

**TECHNICAL MEMORANDUM  
GEMITE PRODUCTS INC.  
08-94  
Issued 18 December 1994**

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**ADI-CON CSF(R) modified concrete  
Parking Garage Overlay- 150 Longboat Avenue, Toronto**

Concrete modified with Adi-Con CSF(R) was used in the Longboat Avenue parking garage repair project, at the rate of 1 unit of Adi-Con CSF(R) per 1 cubic meter of concrete.

The compressive strength specified for this project was 23 MPa at 28 days. The average compressive strengths at 7 day and 28 day were 28.3 and 37.6 MPa respectively. The average compressive strength for the unmodified concrete (control) was 24.2 MPa.

**PROBLEM**

The original concrete slab provided only a very limited cover of the reinforcing steel. The typical coverage was 1/2 to 1 in. The top steel was corroded and concrete delaminated.

**Solution**

The chloride contaminated concrete was removed by hydro-demolition to depth of 2-3 in. The top reinforcing steel was completely exposed and protected against corrosion with Fibre Prime. Gem-Crete CR slurry (microsilica modified) bonding slurry was used as bonding agent.

Concrete was brought to the site in ready mix trucks and modified at the site and pumped into the underground garage. It took approximately 15 minutes for the Adi-Con CSF(R) admixture to be mixed into concrete. This presented no problem, since the waiting time for trucks, before discharging the concrete, was more than 20 minutes on average.

The pumped concrete had slump of approximately 6 in. Concrete was placed in thickness 2-3 inches, hand screeded and Adi-Con SER surface evaporation was immediately applied to the surface, which was then "bull floated". The application of the surface evaporation retarder is essential to prevent formation of plastic shrinkage cracking in concrete. The control joints were cut the next day and the slab was wet cured for 5 days. The traffic was allowed in three days.

The application of CSF(R) modified concrete provided a crack free overlay. The overlay provided a complete protection against penetration of chloride at considerably lower cost when compared with latex modified concrete overlay, an option in the project specification.

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