Standards & Inspection

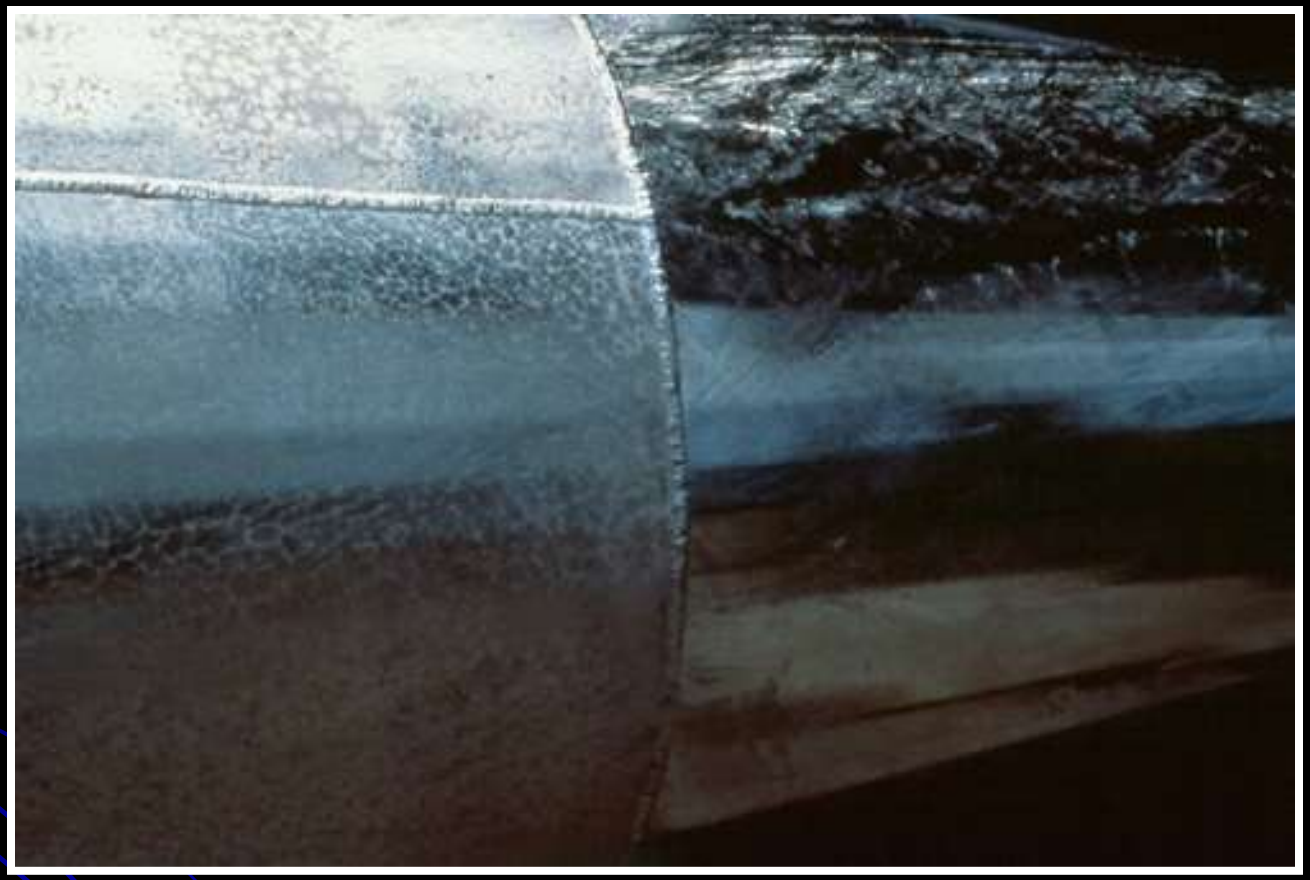
ASTM A 123

Coatings on Iron & Steel Products

ASTM A 153

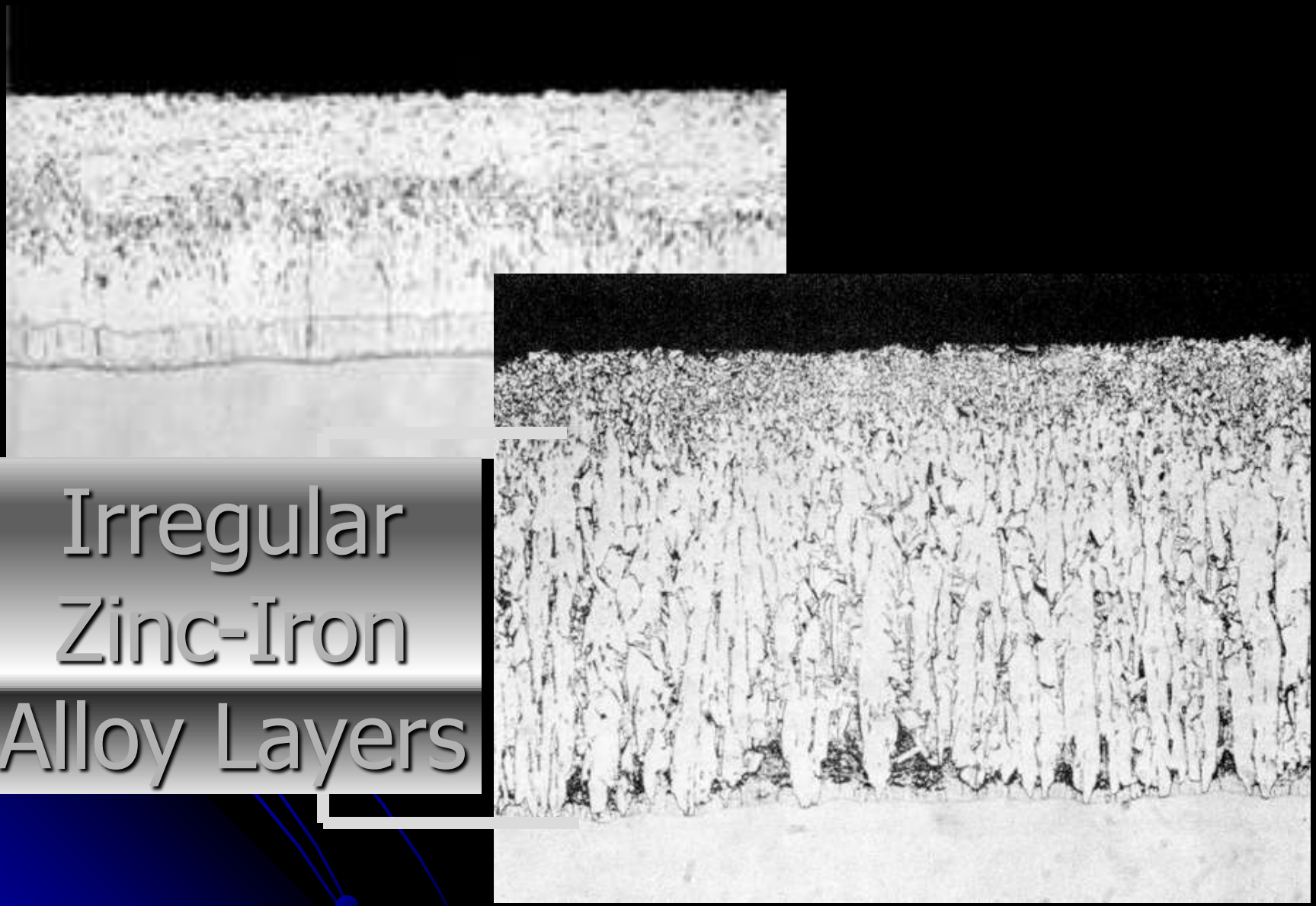
Coatings on Iron & Steel Hardware

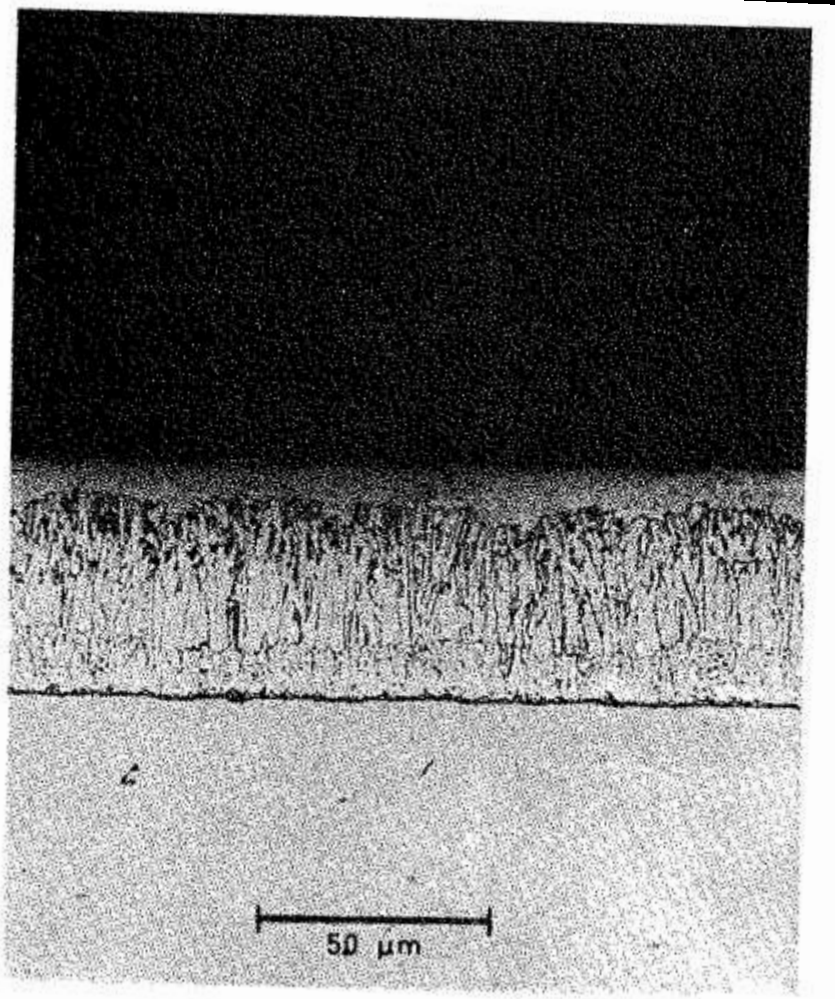
ASTM A 385



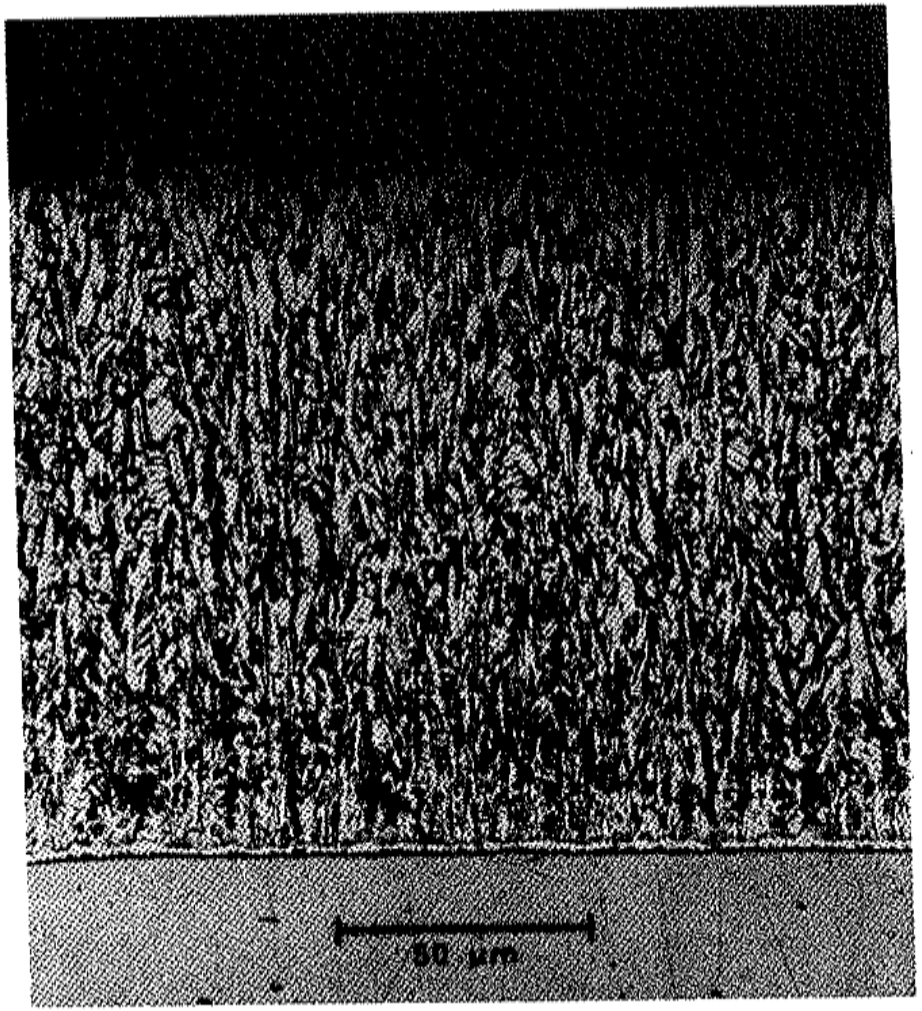
Providing High-Quality Zinc Coatings

Typical Zinc-Iron Alloy Layers

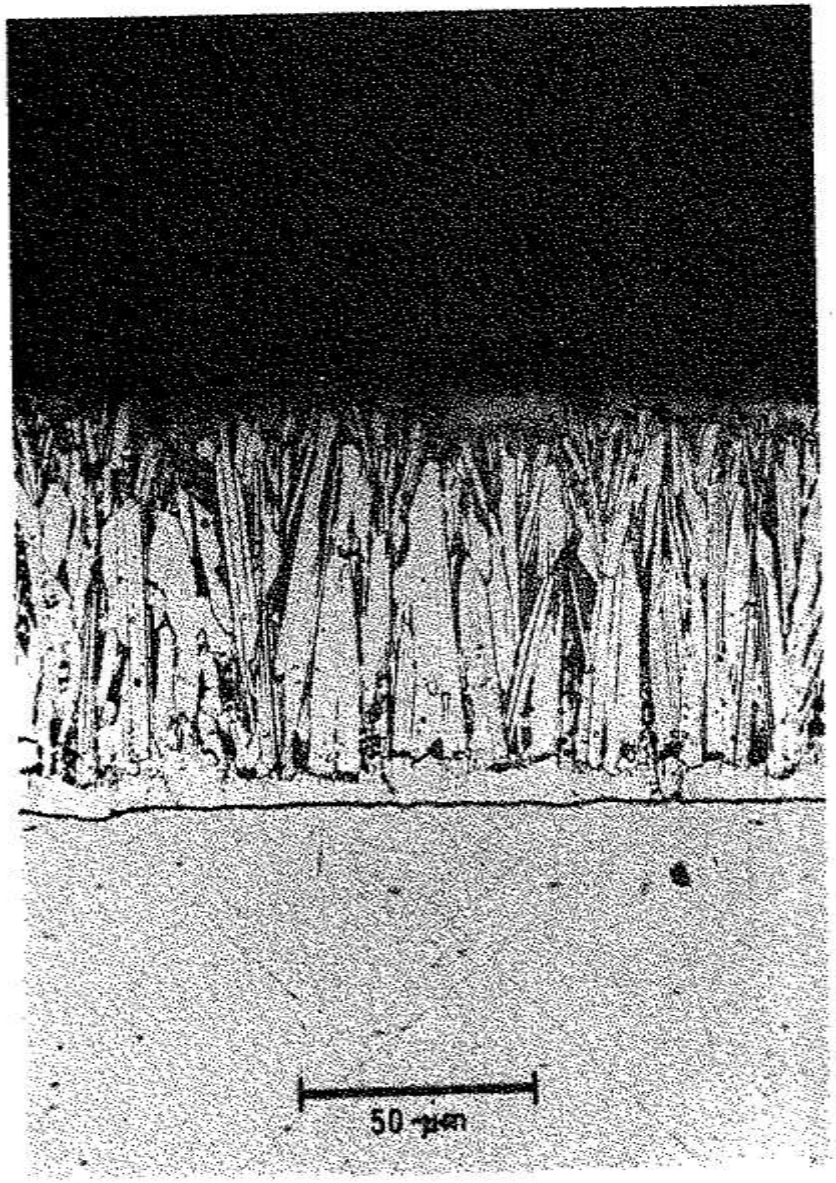




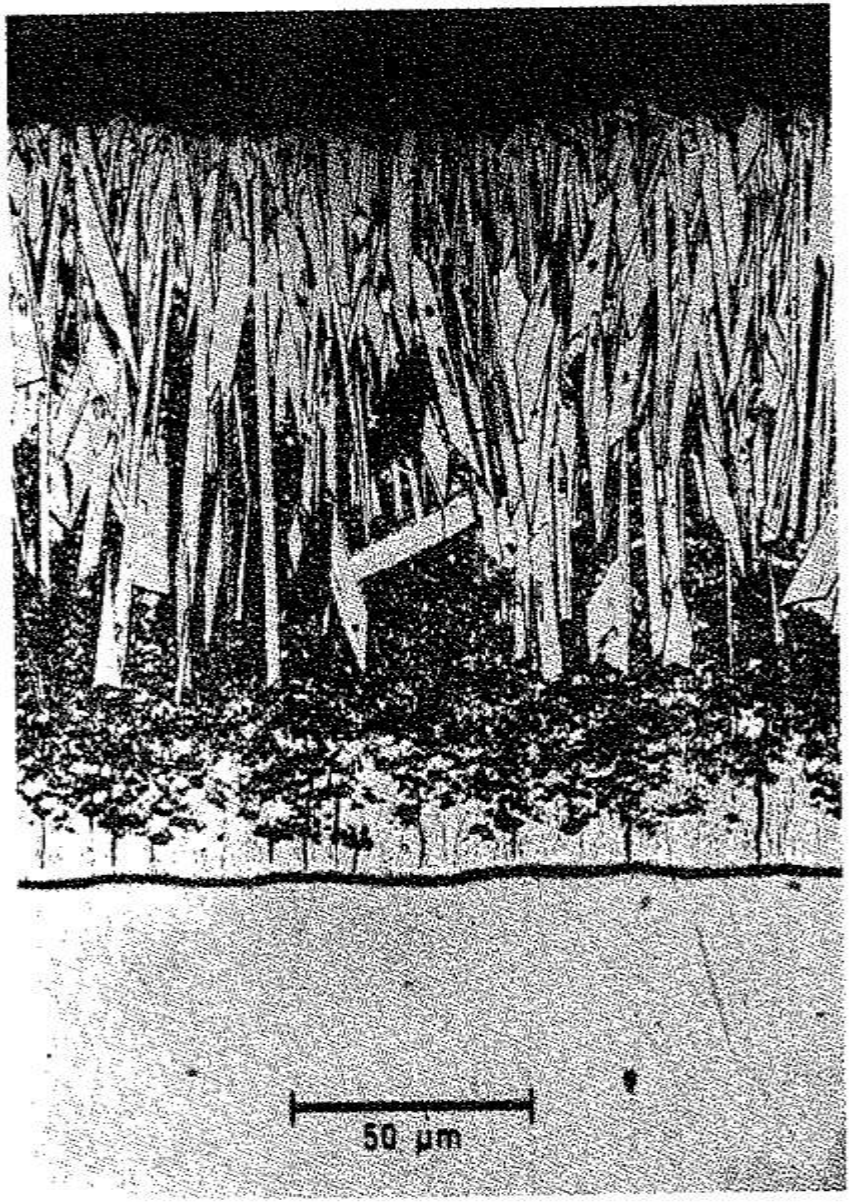
03% Si



10% Si



.24% Si

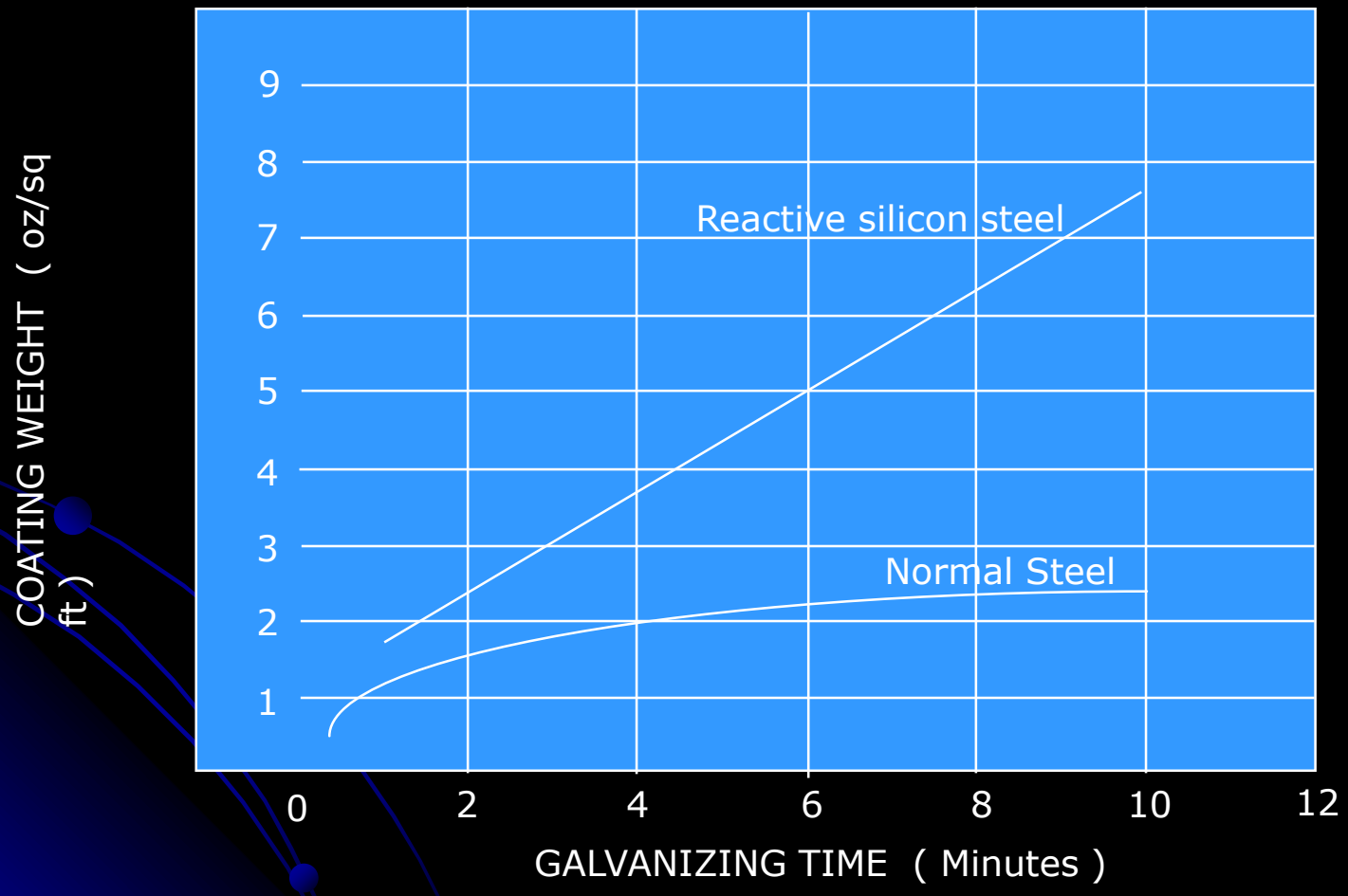


.44% Si

Steel Composition

Reactive Pipe

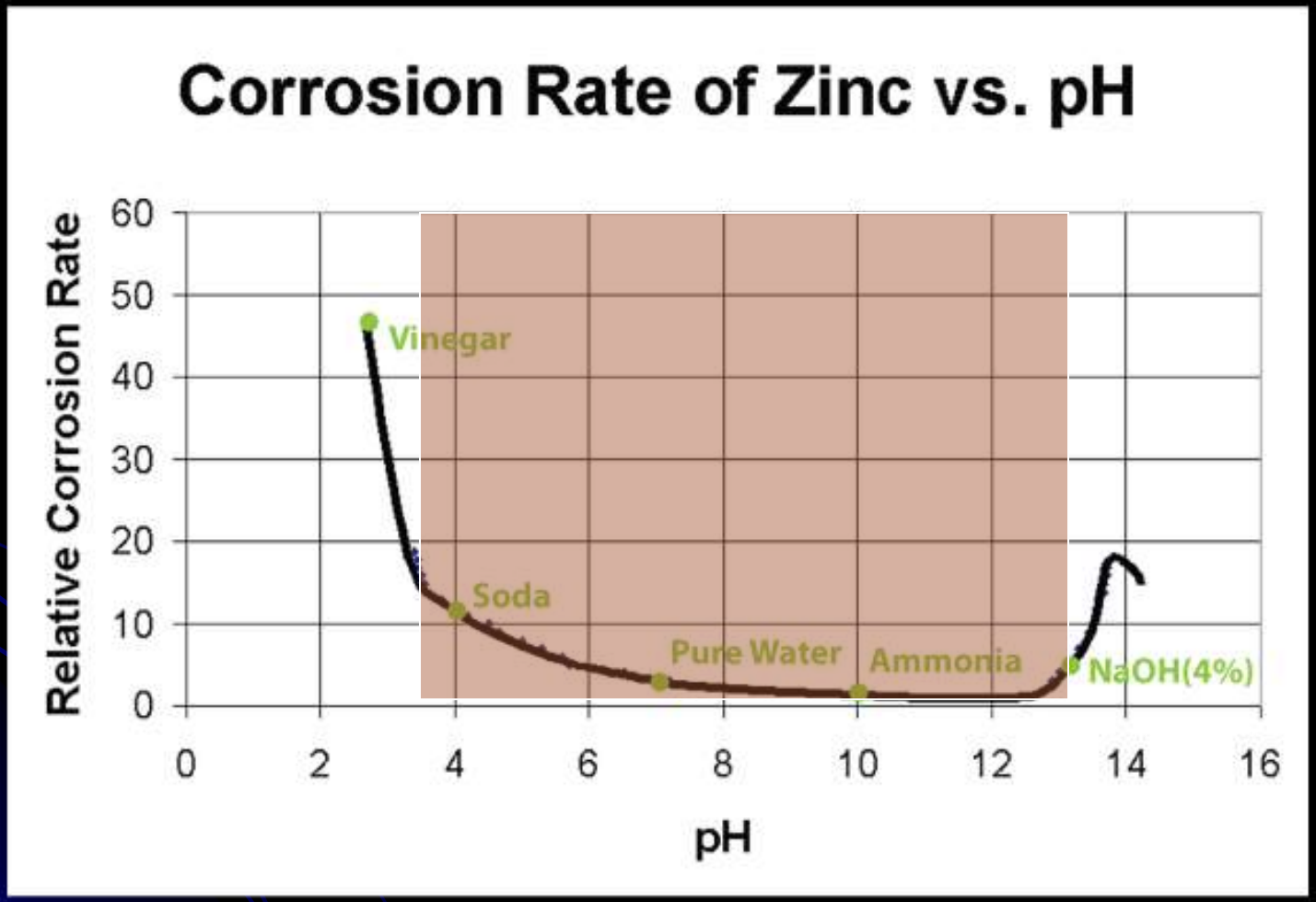
REACTIVE STEELS GROWTH RATE VS TIME



ASTM A 767

Zinc-coated Steel Bars for Concrete Reinforcement

Electrochemical Corrosion Zone



Real-world Applications


Stears Bayou Bridge

Stearns Bayou Bridge

Stearns Bayou Bridge

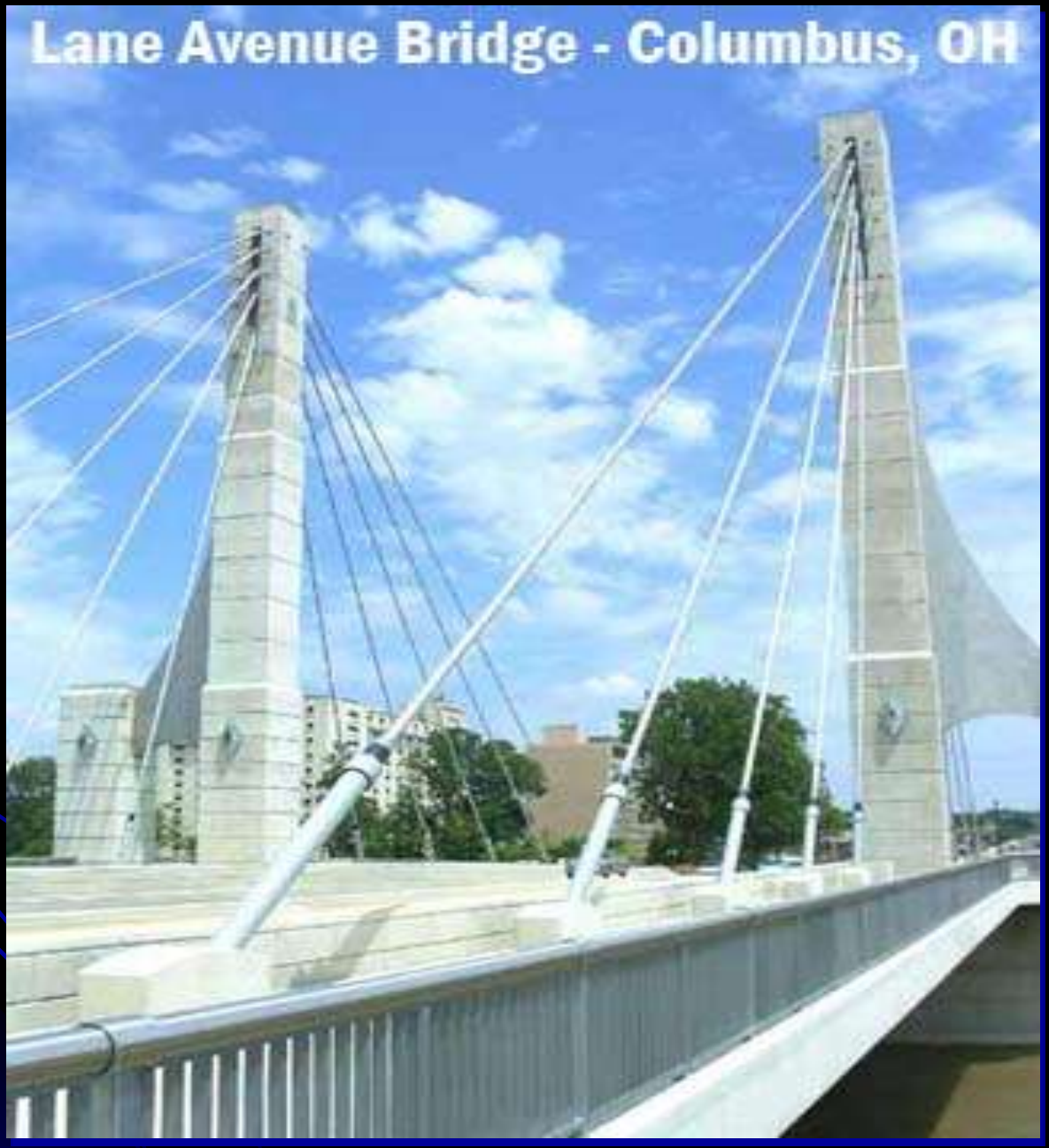
Sterns Bayou Bridge


Fischer
2.94
Thickness
DEL
ON/OFF

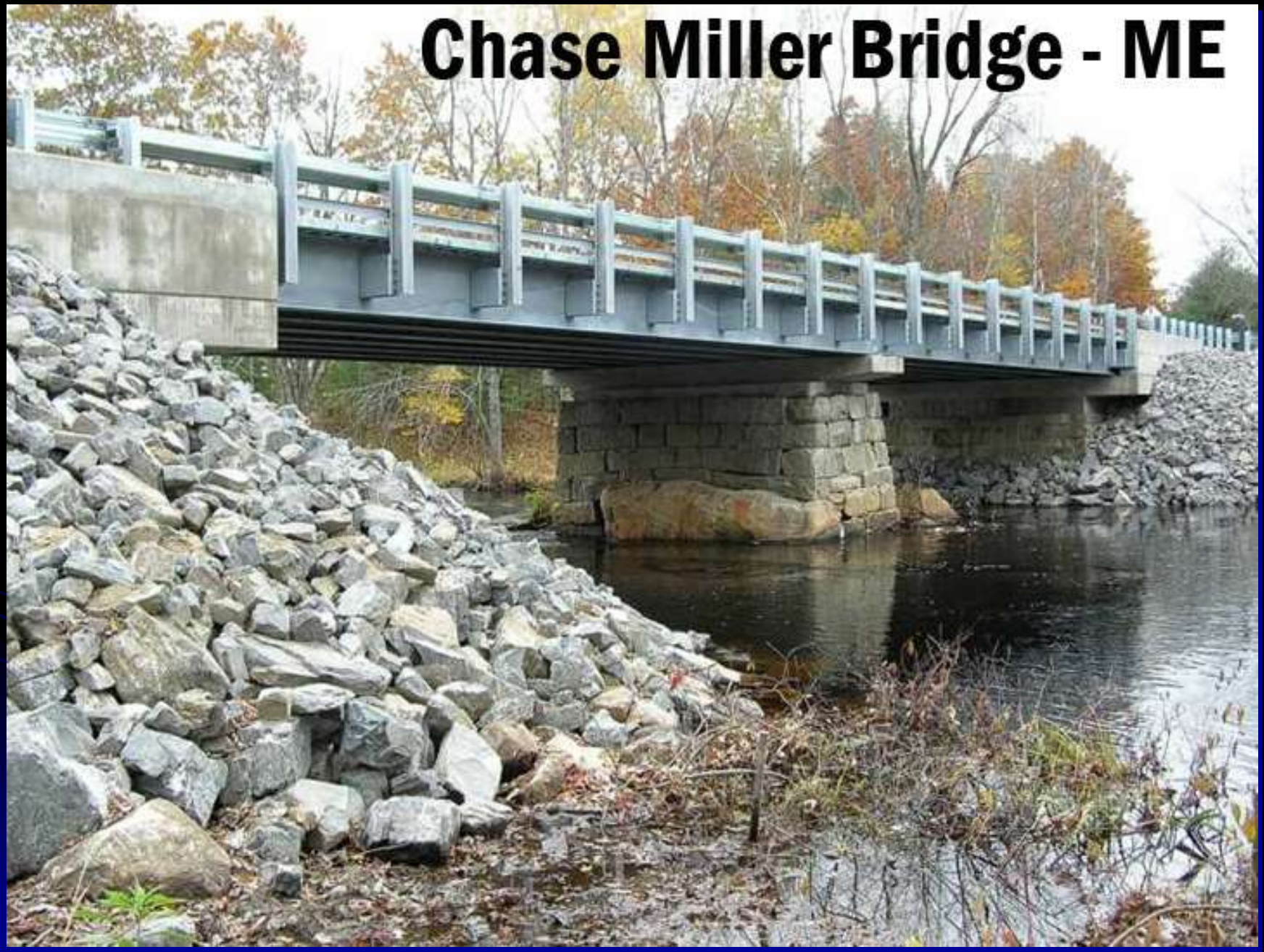
Sterns Bayou Bridge


Spring Lake Bridge MI

Dick Vale Bridge Peru, ME


Lane Avenue Bridge - Columbus, OH


Montgomery County -Maryland


Chase Miller Bridge - ME


Fallowfield Township – Washington County PA


Bryants Bridge – Saratoga County N. Y.

West Virginia University & Short Span Steel Bridge Alliance observe press brake forming

Press Brake Formed Girder

- End view showing
  - Diaphragm welded into the ends
  - Fastening studs welded along top flange

CDR Bridge
Univ. of Nebraska, Florida

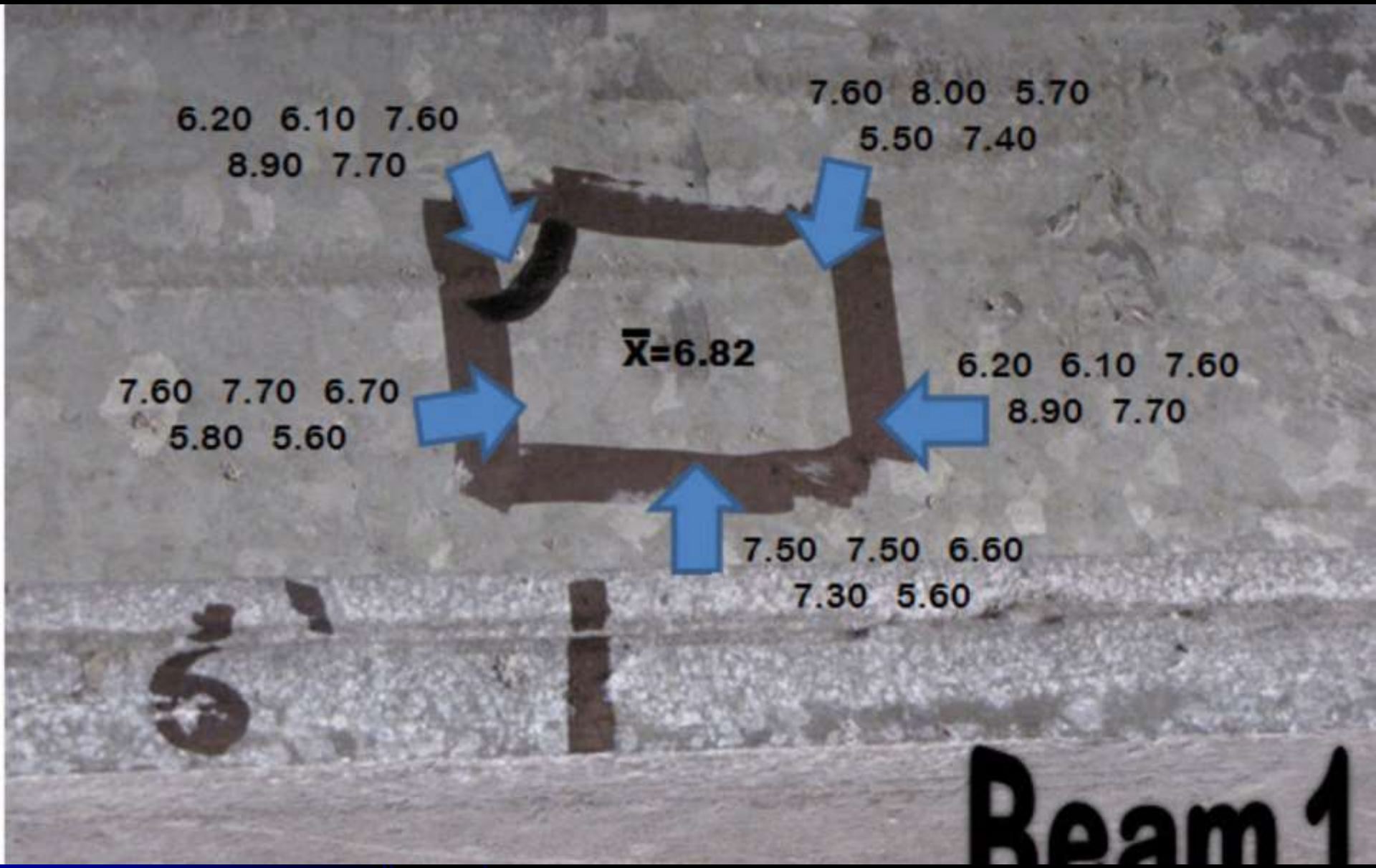
Galvanized girders - Town of Uxbridge Mass DOT

Town of Uxbridge - Mass DOT - Finished Structure

Tri-Con Con-Struct

Con-Struct completed structure

Corrosion Protection


6.20 6.10 7.60
8.90 7.70
7.60 8.00 5.70
5.50 7.40
$\overline{X}$=6.82
7.60 7.70 6.70
5.80 5.60
6.20 6.10 7.60
8.90 7.70
7.50 7.50 6.60
7.30 5.60
Beam 1

Questions ?

GalvanizeIt!

Thank You!

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815-693-4242

AGA Member™
American Galvanizers Association
Protecting Steel for Generations
Zn

Hot-Dip Galvanizing Costs Less Lasts Longer

The Cost of Corrosion Protection

- Initial cost will always factor into decision
- Life-cycle cost analysis is more complete
  - Includes all future maintenance costs
  - Provides total cost of the project over its life
- Life-cycle cost calculation automated online at www.galvanizeit.org/galvanizingcost/

Quantitative Analysis

- Data Sources:
  - Paint – 2008 KTA Tator paper
    - Nationwide survey of the paint industry
    - Presented at NACE 2009
  - Galvanizing – 2008 AGA Industry Survey
- Project Parameters
  - Standard mix of steel (structural, tubing, plate)
  - 30,000 ft^2 project
  - Moderately industrial environment

Initial Cost Parameters

- Paint
  - Material (one- or two-pack product, number of coats, etc)
  - Shop cleaning labor
  - Shop/field application
  - Field labor
- Galvanizing
  - Process is inclusive of all cleaning, material, and labor

Initial Cost

Inorganic Zinc	$1.35	$40,410
Hot-Dip Galvanizing	$1.60	48,000
Inorganic Zinc/Epoxy	$2.16	$64,800
Acrylic WB Primer/ Acrylic WB Intermediate/ Acrylic WB Topcoat	$2.55	$76,620
Inorganic Zinc Primer/ Epoxy/ Polyurethane Topcoat	$3.17	$94,950

Life-Cycle Cost

- Maintenance costs calculated on a practical maintenance cycle (vs. ideal)
  - Unique to each paint system
  - Manufacturer recommended cycles provided in the KTA Tator paper
- NACE model for NFV and NPV calculations
  - 2% inflation; 4% interest
- 60-year life
- Maintenance repaint at 5% rust