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Research in
Construction*

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Evaluation of Corrosion-Inhibiting Systems on the Vachon Bridge in Laval, QC

Objectives

To evaluate the field performance of various systems that inhibit corrosion of the reinforcement in concrete bridge barrier walls and to better understand the factors that influence their performance and durability.

Background

This project is part of IRC's continuing research to develop technologies that extend the service life of concrete bridges. Between 1996 and 2001, IRC researchers evaluated the performance of various corrosion-inhibiting systems in the newly reconstructed concrete barrier walls of the Vachon Bridge in Laval, Quebec. By conducting annual corrosion surveys on the site, we found that admixture-based corrosion-inhibiting systems were more effective in reducing the risk of corrosion than other systems, including either reinforcing steel coatings, or concrete surface coatings or sealants.

Statement of Work

We continue to further evaluate the performance of corrosion-inhibiting systems by:

- periodically assessing the risk and rate of corrosion of the reinforcement;
- remotely monitoring the environmental conditions of the concrete barrier walls using embedded instrumentation;
- taking core samples from the barrier walls to measure changes in chloride ion concentration, and concrete permeability and strength.

Expected Outcomes

A report on the performance of admixture-based corrosion-inhibiting systems and guidelines for their use in reinforced concrete structures built in corrosive environments.

Partners

Ministère des transports du Québec, Cortec Corporation, Axim Concrete Technology, W.R. Grace and Co., and Euclid Admixture Canada Inc.

Start/Expected Completion Dates

This project began in March 2003 and will be completed in December 2006.

Project Manager

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For more information, see http://irc.nrc-cnrc.gc.ca/ui/cs/vachonbridge_e.html

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The Vachon Bridge parapet wall 20 years after construction. It shows significant corrosion prior to reconstruction and installation of a corrosion inhibiting system.



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