

Q1 Tower Reaches New Heights in Gold Coast, Australia



Project	Q1 Tower, Gold Coast, Australia
Engineers	Ove Arup & Partners
Construction/Developer	Sunland Group LTD.
Concrete Supplier	Readymix Concrete
GCP Solution	ADVA® 133 superplasticiser

The Overview

The Project

Q1, the world's tallest residential tower, with its striking architecture, is an impressive enhancement to the Gold Coast skyline. The tower has a 10-storey observatory, as well as the fastest lifts in the Southern Hemisphere. It also has the world's longest spire at 97.5 metres.



"Readymix chose ADVA® 133 superplasticiser for the following reasons: excellent slump control, increased fluidity to assist pumping, minimal retardation at high slumps, high performance finishing, excellent for controlling set times and minimal slump loss."



To construct a commercial building of such height required the very best superplasticiser available, as all concrete needs to be pumped, right up to level 80, some 259 metres above ground. The concrete also had to meet a slump range of 160 mm to 200 mm for different floor levels because of rebar interaction.

Concrete supplier, Readymix, approached GCP Applied Technologies for the new generation ADVA®133 high range water-reducer based on a revolutionary co-polymer technology. It displays superior cement agglomerate dispersing characteristics resulting in lower dosages for higher and better slump control. ADVA®133 superplasticiser allows concrete to be produced with very low water to cement ratios without affecting workability and is ideal for high slump concrete where there is restrictive rebar interaction.

This highly effective superplasticiser allows for quick placement of concrete without segregation or loss of strength for the commercial building.

All concrete was pumped to various levels, with no intermediary pump being used.

The Final Results

The project was struggling to meet deadlines when it reached 50 floors as construction stopped at more than 30 knots wind speed—there were high wind speeds especially from the 60th floors and above. Thanks to the use of ADVA[®]133 and the Readymix mix-design adjustments the project was back on schedule by the time it reached the 80th floor.

gcpat.in | India customer service: +91 124 4885900

GCP Applied Technologies Inc., 2325 Lakeview Parkway, Alpharetta, GA 30009, USA

GCP Applied Technologies India Private Limited, Unit No. 208, Second Floor, Time Tower Building, Sector-28, MG Road, Gurugram, Haryana-122002, India

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