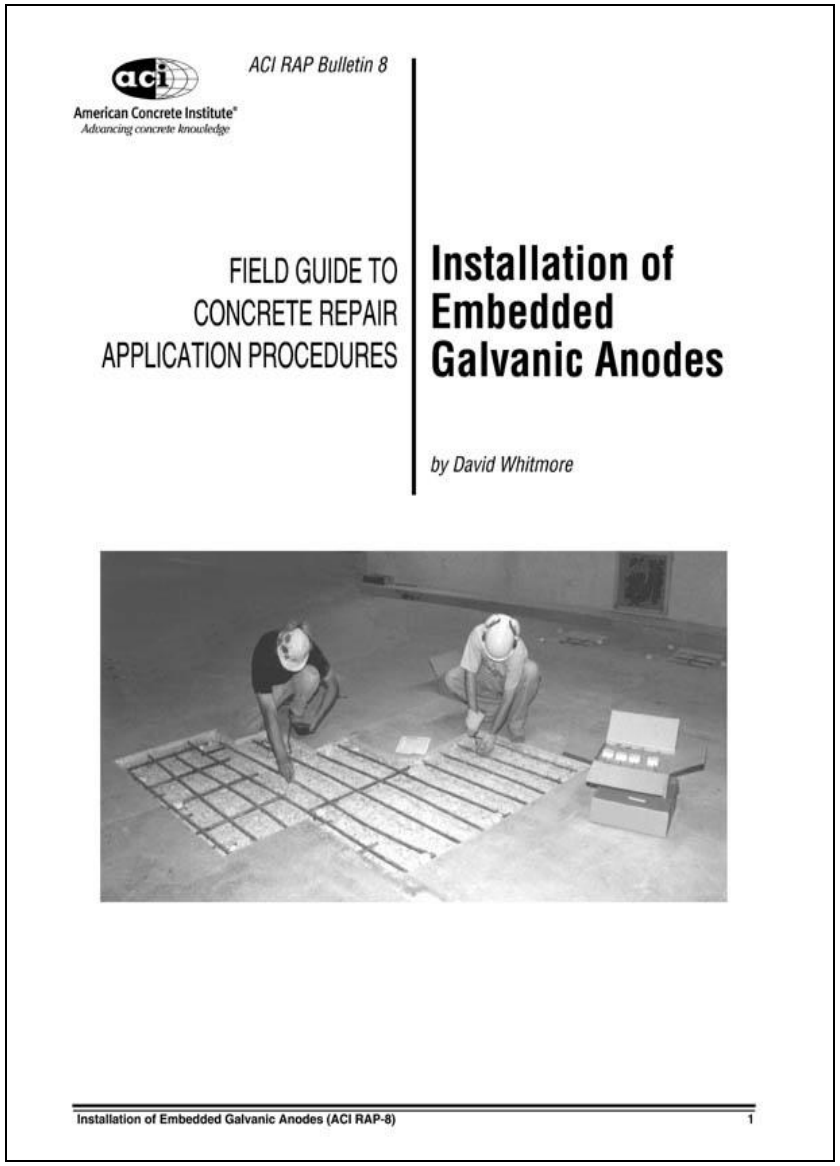


ACI RAP Bulletin #8

David W. Whitmore

Author

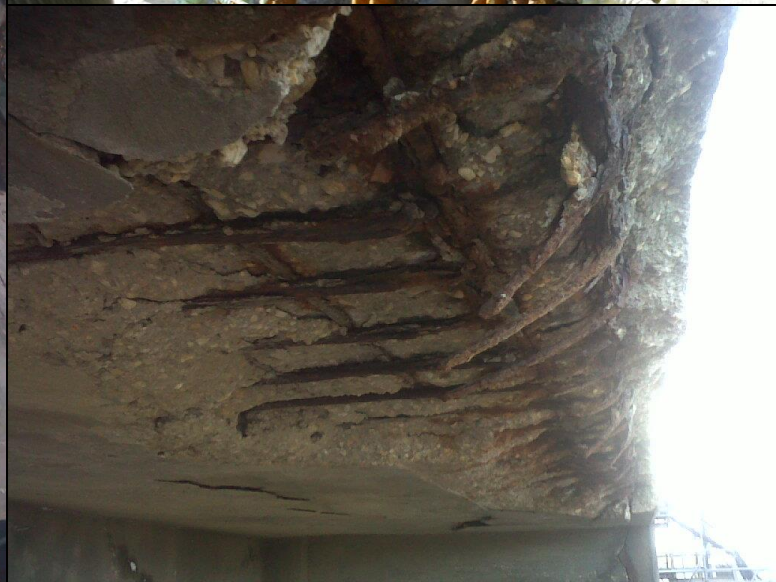
J. Chris Ball

Presenter

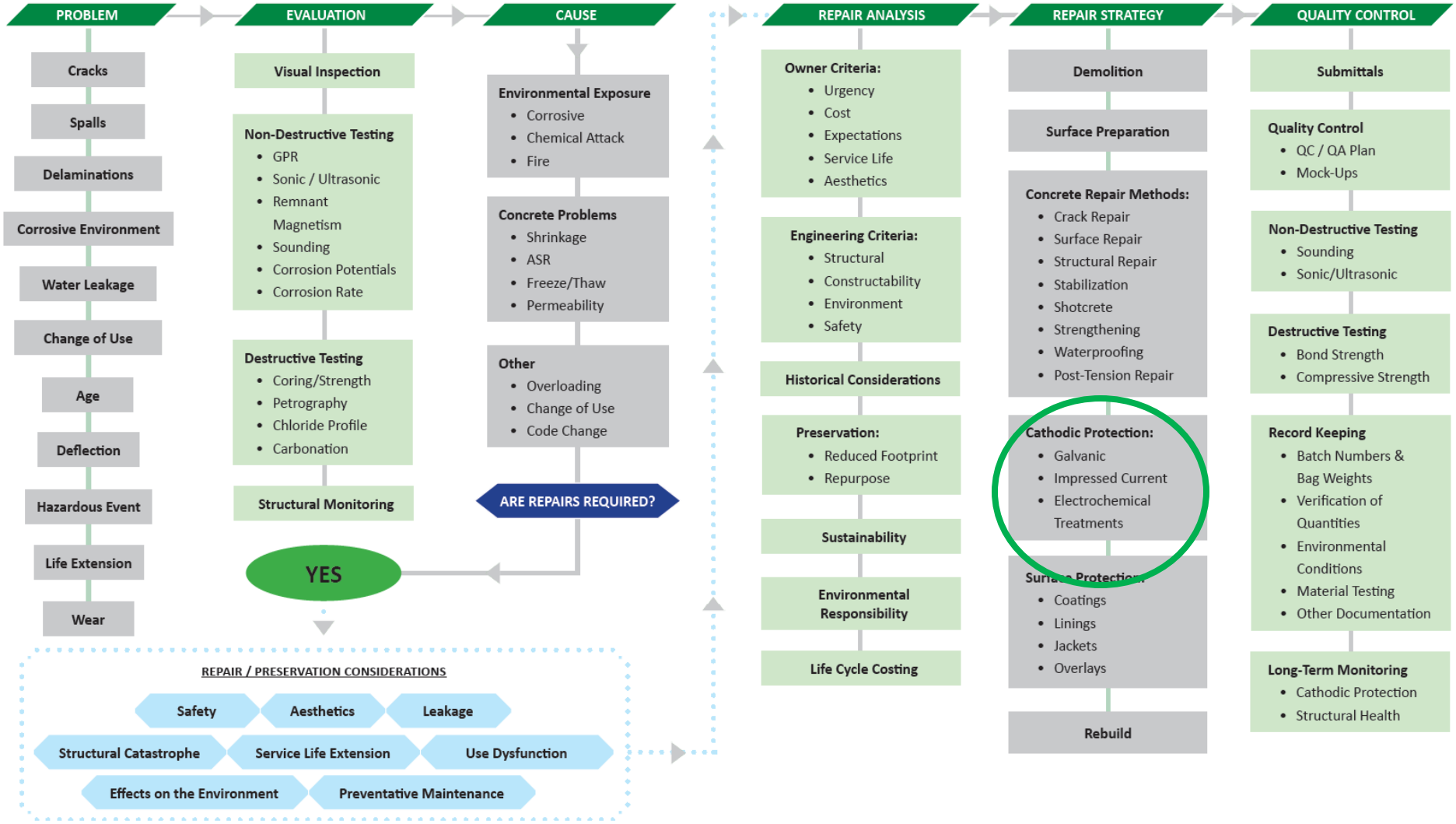
Vector Corrosion Technologies







CONCRETE PRESERVATION PROCESS

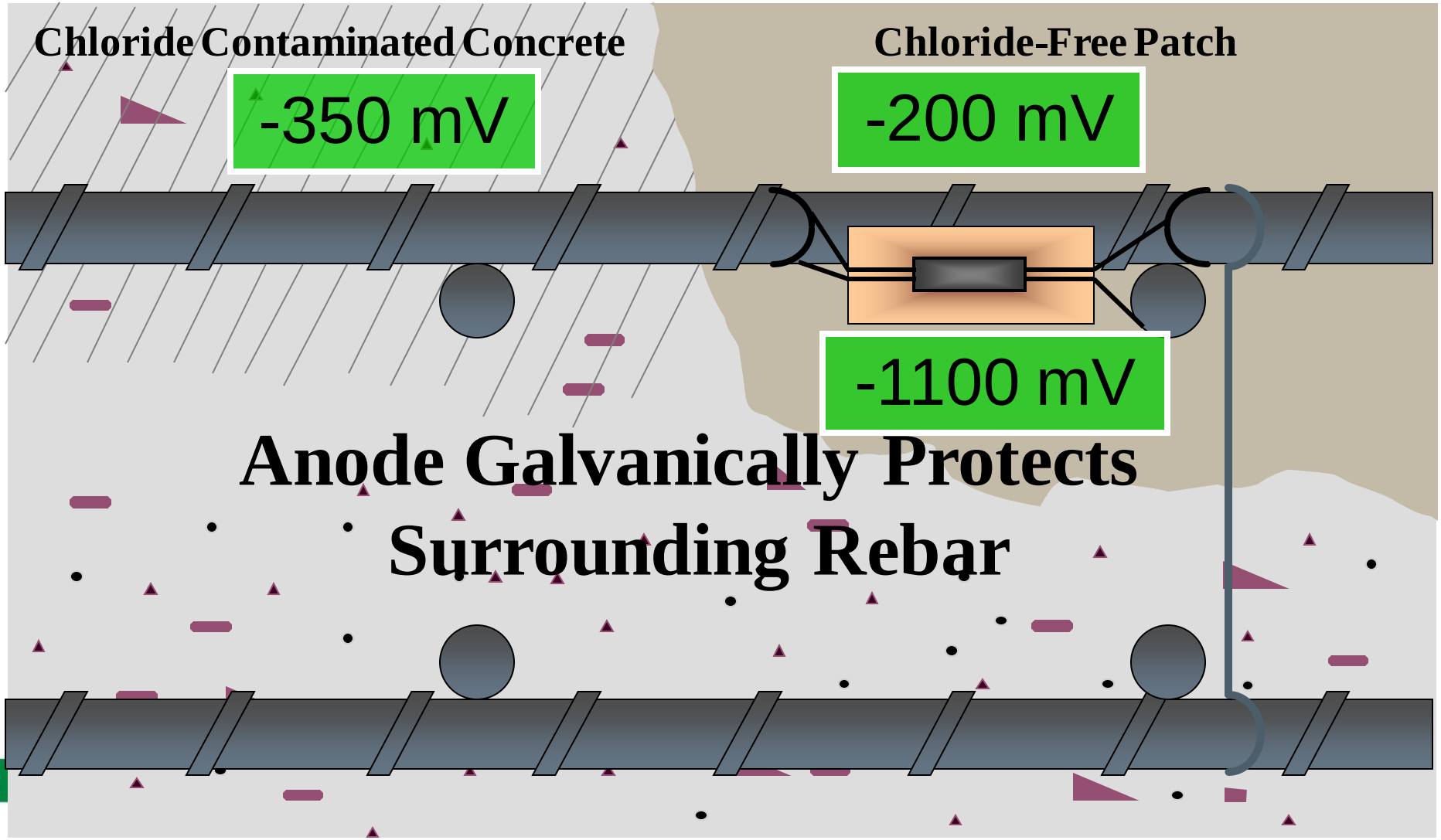


Why Use This Repair?

- Mitigate corrosion due to chloride contamination or carbonation.
- Ring anode / Halo corrosion

Halo Effect / Patch Accelerated Corrosion

Installed Galvanic Anode



When to Use the Repair

- Patch Repair of Chloride Contaminated or Carbonated Concrete
- Joints Between New and Existing Concrete
- Corroding Areas of Existing Structures

Embedded Galvanic Anodes - Nomenclature

Type 1

–Installed in Standard Repairs

Type 2

–Installed in Sound Concrete

Source: Installation of Embedded Galvanic Anodes (ACI RAP Bulletin 8, 2010)

Embedded Galvanic Anodes - Nomenclature

Galvanic anodes for concrete contain chemicals in the covering material surrounding the zinc core that allow the anode to continue to produce protective current over time.

Type A –

Alkali-activated

High pH environment around zinc core

Type H –

Halide-activated

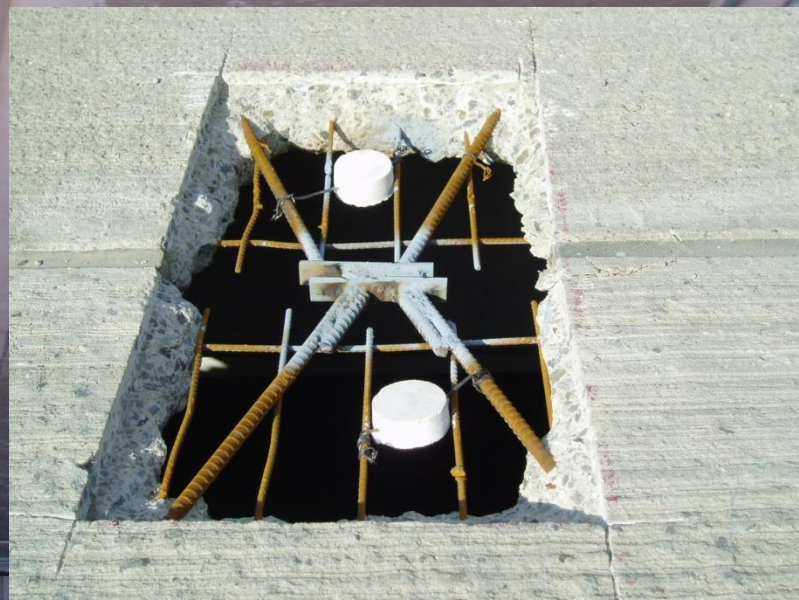
Chloride or bromide environment around zinc core

Type 1 – Bridge Repair

Type 1 - Parking Deck Repairs

Type 1 - Balcony Repairs

Type 1 - Precast Concrete Repairs



Type 1 - Balcony Replacement

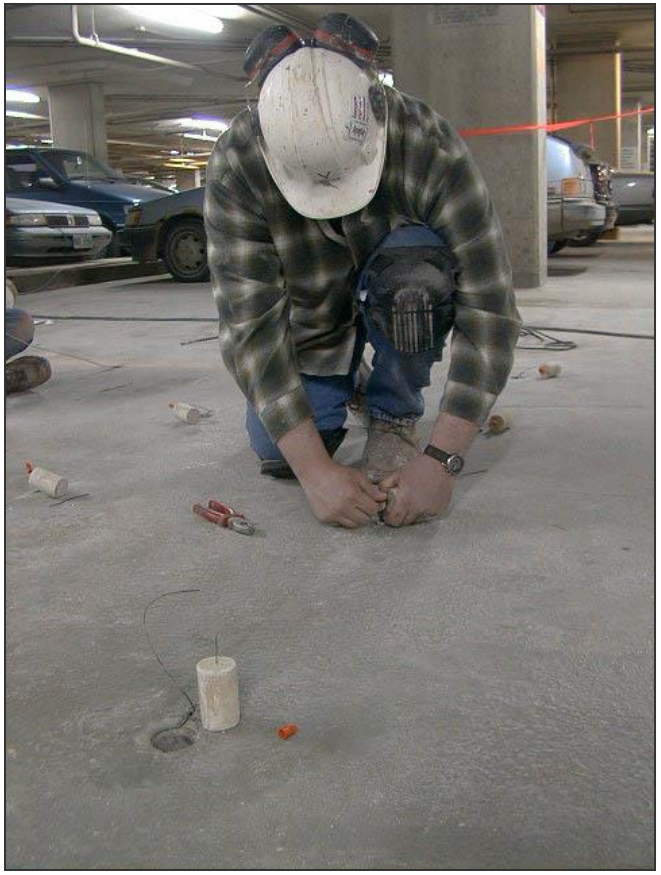
Type 1 - Bridge Widening

Type 2 – Drilled in Anodes

- Placed proactively into sound concrete.
- Global protection over large areas
- Targeted protection to corrosion hotspots

Anodes applied to chloride contaminated columns prior to FRP strengthening

Type 2 Drilled in Anodes



Anodes installed into hot spots as detected by corrosion potential testing

Column Protection

Type 2 Anodes Installed into Corroding Column in Industrial Plant

VECTOR CORROSION TECHNOLOGIES

Galvashield CC
Installation Instructions

Material and Equipment Selection

- Must be used with compatible repair materials (Resistivity <15,000 ohm*cm)
- Must be connected to the reinforcing steel
- Steel to be protected must in electrical contact
- Installation can be completed with standard construction equipment

Safety Considerations

- Galvanic anodes and repair concrete / mortar may be alkaline.
- Wear protective clothing, gloves and glasses as appropriate to protect eyes and skin from exposure.

Checking the Repair

- Specifications should include procedures and criteria to ensure a quality installation.
- Checks should include;
  - Prequalification of the repair material,
  - Continuity of reinforcing steel, and
  - Connection of anodes to steel.
- Current output can be monitored over time if a simple monitoring station is installed.

Quality Control

Testing anode connection to reinforcing steel.

Questions