

# Q1 Tower Reaches New Heights in Gold Coast, Australia

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

## Project Profile

### Supporting an impressive design

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

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### Designing a striking commercial space

To construct a commercial building of such height required the very best superplasticizer available, as all concrete needs to be pumped right up to level 80, some 259 meters 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.

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## Requiring superior cement characteristics

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 superplasticizer allows concrete to be produced with very low water to cement ratios, without affecting workability. It is ideal for high slump concrete where there is restrictive rebar interaction.

This highly effective superplasticizer 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 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 floors 60 and above. Thanks to the use of ADVA®133 and the Readymix mix-design adjustments, the project came back on schedule by the time it reached the 80th floor.

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