

Project Spotlight



Quinn Glass Elton, Cheshire, UK

Design and Construction of 52,000m² Steel Fibre Reinforced Concrete (SFRC) Structural Raft Foundation Slab

This £200 million development constructed in the UK by Quinn Glass and supported by Babbie Engineering is a 'one-stop shop' for the production, storage and filling of product for the beverage industry.

The new cladrack facility will be used to store over 750 million glass containers annually. The facility, completed in March 2005, is the largest individual loaded pallet storage facility in Europe.

The building structure is 35 metres high and the overall facility footprint is in excess of 108,000m². This state-of-the-art project also includes a production facility, filling facility and an external concrete pavement.

The raft slab caters for an effective UDL of 73kN/m² and individual leg loads of up to 343kN, at times 4 legs in a cluster. In addition, a perimeter uplift load of 180kN had to be catered for.

Due to the complex geometry of the racking legs, it was impossible to position the heaviest legs directly over piles so it was decided to support the building on a square grid of 400mm diameter CFA piles at 3.7m centres.

The solution for the raft slab was was a 400mm thick simply supported 'jointless' flat slab reinforced with high tensile steel

fibres at a dosage rate of 45kg/m³. The design was based upon C40 concrete with a water cement ratio of 0.5 and a flexural strength of 4.6Mpa.

Due to the large demand for concrete (approx 600m³ per day) and the need for a guaranteed delivery rate and consistent quality of product, concrete producer Hanson Premix agreed to install a dedicated site plant. Six concrete mixer trucks with capacities of 6 and 9m³ were required to supply the site.

Project Data

Application Type:	Clad Rack Bottling Facility	Concrete Supplier:	Hanson Premix
		Fibre Type/s:	AFT +1/60 & 1/50
		Fibre Dosage:	45kg/m ³
Main Contractor:	Quinn Glass Project Management	Total Area:	52,000m ²
		Slab Depth:	400mm
Consultant Engineer:	Babbie Engineering	Completion Date:	March 2005

Contact the Twintec business team for further information:

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