i360 Tower

Concrete admixtures used in foundations of tower

Our reference in Brighton (United Kingdom): i360 Tower

Project:
i360 Tower

Location:
Brighton

Architect:
Marks Barfield

Engineering consultants:
Jacobs

Main contractor:
Hollandia Infra BV

Concrete producer:
Dudman Group/Hanson

Market sector:
Ready-Mixed Concrete

Products used:
MasterGlenium 123

The background

Britain's highest moving observation tower, the i360 was constructed on the site of Brighton's West Pier. The project has been created by London Eye architects Marks Barfield with the Main contractor being Hollandia Infra BV and JT Mackley providing Project Management.

The tower, manufactured by POMA, will be 162m high and will carry an observation tower that will stand on the main Brighton seafront offering a 26-mile view. There will also be a ground floor development including offices, hospitality suits and shops.

The challenge

The Dudman Group was contracted to provide the concrete for the foundations of the i360 Tower.

The admixture utilised in the concrete had to produce a steady slump loss and reliable strength development.

As the pours took place in summer, slump retention was critical to the contract.

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Our solution

The concrete supplied by the Dudman Group Ready Mix used MasterGlenium 123, an innovative versatile admixture based on third-generation polycarboxylic ether (PCE) polymers. Due to the potential concern of heat development (mass concrete), 50% GGBS was utilised.

MasterGlenium 123 is specially engineered for the Ready-Mixed Concrete market to replace both a lignosulphonate based water reducer and a superplasticizer. Its configuration allows it to perform as a multi-functional admixture; it is possible to obtain a high-quality concrete mix with good strength development and extended workability without delayed setting characteristics.

The mass pours were shared with another concrete supplier using a lignosulphonate, Hanson, with concrete being supplied from the Dudman Group's Shoreham and Chichester depots.

The customers benefit

- Concrete was pumped at 100m^3 - 120m^3 per hour
- Good early and late strengths achieved
- Minimum water/cement ratio was maintained

Project facts at a glance

- Foundation pour for the i360 Tower, which will be the UK's highest observation tower, standing at 162 metres high.
- Minimum cement content - 320 kg/m^3
- Maximum cement content - 0.55
- Two-layer base pours of 1200m^3 and 600m^3
- The combination of PCE and lignosulphonate provided by MasterGleniun 123 allowed the required performance characteristics to be achieved.