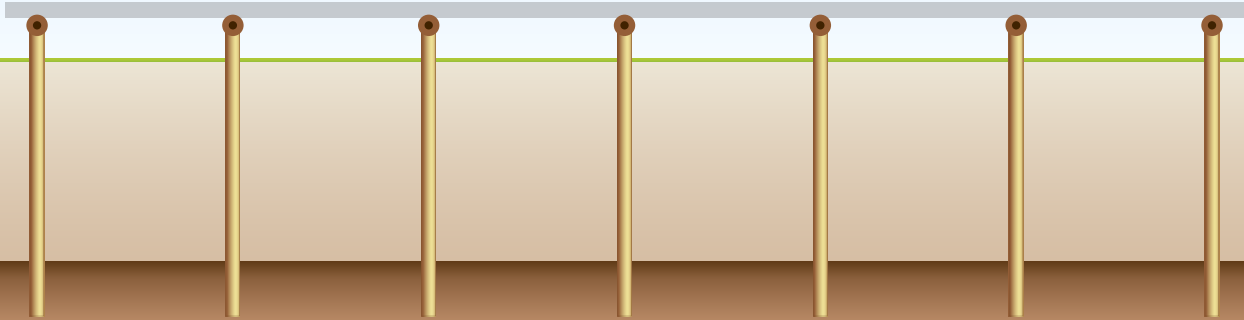


TTT Suspended Floor Foundations are a specifically engineered foundation system designed to meet flood level requirements. They are well suited for sites located in flood management areas or steep hills, and can be used for driveways, ramps, and houses.



The system

TTT Suspended Floor Foundations combine TTT Deep Pile Foundations with a TTT MultiPole UniLog bearer system that can support either a timber or concrete floor.

Foundations

Specifically designed TTT MultiPole SED piles are used to transfer building loads to an identified bearing stratum that's at least 3.0 metres thick (as per MBIE Guidance 2012, section 15.2.1, p. 15.7).

This bearing stratum can vary in depth between 1.0m and 22.0m (or deeper) below the ground. The piles are typically supplied up to 22.0m long in a single piece. To achieve greater depths, multiple pieces are joined together during installation using TTT MultiPole Connectors (simple pin connectors) to form longer pieces until target depths are reached.

TTT Suspended Floor Foundations typically use 200–250 SED piles for residential foundations. Large diameter bearers enable these piles to be spaced 4.0m apart underneath a timber or concrete floor.

Floor

After the piles have been installed and trimmed to height, the pile tops are scalloped to receive UniLog bearers. These bearers have a uniform diameter that is typically 350mm. They are profiled prior to delivery to site, either with grooves to fit Tray-dec, which provides the formwork for the bottom of a concrete floor, or as required to receive timber joists for a timber floor. Both of these floors can be re-leveled following a future seismic event.

Design features

TTT Deep Pile Foundations can be designed for a dependable pile bearing capacity of more than 500kN, subject to ground conditions. They are also able to be designed for minor to moderate lateral movement (E.G. up to 300mm).

Installation

Installation typically takes up to five days. The piles are installed using a high frequency vibrator mounted on an excavator. This installation process leaves the piles structurally undamaged, doesn't generate excessive noise, and doesn't transmit excessive vibrations. By scalloping pile tops, bearers can be lifted into place and fitted with fewer brackets and reduced construction time. Fast installation combined with non-invasive high frequency vibration results in minimal disturbance to neighbouring properties.



Site Requirements

Access to pile positions is generally required to be a flat, level, straight path that is 3.1m wide with 4.0m vertical clearance for a 25 tonne excavator. A gravel working platform may be required if the upper soil layers are too soft to support the piling equipment. Piles can generally be installed up to 1.0m away from existing structures.

Engineering design, testing and sign off

Our geotechnical and structural engineers will be able to complete site-specific engineering design for the piles and floor system based on the geotechnical report for the site and house plans provided by the architect. The design includes calculations, design drawings, Producer Statement PS1 – Design, and accompanying design report able to be used to support the consent application.

During pile installation, the bearing capacity of the piles is tested to verify that the design loads are being met by measuring pile sets based on the Hiley Formula. Combined with observation of the pile, bearer and floor installation process to the satisfaction of the engineer and a Producer Statement PS3 – Construction from the pile installer, this will enable the engineer to sign off a Producer Statement PS4 – Construction Review.

Additional design options

This foundation system is suitable for houses with brick veneer cladding and step details (such as for attached garages), if using a concrete floor.



Quick reference information

	Technical Category	Type of MultiPole used	Typical pole diameter	Typical pole length	Typical pole spacing	Typical installation method
Residential foundations (as per TTT Deep Pile Foundations)	TC2 & TC3	SED	150–250mm	1.0–22.0m Poles can be joined to reach greater depths	4.0m	High frequency vibration
Bearers	TC2 & TC3	UniLog	300mm	To suit house dimensions	4.0m	Fastened to scalloped pile tops

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