

Case Study



PROJECT INFORMATION

- Project name:** Bengaluru International Airport Limited (BIAL) – Phase 1
- Consultant:** Engineering Design Research & Consultancy (EDRC)
- Contractor:** Larsen & Toubro Limited (L&T)
- Location:** Bangalore, India

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PROJECT REQUIREMENT

Task at Hand

The project at Bengaluru International Airport Limited (BIAL) in its first phase required high performance through the right choice of concrete mix design with a highly flowable and stable self-consolidating concrete (SCC). The available grades of concrete were from M10 to M50 for substructures and superstructures. The type of Sodium Naphthalene Sulfonate Formaldehyde Condensate (SNF) that was selected during the specification work of the project was a low-end product that could cover partially the requirements of the project and was used to create M10 to M30 concrete structures. An appropriate design of (SCC) was needed where quality was important for improving concrete mobility and workability. The project would use this product for the wall panels for a smooth and fair finish to avoid plastering. A proper design of SCC was desired as it ensures very good performance and saves time and labor.

DCP SOLUTION

The technical team at Don Construction Products (DCP) suggested an M50 grade of concrete and 2 grades of SNF product range called **Supaflo** which grants high concrete workability and strength and meets standard requirements. An intensive study of materials and their properties and mock-up studies were undertaken to arrive at the optimal final mix design.

As the retention time required is 60 minutes, the flow required was 550 mm and the panels were casted. The required final compressive strength was achieved in 7 days. Besides the wall panels the DCP **Supaflo** range M50 grade mix was used in the flyover connecting the Airport which was designed as pre-stressed girders.

Mix Design for Wall Panels

Cement - 330 kg/m³

Fly ash - 120 kg/m³

Free water -180 litres

100% Crushed sand

CA:FA - 50:50

Nominal aggregate size - 10 mm

Products and Quantities

Supaflo 3 - 800 MT

Supaflo Special - 1,000 MT

Supply Period

2005 to 2008

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