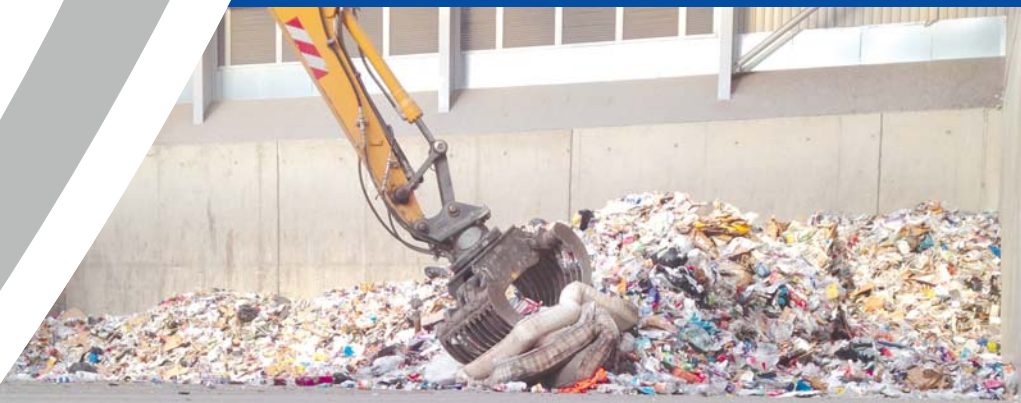


Project Spotlight



Waste Transfer Station Poole, UK

Design and construction of a 1,316m² steel fibre reinforced concrete (SFRC) 'jointless' internal ground floor slab suspended on piles

Poole Borough Council considers the upgrade of the waste transfer station and civic amenity site as an integral part of the waste infrastructure for Poole as the works will secure the future of its waste management strategy. The finished facility will support the Council's objective of protecting Poole's environment and reducing carbon footprint in the area.

Facilities that accommodate the processing of municipal solid waste (MSW) such as waste transfer stations and material recovery facilities (MRF) often operate on a thin margin and must demonstrate longevity and efficiency of operation. The concrete floor slab within such facilities is critical to the efficient operation of the facilities as the floor slab needs to cope with the daily stresses and aggressive nature of the heavy operational traffic utilised at these facilities.

Wheel loaders, wheel/hydraulic excavators and track loaders that are necessary for pushing, stockpiling and loading within recycling facilities require a durable and reliable surface to operate on. The last thing a facility operator needs is a floor that cannot stand up to the daily operational demands and is in constant need of repair.

To meet the demands outlined above and working with Lagan Construction, Twintec's design took into account a UDL of 48kN/m², wheel loads of 226kN/axle and HGV (6 axle GVW) of 44 T together with a mobile wall (100kN/m²). The result was a 250mm thick 'jointless' SFRC floor slab constructed in 1 day with 45kg/m³ of AFT +1/60 fibres. An ultra-hard wearing metallic dry shake floor hardener was applied and then trowelled into the wet concrete to produce an extremely wear resistant smooth and dense surface.

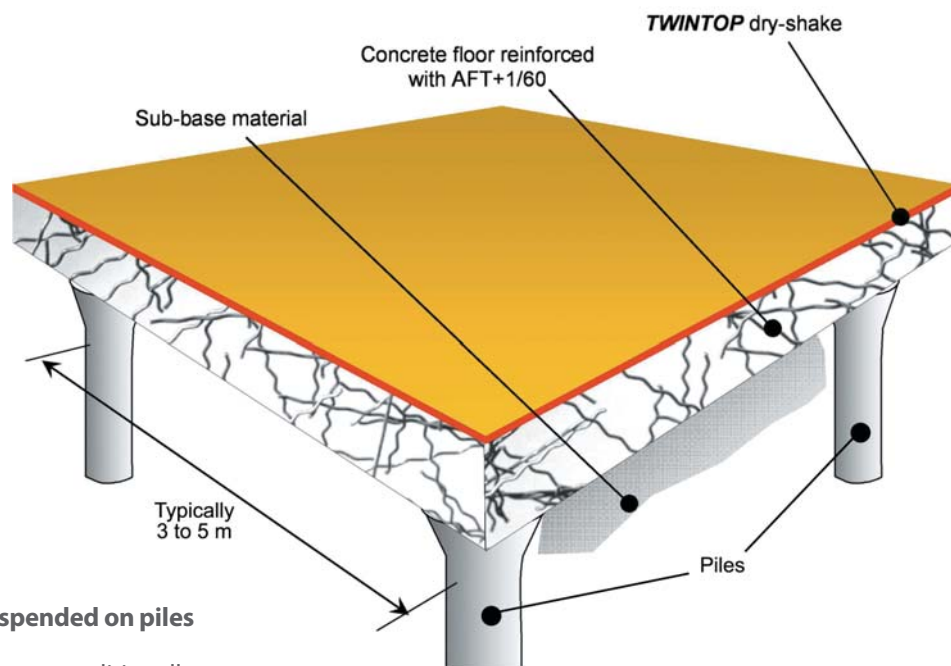
Project Data

End User:	Poole Borough Council	M ² :	1,316m ²
Main Contractor:	Lagan Construction	Slab Depth:	250mm
Consultant:	Gifford	Fibre Type:	AFT +1/60
		Completion Date:	August 2012

Project Spotlight



Total volume of Freeplan S[®] ground floor slabs suspended on piles constructed worldwide now exceeds 10,000,000m²



Freeplan S[®] 'jointless' ground floor slab suspended on piles

A 'jointless' SFRC design has many benefits over a traditionally constructed mesh slab with sawn induced contraction joints. These include:

- Reduced cost
- Significantly reduced programme time
- Reduced life time maintenance cost and time
- Valued engineered design solutions

If specifiers and contractors review the piling and floor slab packages together there is an opportunity to vastly reduce programme and costs by considering pile types, pile spacing and other interfaces such as edge beams to deliver an optimal design solution. The result of this can change the slab thickness by over 100mm and taking into account UDL loads will have direct impact on design of pile type/size.

Example based on 4,100m² floor slab area

	Pile Grid	Pile Size	Nr of Piles	Cost per pile £	Total piling cost £	Slab depth mm	Reinforcement	Cost per m ²	Total slab cost £	Slab programme
Original Design	3.5m x 3.5m	200 x 200	360	305	129,800	220	2 layers A393 mesh	36.50	149,650	8 days
Value Engineered Design	4.0m x 4.0m	200 x 200	273	305	83,265	200	45kg/m ³ +1/60 AFT fibres	32.00	131,200	3 days

Contact the Twintec business team for further information:

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