

double tee floors

DESCRIPTION

Double Tee flooring units consist of two prestressed ribs and a connecting top slab. The depth of the Double Tees can vary from 200 to 600mm. The connecting slab is 2400mm wide x 50mm thick. Double Tees are ideally suited for larger spanning floors with a wide variety of services suspended from the flooring system. Double Tees can easily accommodate large floor voids/penetrations through the slab region. The cast insitu topping is typically 65mm thick.

SOUND TRANSMISSION

A major practical benefit of a concrete floor is its ability to reduce noise transmission. Double Tee concrete floors are quiet and do not creak with temperature and moisture changes. The table below shows

sound transmission ratings achieved by Double Tees.

MATERIAL

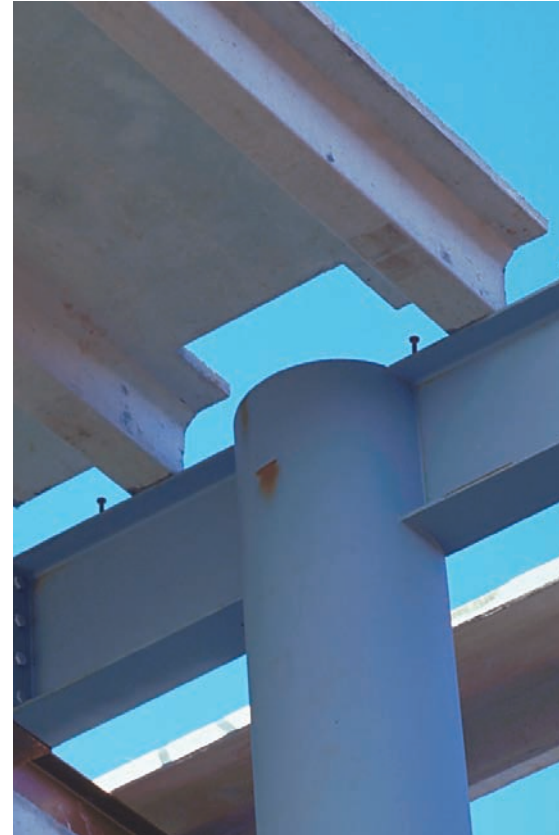
Double Tee concrete strength = 45 MPa.
Topping concrete strength = 20 MPa (as required by NZS 3101:1995).

FIRE RESISTANCE RATING

2400 wide unit = 90 minutes
For Fire Ratings or loads in excess of the allowable shown, please contact your local Stresscrete branch.

BEARING CAPACITY

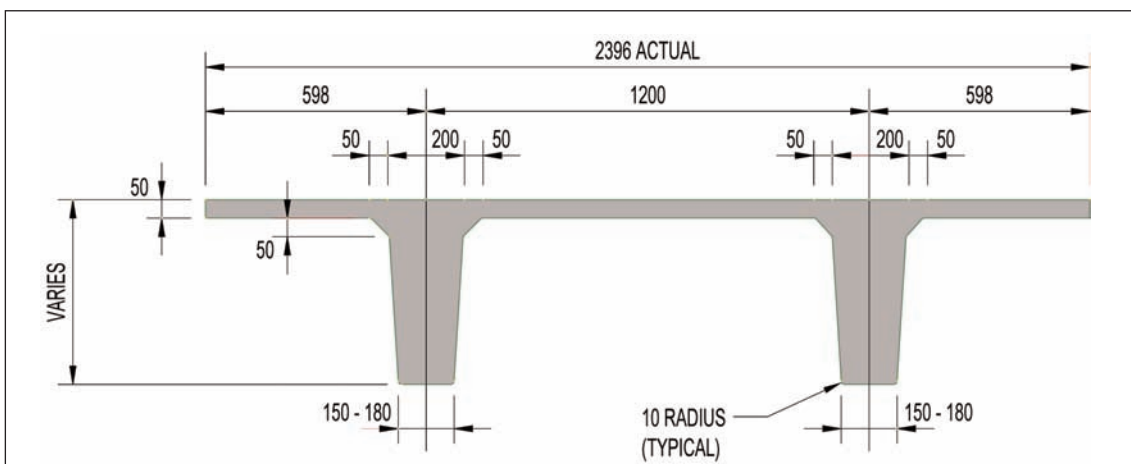
Where high shear loads are combined with support beams or walls of low material strength, a bearing capacity check according to NZS3101 should be made; e.g. masonry bearing walls.



AIRBORNE SOUND TRANSMISSION (STC)

200 deep Double Tee, 65mm topping, no floor covering. 53

Values calculated by Hegley Acoustic Consultants.
Further reductions in noise transmission can be achieved by installing a ceiling, floor coverings and a sound barrier product below the covering.



2400 DOUBLE TEE MODULE Note: actual dimensions may vary depending on the place of manufacture.



LOAD/SPAN TABLE (kPa) (indicative only)

Safe superimposed live load in kilopascals (kPa) with 65mm thick concrete topping (assuming no superimposed dead load, i.e. SDL=0kPa).

SECTION	SPAN (m)																			
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
200TT	14.0	8.0	4.7	3.7																
250TT		12.5	7.5	6.1	4.4	3.0														
300TT			12.9	9.1	6.6	4.9	3.5													
350TT				11.7	9.5	7.1	5.1	3.8	2.8											
400TT					12.0	9.1	6.9	5.6	4.2	3.3										
450TT					13.0	10.5	9.2	7.4	5.8	4.3	3.8	2.4								
500TT						12.8	9.9	8.1	7.1	6.1	5.0	4.0	3.0	2.3						
550TT							14.0	11.2	9.0	7.3	5.9	4.7	3.8	3.0	2.3					
600TT								12.5	10.1	8.2	6.7	5.4	4.3	3.5	2.7	2.1				

Spans to the right of the bold (zig zagged) line exceed the maximum recommended span/overall depth ratio of 32. For spans exceeding this value, please check with Stresscrete.

double tee

LIFTING

Lift Double Tees only at the lifting points provided. Chains or strops must be of correct length to carry equal load and must not be more than 30° off vertical.

STORAGE

Double Tees if stored on site must be supported at their ends on firm ground. Bearers between layers in a stockpile must be vertically above each other and units of varying length should not be stacked

upon each other. Ensure the bottom bearers are not pushed into the ground, resulting in the bottom unit being supported near midspan.

SEATING

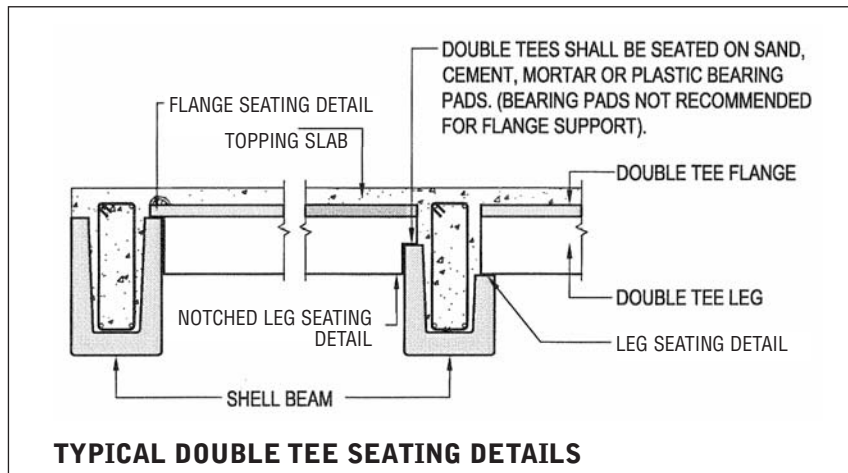
Flange supported Double Tees must be bedded on a sand cement mortar (the consistency of blocklaying mortar). This must be evenly spread just prior to the unit being placed. Double Tee legs should be placed on cement mortar or on plastic bearing pads.

Stresscrete Double Tees are designed as prestressed sections

as per NZS3101. For minimum seating requirements refer to NZS3101.

FURTHER TECHNICAL INFORMATION

Specifications for the manufacture, transport and erection of Double Tee units, and standard details for typical situations are available from your nearest Stresscrete branch. Experienced and qualified staff will be pleased to discuss design and fixing details. Refer general notes on page 24.



DOUBLE TEE SECTION PROPERTIES

Section properties are based on a 2400mm wide section of floor with a 65mm thick concrete topping. The modular ratio for topping is assumed to be 0.67 for 20MPa concrete for calculating the composite section properties A^c , Y_b^c , I^c , Z_b^c , and Z_t^c .

Section properties are indicative only since the unit widths vary at the different manufacturing locations.

Depth of unit (mm)	Bare unit				Composite unit						overall depth mm	2400mm wide mass, kg/m	weight KPa
	A $\times 10^3 \text{ mm}^2$	Y_b mm	I $\times 10^8 \text{ mm}^4$	Z_b $\times 10^6 \text{ mm}^3$	A^c $\times 10^3 \text{ mm}^2$	Y_b^c mm	I^c $\times 10^8 \text{ mm}^4$	Z_b^c $\times 10^6 \text{ mm}^3$	Z_t^c $\times 10^6 \text{ mm}^3$				
200	187	140	0.555	3.95	292	174	1.15	6.60	12.6	265	865	3.54	
250	205	175	1.051	6.01	310	211	1.87	8.84	17.9	315	912	3.73	
300	223	208	1.754	8.43	328	248	2.86	11.5	24.4	365	957	3.91	
350	240	241	2.682	11.2	345	284	4.14	14.6	31.7	415	1002	4.10	
400	257	273	3.850	14.1	362	319	5.72	17.9	39.1	465	1044	4.27	
450	273	305	5.254	17.2	378	355	7.59	21.4	47.5	515	1085	4.43	
500	288	337	6.929	20.6	393	389	9.80	25.2	55.7	565	1123	4.59	
550	303	369	8.858	24.0	408	424	12.3	29.1	64.6	615	1161	4.75	
600	309	398	10.92	27.5	414	457	15.1	33.1	72.7	665	1177	4.81	