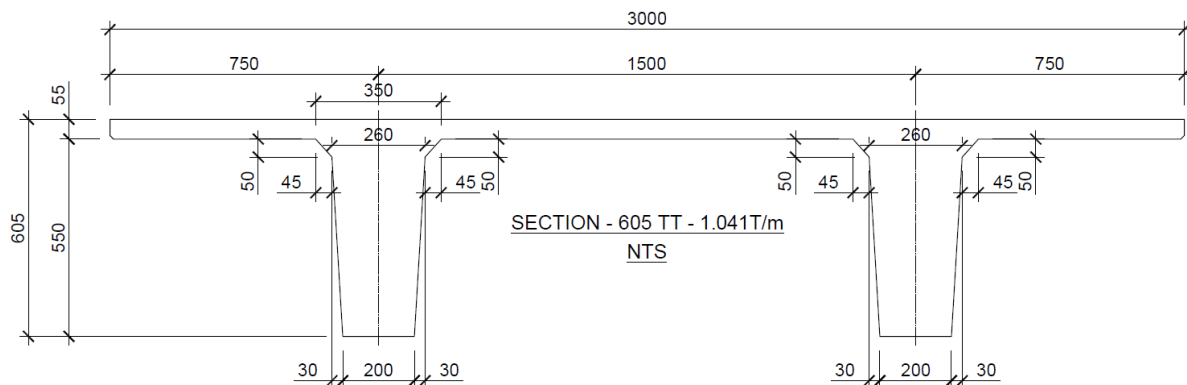
The Double Tee Units have a camber that will vary depending on the design and span of the unit. Allowance for the camber should be accounted for in the construction design. A theoretical estimate of residual short term and long term camber can be provided for specific designs.

SOUND TRANSMISSION CLASS (STC)

The Double Tee Floor System is ideal for commercial or industrial buildings, the unit mass helps to reduce sound transmission. The STC rating for Double Tee Floor System with 75mm topping and no ceiling is 53dB. The STC rating for Double Tee Floor System with a 9.5mm Gibraltar board ceiling is 59dB.

PENETRATIONS/ SERVICES

TiltUp 3.0m wide Double Tee Unit allows flexibility for accommodating penetrations in specific locations. The 1.5m between legs centres allows room for service ducts.



SECTION PROPERTIES

These are based on a standard 3.0m wide section acting compositely with a 75mm depth of concrete topping, uncracked. Concrete density assumed at 24 kN/cu.m

Unit Depth (mm)	Bare 3.000 Unit Tonnes (T/m)	Yb Bare Unit (mm)	I Bare Unit ($\times 10^{-3} \text{ m}^4$)	With 75mm Topping			
				Yb (mm)	Zb ($\times 10^{-3} \text{ m}^3$)	I ($\times 10^{-3} \text{ m}^4$)	Floor Weight (kPa)
205 Deep	0.600	146	0.74	184	9.60	1.77	3.75
255 Deep	0.660	179	1.40	223	12.56	2.80	3.94
305 deep	0.715	212	2.34	260	16.18	4.20	4.13
355 Deep	0.770	244	3.60	296	20.35	6.03	4.31
405 Deep	0.820	276	5.18	332	25.00	8.29	4.48
455 Deep	0.876	308	7.13	367	30.08	11.03	4.66
505 Deep	0.930	339	9.45	401	35.54	14.26	4.83
555 Deep	0.980	369	12.16	436	41.33	18.00	5.00
605 Deep	1.041	400	15.28	470	47.42	22.26	5.20

MATERIAL

TiltUp Double Tee concrete strength is a minimum of 45 MPa at 28 days.

LIFTING

TiltUp use Reid's proprietary lifters or strand lifting. The type of lifter will be shown on the shop drawings. Lift Double Tees only at the lifting points provided. Chains or strops must be of correct length to carry equal loads and comply with NZ standards.

STORAGE

Double Tees, if stored on site, must be supported at their ends on firm ground. Bearers between layers in a stack must be directly above each other and units of varying length should not be stacked upon each other. The base should be able to support the combined loads to prevent the bottom bearers from sinking into the ground as this could result in the unit bearing near mid span resulting in damage.

SEATING

Double Tees must be seated on an approved bearing strip. TiltUp Double Tees are designed as prestressed sections as per section 19 of NZS3101. For minimum seating requirements refer to NZS3101, cl 18.7.4

DESIGN

TiltUp can supply a PS1 Producer Statement for the design of the Double Tee Floor System.

SITE ERECTION

TiltUp have a trained & certified team of installers and can undertake the erection of the Double Tee Floor Units. Please request an "in-place" quotation.

FURTHER TECHNICAL INFORMATION

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

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