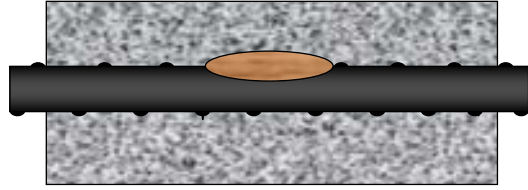


**30B Vine Rd. East Molesey
Surrey, KT8 9LF, UK**

Tel./Fax +44 (0) 20 8941 6696
Mobile +44 (0) 77 11 00 6197
Skype VOIP JPBroomfield

Email: JohnPBroomfield@aol.com
Website www.JPBroomfield.co.uk

**John P. Broomfield
Broomfield Consultants**



Consulting Corrosion Engineers

Broomfield Consultants Cathodic Protection Case Histories Page 1 of 5



Figure 1a Conductive coating on front face



Figure 1b Cosmetic overcoat applied

Case 1 – Structure and Location – Office Building Southend-on-Sea, UK

Cause of corrosion – Calcium Chloride (CaCl_2) set accelerant cast in during construction

Cathodic Protection Description – Conductive organic solvent based coating with protective/decorative top coat

Parties and dates – UK Government building, Taywood Engineering design and install, 1986

Comments – One of the first full scale cathodic protection installations in the UK



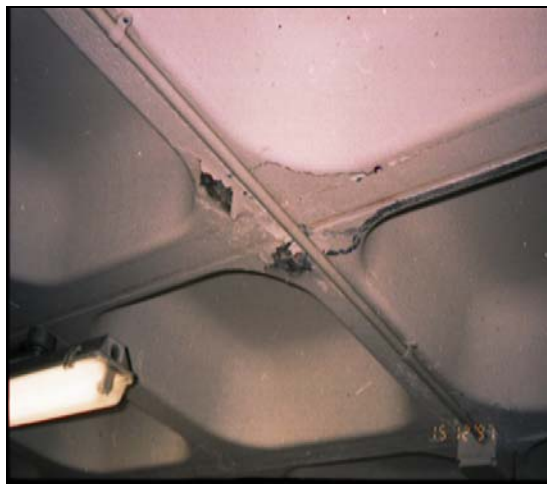
Case 2 – Structure and location – Concrete silo, Western Australia

Cause of Corrosion – salt water ingress

Cathodic Protection Description – Conductive organic coating (chlorinated rubber) used for easy maintenance and repair in industrial environment.

Parties and dates – Designed and installed by Taywood Engineering (Australia) 1987.

Comments – one of the first impressed current cathodic protection installations in Australia



Case 3 – Structure and Location –
Underground car park to Office Building,
Birmingham
Cause of Corrosion – deicing salts from
vehicle deposits and ramp salting
Cathodic protection description –
Conductive coating with cosmetic overcoat
Parties and dates – Specification John
Broomfield for Mouchel & Partners
(Consultant), detailed design and
installation Corrosion Control Services
Ltd. installed 1998



Case 4 – Structure and Location – M4
Elevated section cathodic protection
trials, London
Cause of Corrosion – deicing salts
from winter salting
Cathodic protection description –
cathodic protection trials, solvent and
water based conductive coating anodes,
thermal sprayed zinc and titanium,
mixed metal oxide coated titanium
mesh and conductive mortar.
Parties and dates – Specification John
Broomfield for WSP, (Highways
Agency term consultant), detailed
design and installation Makers UK,
Installed 1996
Comments – severe traffic control
problems.



Case 5 – Structure and location – Motorway interchange, M6 Cumbria
Cause of Corrosion – Deicing salt leakage through deck joints
Cathodic Protection Description – Arc sprayed zinc anode with probe anodes on cantilevered ends and sheer walls between beams
Parties and dates – Owner, highways agency, consultant AmeyMouchel, outline design and specification John Broomfield, Detailed design and installation Makers UK, installed 2002.
Comments – First major use of arc sprayed zinc system in UK



Case 6 – Structure and location – New North Quay Jersey, Channel Islands
Cause of Corrosion – Marine salt
Cathodic Protection Description – Mixed metal oxide coated titanium expanded mesh ribbon
Parties and dates – Consultant Jersey Public Services Department, CP Specification, John Broomfield, Installed Brookes (Northern).
Comments – Applied to columns and beams and some soffit areas



Case 7 – Structure and location – Pier Road Multistorey cat park, St Helier, Jersey
Cause of Corrosion – Sea salt spray
Cathodic Protection Description – Probe anode installations to selected beams and columns
Parties and dates – Consultant Jersey Public Services Department, CP Specification, John Broomfield, Installed Concrete Repairs Ltd, installed 2005
Comments – selective installation with protective coatings elsewhere provides cost effective corrosion



Case 8 – Structure and location – 55-56 St. Martin’s Lane London
Cause of Corrosion – moisture ingress to steel frame in corners
Cathodic Protection Description

–
Mixed metal oxide coated titanium expanded mesh ribbon installed in mortar joints between bricks

Parties and dates – Designed and Broomfield Consultants, Installed by Mannion Construction 2006

Comments – Typical early 20th century steel framed brick clad building system with simple manual control.



Case 9 – Structure and location – National War Memorial, Wellington New Zealand

Cause of Corrosion – Sea Salt spray through openings in carillon tower

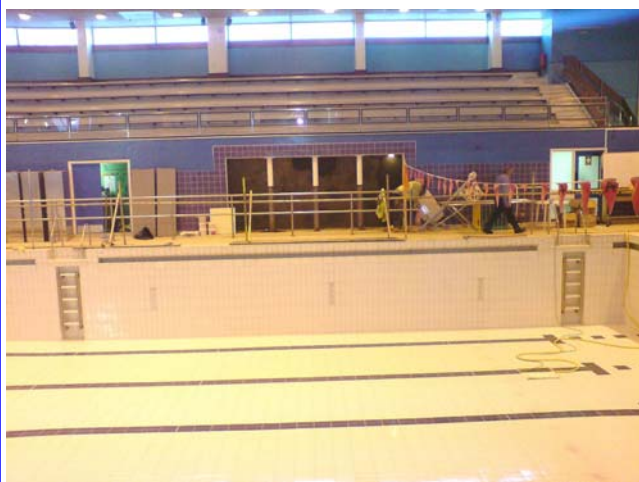
Cathodic Protection Description – Local application of probe anodes to corroding areas.

Parties and dates – Opus International (Australia), Global Corrosion Consultants Ltd., Broomfield Consultants Installed 1999

Comments – Trial and full scale installation with strict deadline for reopening of tower for ANZAC day celebrations . See “Concrete Building Pathology” Ed. Susan MacDonald, Blackwell Publ. 2003 pp 289-293 for further information.



Case 10 – Structure and Location –
University of East Anglia, Norwich UK
Cause of Corrosion – Carbonation,
deicing salts and cast in CaCl_2
Cathodic Protection – Probe anodes
installed inside stair and lift tower,
Silicate coating to external repairs to
moderate appearance
Comments – Grade II historic listed.
See Concrete Society Technical Report
64 Appendix A2 for more information.



Case 11 – Structure and Location
– Amersham Swimming Pool
Cause of Corrosion – Chloride
ingress
Cathodic Protection – Specialised
Pool anodes to pool sides
Comments – Repairs specified to
achieve water tightness and
coating specification to corroding
steel columns in pool area.



Case 12 – Structure and
Location- Churchill College
Cambridge
Cause of Corrosion – Calcium
Chloride in original concrete
mix
Cathodic Protection – Probe
anodes vertical in structural
fascia beams
Comments – Grade II listed
building