

Case Study



PROJECT INFORMATION

- Project name:** L&T CTS Sholinganallur
- Client:** Cognizant Technology Solutions (CTS)
- Consultant:** Engineering Design Research and Consultancy (EDRC)
- Contractor:** Larsen & Toubro Limited (L&T)
- Location:** Sholinganallur, Chennai, India

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PROJECT REQUIREMENT



Task at Hand

The main focus of the L&T CTS Sholinganallur project during its construction phase is the slab design. Pre-stressed slabs were intended for the design as they demonstrate greater strength and durability, higher stiffness, improved serviceability, and increase in capacity. The suggested concrete grade was M50 with minimum strength of 30 MPa after 48 hours. The original mix design was 490 kg cement content with water cement ratio (W/C) of 0.36 using Sodium Naphthalene Sulfonate Formaldehyde (SNF) admixture. A compressive strength of a minimum of 30 MPa was achieved after three to four days. The project faced a major challenge in achieving strength without raising costs of concrete per cubic metre as the cement content increased.

DCP SOLUTION

The technical team at DCP proposed a special type of high range polycarboxylate (PC) admixture **Supaflo PC711** to be submitted to the technical team of Larsen & Toubro Limited for performance evaluation purposes. When initial trials were carried out with a water cement ratio (W/C) of 0.35 at the original mix design with DCP's designed admixture, **Supaflo PC711**, the required compressive strength of 40 MPa was achieved within a shorter time: after 2 days. Also using this new mix design resulted in a noticeable reduction of costs and the pre-stressing cycle was achieved by the contractor.

Original Mix Design

Final Mix Design

Cement + Flyash – 490 kg/m ³ (415+75)	Cement + Flyash- 470 kg/ m ³ (380+90)
Free water - 175 litres	Free water - 165 litres
20 mm: 10 mm - 60:40	20 mm : 10 mm - 60:40
Crushed sand - 100%	Crushed sand - 100%
CA:FA - 60:40	CA:FA - 62:38
Admixture SNF - 1.2% by wt of cement	Supaflo PC 711 - 0.55% by weight of cement
Slump at 90 minutes - 120 mm	Slump at 90 min - 150 mm
Compressive strength - minutes 30 Mpa after 4 days	Compressive strength minutes 30 MPa at 48 hours

Products & Quantities

Supply Period

Supaflo PC 711 - 385 MT	January 2012 to 2014
Flo-Add 1 - 700 KG	January 2013 to 2014
Cempatch HM - 33 MT	January 2013 to 2014
Supaflo SPL - 224 MT	January 2013 to 2014

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