Holcim

Strength. Performance. Passion.

# Circle on Cavill

Project Report - Queensland

The Sunland Constructions high rise in Surfers Paradise, Queensland included the construction of two towers reaching 64 and 70 levels respectively. The project started in July 2004 was from the ground level up to level 5. Then excavation started on four basement car parks, for which a high strength concrete of 80 and 60MPa was required for columns and support walls. The request was for a super workable concrete that would compact with minimal vibration.

**Key design criteria**
The key design criterion was to provide an aesthetic pavement solution for the Rocks Riverside Park. Consideration on design was given to the plastic properties of super workable concrete (S.W.C):

- Flow-ability in being able to pump down four levels of basement car parks
- passing around reinforcement
- segregation resistant to hold the mix together
- bleed in pump lines and final form placement.

**Concrete used**
The mix was designed to a W/C ratio with 10mm aggregate coarse and fine sand, GP cement, fly ash and Kaolite. Retarders and HRWR were also used for set control allowing the concrete to be placed without of slump loss.

**Solutions developed**
The concrete production staff were trained in the importance of super workable concrete and strict plant control of w/c ratio resulted in a product that exceeded our client's expectations and requirements.

**Testing methods**
The test method was the slump flow and J ring test. The optimal spread was 650 – 700mm on the spread board, which produced strengths of 43MPa at 3 days 56MPa at 7 days and 80MPa at 28 days.

**Results achieved**
Having sourced information worldwide, Holcim Technical Services developed an appropriate mix design and applied the relevant testing methods. Holcim succeeded in satisfying Sunland Constructions with a product not used in southeast Queensland prior to this project.

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| Location | **Surfers Paradise, Qld** |
| Client | **Sunland Constructions** |
| Contractor | **Sunland Constructions** |
| Engineer | **In-house engineers and Weather Howe** |
| Products supplied | **60MPa super-workable concrete** |
| Commencement | **July 2004** |
| Completion | **Unknown at this stage** |