



NJDOT BRIDGE PAINTING PROGRAM AS BRIDGE PRESERVATION

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PRESENTER'S BIO

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EDUCATION

PhD – From Kiev Institute of Civil Engineering
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MS and BS – From St. Petersburg Institute of Civil Engineering and
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EXPERIENCE

Professor – Kabul Polytechnic Institute (18 years)

Chief Engineer – KiSKA Construction Inc. (1992 – 1999)

Project Manager – NJDOT Bridge Painting Program (1999 – Present)

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NEW JERSEY BRIDGES

Over 5000 Bridges – Steel, Concrete & Timber

- 3,500 owned by NJDOT
 - └ (2,300 Steel bridges)



NJDOT BRIDGE PAINTING PROGRAM

Started around 1988

More than 100 bridges have been painted

Purpose:

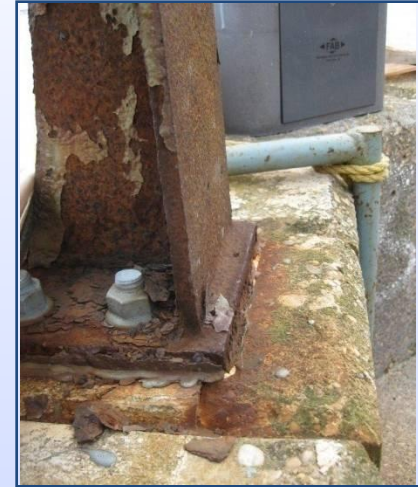
Environmental- Lead Abatement

Preventive – Corrosion

Painting Frequency:

30 - 40 bridges per year

5 – 7 contracts



BRIDGE PAINTING PROGRAM FUNDING

- FHWA
- STATE
- 20 M - ANNUALLY
- 100 M - STIMULUS

PAINT SYSTEM USED BY NJDOT

Three Coating System for New Bridges or for Bridges with Lead Paint on them:

- Inorganic Zinc System – IEU (Shop application)

 - Inorganic Zinc – Prime Coat

 - Epoxy - Intermediate Coat

 - Urethane – Finish Coat

 - Surface preparation - SP10

- Organic Zinc System – OEU (Field application)

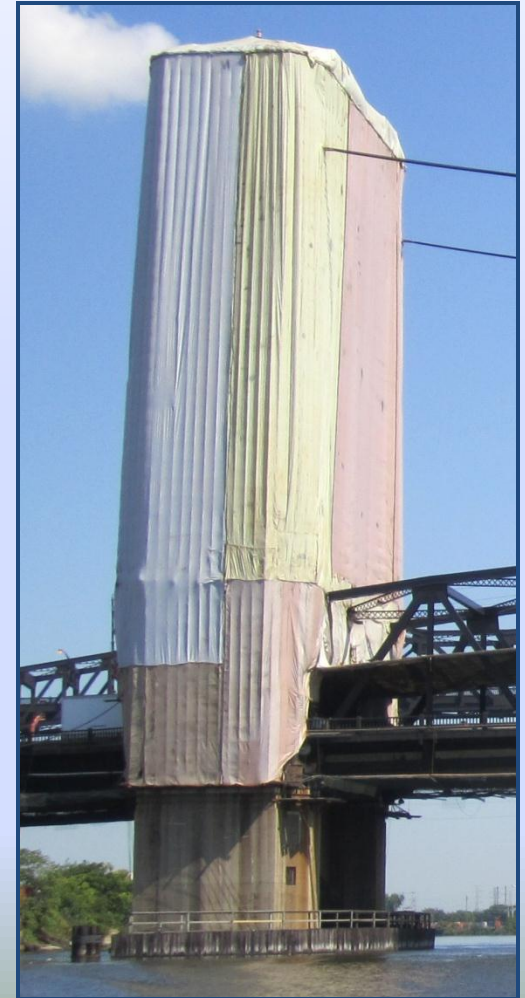
 - Organic Zinc – Prime Coat

 - Epoxy – Intermediate Coat

 - Urethane – Finish Coat

 - Surface preparation - SP10

This System Used when Blasting Entire Bridge



PAINT SYSTEM USED BY NJDOT

Paint System and Procedure for Spot Painting:

- Epoxy Mastic

- HP Fresh Water Wash – minimum 2500psi entire area

- SSPC-SP3 – Power Tool Cleaning and damaged / rusted area

- One Coat Epoxy Mastic at 5-6 mils on the above damaged areas

- Full Coat of Sealer at 1-2 mils to entire structure

- Finish coat of Urethane at 2-3 mils to entire structure



PAINT SYSTEM RESEARCH

By Elzly Technology and Corpro Corporations

Authors: J. Peter Ault, P.E. and Christopher Farschon, P.E.

20 YEARS PERFORMANCE OF PAINT SYSTEMS

47 DEFERENT PAINT SYSTEMS:

- Metalizing (2), SP-5 (NACE 1)
- Inorganic Zinc (8), SP-6/10 (NACE 3/2)
- Organic Zinc (7), SP-6/10
- Miscellaneous (5), various
- Alkyd (60), SP-2/6
- Urethane (5), SP-2/6
- Aluminum (8), SP-2/6
- Epoxy (6), SP-6



PAINT SYSTEM RESEARCH II

METALLIZING:

100% Zinc

85% Zinc / 15% Al

- Best performance system
- Highest installed cost
- Very reliable for all surfaces

INORGANIC ZINC SYSTEM

Very good overall performance with SP-10

- Best system for the cost

ORGANIC ZINC SYSTEM

Very good overall performance with SP-10

- Best system for the cost



PAINT SYSTEM RESEARCH III

THREE COATING SYSTEM (IEU /OEU) SERVICE:

- 18 to 25 years
- Common failure places:
 - Joints – Bearings and Cross-frames
 - Bottom Flange of Fascia Beams



COAT THICKNESS

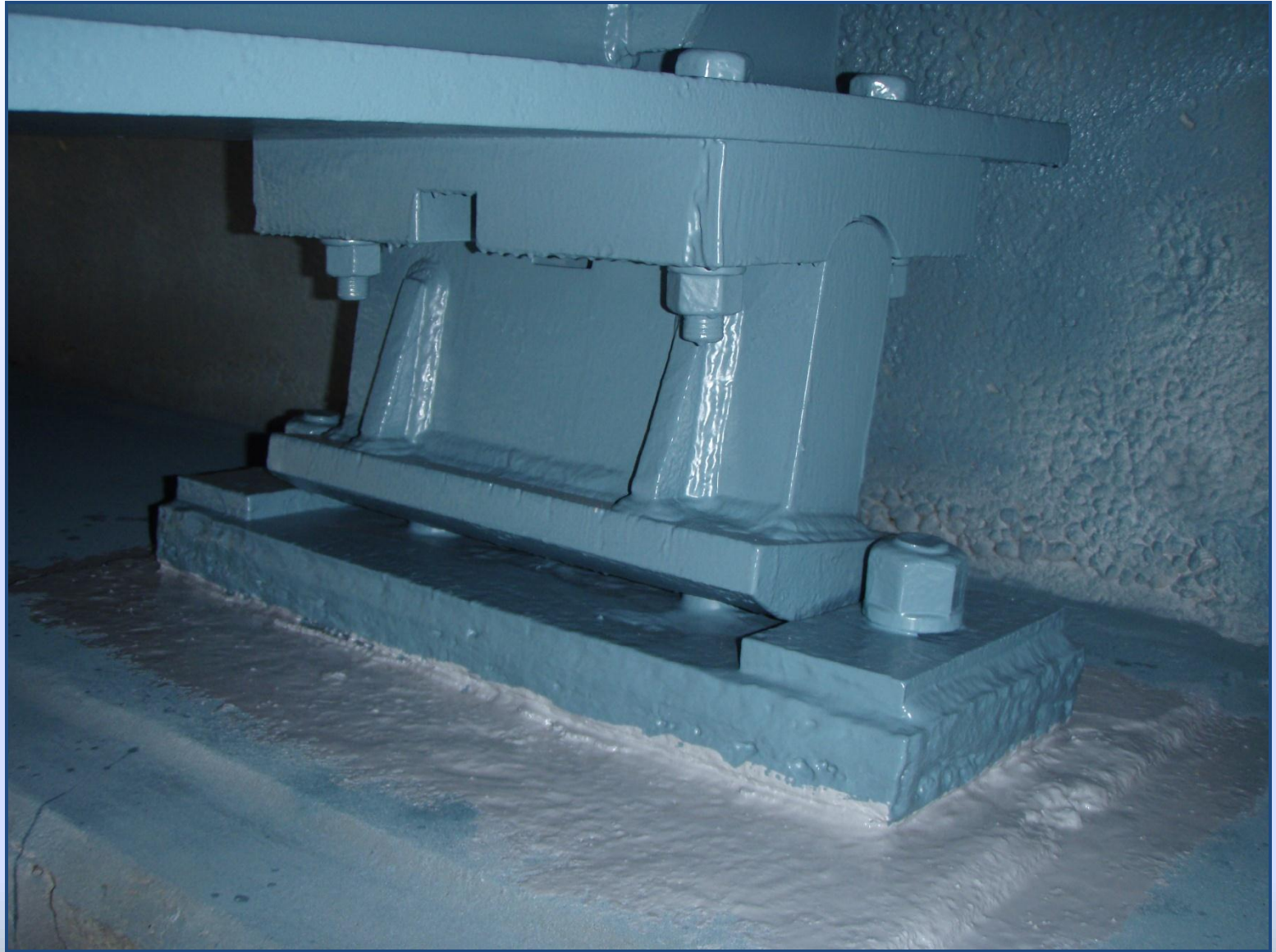
- Prime Coat: 4 mils minimum (if anchor profile is more than 4 mil, the required thickness is 1 mil over the anchor profile)
- Intermediate Coat: 5 mils minimum
- Finish Coat: 2 mils minimum











QUALITY CONTROL

Contractors bear sole responsibility for the quality of the performing work. Responsible for the **Quality Control (QC)** and **Quality Assurance (QA)**.

Quality Management System (QMS)

QMS Manager:

- Responsible for the project quality matters and submittals
- Have the authority to act.
- Responsible for all work to be inspected, all inspection to be documented, and all nonconformities are to be corrected and documented.

QC Individual / Inspector:

- Must have NACE Certificate / or SSPC equivalent.
- Responsible for enforcing the Quality Control Program.

Supervising Inspector:

- Monitors Inspector's performance and documentation.



REPAIRS PRIOR TO PAINT

- **Joint repairs**
- **Substructure repairs**

