

Promoting Use and Advancing Quality of Epoxy-Coated Reinforcing Steel.

## IN THIS ISSUE

## Visit Our Newly Designed Website...

[www.epoxyinterestgroup.org](http://www.epoxyinterestgroup.org)



## Welcome

During the winter 2013-2014 most of North America was affected by severe weather requiring transportation agencies to increase use of deicing salts on their roadways. A 2012 study titled "Safety Impacts of Using Deicing Salt" found that road surface condition is the

single most important safety factor during a winter event — more important than visibility, precipitation intensity, air temperature, wind speed, or exposure. The report found that:

- The use of road salt reduces collisions by up to 85%
- A 10% improvement in the surface friction of a road yields approximately a 20% reduction in crashes
- Before- and after-analysis on four-lane roads showed a 93% reduction in crashes after deicing
- There have been many research programs looking for materials that provide suitable deicing properties, while not causing corrosion of embedded reinforcing steel; however, calcium and sodium chloride deicing salts remain the most popular materials, due to their low cost and ability to melt ice at low temperatures.

For over 40 years epoxy-coated reinforcing steel has been used to protect concrete structures against chloride-based deicing salts. The coating provides high performance in chloride environments, and they are widely available at a relatively low cost compared with other protection systems.

Epoxy-coated reinforcing steel remains the most popular reinforcing steel to protect against corrosion. Find out how this material is protecting structures at

[www.epoxyinterestgroup.org](http://www.epoxyinterestgroup.org).

## Projects Using Epoxy-Coated Reinforcing Steel Wanted

EIG wants to feature your project in upcoming editions of Anti-Corrosion Times and our Project Gallery. All project types are welcome. Please send basic information on the project and information on how to access photography (construction and/or finished, all photo credits) to [info@epoxy.crsi.org](mailto:info@epoxy.crsi.org).

### ARTICLES

- New Publications from the Epoxy Interest Group
- New Facebook Page
- Winner Announced
- Questions from the Field

### PROJECTS

- Moses Wheeler Bridge
- Harbor Center
- George V. Voinovich Bridge

### CERTIFIED PLANTS

### NEW EIG PUBLICATIONS

### FOR INSPIRATION

*"The next time you see a member of our public safety and/or public works departments I hope you will take a minute to stop and thank them for keeping our community safe."*

— Marty Smith

## Projects



### Moses Wheeler Bridge

Stratford and Milford, CT

The Moses Wheeler Bridge is located between Stratford and Milford, carrying the I-95 over the Housatonic River. The new bridge is one of the longest and heaviest travelled bridges in Connecticut, carrying 135,000 cars and trucks per day. Epoxy-coated reinforcing steel is used in the substructure and deck to protect it against salt-induced damage.

A red arrow pointing to the right with the word "MORE" written in white capital letters inside the arrow.

### Harbor Center

Buffalo Harbor, NY

The \$170 million Harbor Center project will feature two National Hockey League-size rinks and training facilities, a full-service 205-room hotel and a two-story restaurant, plus street-level retail space and a five-level, 850-space parking ramp. The project site, Webster Block, consists of a 1.7 acre site, located in close proximity to Canalside, two major sports venues and the Peace Bridge. Epoxy-coated reinforcing steel was used in the project to provide corrosion protection at the parking levels of the structure.

A red arrow pointing to the right with the word "MORE" written in white capital letters inside the arrow.



### George V. Voinovich Bridge

Cleveland, OH



In 2013, the 4347-ft long westbound George V. Voinovich Bridge was opened to traffic. The new bridge is the first step in the Cleveland Innerbelt Modernization Plan, focused on improving safety, reducing congestion and traffic delays, and modernizing interstate travel along I-71, I-77 and I-90 through downtown Cleveland. This was the first major design-build project for ODOT. This project delivery method combines the design and construction of a project in to one competitively bid contract. The structure uses 5,500 tons of epoxy-coated reinforcing steel providing a 75 year design life.

A red arrow pointing to the right with the word "MORE" written in white capital letters inside the arrow.

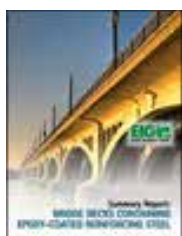
## New Publication from the Epoxy Interest Group

The following document may be downloaded from [www.epoxyinterestgroup.org](http://www.epoxyinterestgroup.org) or if you wish hard copies, please contact us at [info@epoxyinterestgroup.org](mailto:info@epoxyinterestgroup.org).



## Guidelines for Inspection and Acceptance of Epoxy-Coated Reinforcing Steel at the Jobsite

This 8-page brochure provides guidance to procedures for inspection of epoxy-coated reinforcing steel during construction and prior to concrete placement. It describes steel identification, transport and handling, bar placement, bar damage and repair and inspection prior to concrete placement. This document is valuable to anyone involved in the placing and inspection of concrete containing epoxy-coated bars.



## Summary Report: Bridge Decks Containing Epoxy-Coated Reinforcing Steel

In 2010, a report was prepared for the Michigan Department of Transportation on the expected service life of concrete bridge decks. This report concluded that decks with epoxy-coated reinforcing steel would provide a service life of 70 years and that the use of Markov transition probabilities is acceptable and accurate in analyzing bridge data. This document summarizes that report.



## Epoxy-coated Reinforcing Steel in Parking Garages

This 6-page document provides guidance on the use of epoxy-coated reinforcing steel to protect concrete parking garages. Over \$600 million is spent yearly to repair parking decks and structures without epoxy-coated reinforcing steel may show deterioration within 10 to 15 years.

<http://www.epoxyinterestgroup.org/index.cfm/publications/index>.

## Epoxy Interest Group now on Facebook

Become a fan of the Epoxy Interest Group on Facebook and stay updated as we find new research and projects.



[Visit EIG on Facebook](#)

## Questions from the Field

**Question:** *How do I determine how long will structures last that contain epoxy-coated reinforcing steel?*

**Answer:** This question requires an understanding of the local environment, concrete quality and the amount of cover over the reinforcement, and chloride diffusion in concrete. The data is then used to determine how rapidly chloride builds up at the bar surface. Approximately 1.5 to 2 lb/cy of chloride ion in concrete is required before corrosion will occur for uncoated reinforcing. Recent field and laboratory studies have shown that epoxy-coated reinforcing steel is more tolerant to chloride ions than uncoated bars and that values 4 to 6 times that of uncoated steel should be used. In addition, the corrosion rate after initiation for coated reinforcing steel is 5 times slower than that of uncoated reinforcing.

Please [contact EIG](#) if you wish to discuss this further.

### Editors Note:

We hope that you find the information on our website useful and please [contact us](#) if additional information is required.