UNITED ANODISERS

Independently certified audit of the long term on-site performance of batch anodised aluminium extrusions and panels on exterior architectural applications in the UK

HMF Heywood Metal Finishers Ltd Anodisers to the Aluminium Industry

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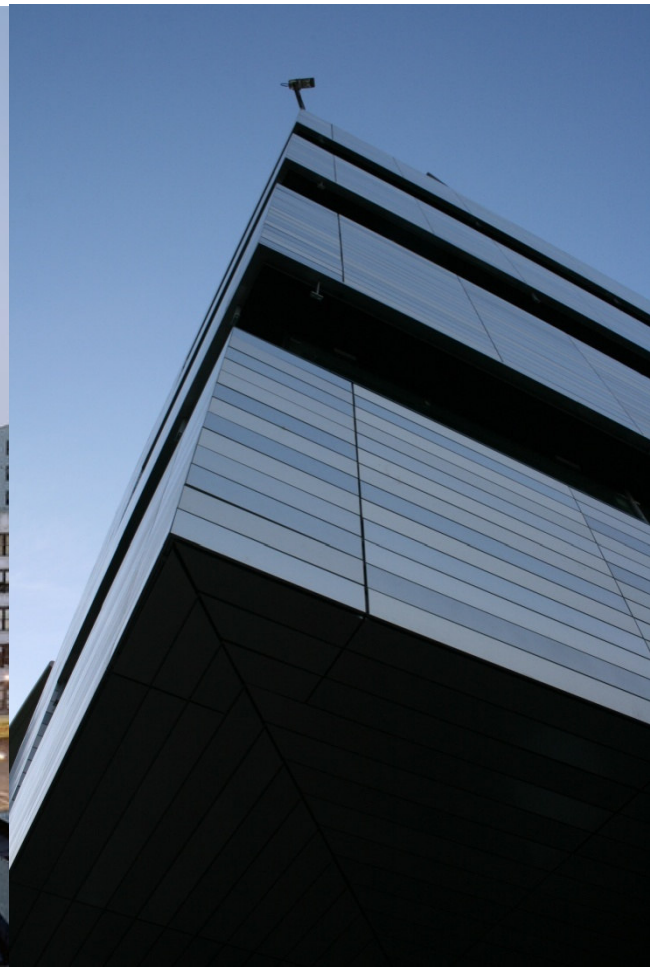


UNITED ANODISERS

In 2008, United Anodisers commissioned Dr. Laszlo Palffy, through his consultancy, Straditec, to jointly visit, with UA technical staff, a number of buildings where batch anodised extrusions and/or panels had been employed in the construction. Dr. Palffy has significant experience of the technology of anodising of aluminium.

The original specifications of the metal and anodising used in the building had to be, in each case, fully traceable. All buildings were to have already acquired a certain service life. Dr. Palffy was mandated to certify the new on-site measurements of the anodic layer and other performance criteria of the buildings.

The purpose of this audit was to assess the real long term on-site performance of batch anodised extrusions and panels, compared to accelerated laboratory testing on which earlier conclusions had been based.

United Anodisers believes that these results are conclusive evidence that high quality anodising associated with a high quality metal substrate together provide the optimum protection and longevity to aluminium for external applications.

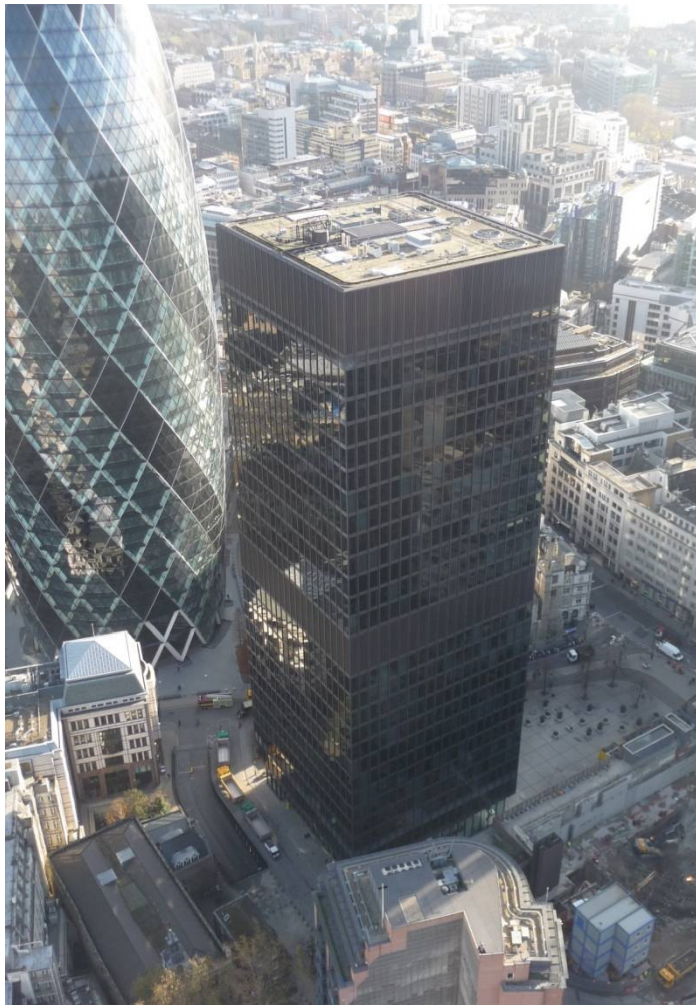
Established in 1972, only United Anodisers, the world's largest architectural anodiser, is uniquely capable of demonstrating a long term quality track record .

NatWest Bank
55 Victoria Street
London SW1

Address of building	NatWest Bank 55 Victoria Street London SW1
Date of independent inspection	October 2007
Use of building	Bank commercial offices
Date of construction	1987
Environment	High traffic density – centre of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Sandalor Red C62/3
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	25.5 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 20 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment. No discernable colour change

City Gate House
22 Southwark Bridge Road
London SE1

Address of building	City Gate House 22 Southwark Bridge Road London SE1
Date of independent inspection	October 2007
Use of building	Offices
Date of construction	1987
Environment	High traffic density – Centre of London – Close to the Thames river
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Sandalor blue C 64/3
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	27.6 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 20 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment. No discernable colour change.



Commercial Union HQ
St Helens, 1 Undershaft
London EC3

Address of building	Commercial Union HQ St Helens, 1, Undershaft London EC3
Date of independent inspection	October 2007
Use of building	Offices
Date of construction	1993 (revamping after bomb attack)
Environment	High traffic density – financial district of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Anolok II Dark blue-grey – B 717
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	26.4 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 14 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment. No discernable colour change.

Peter's Hill House
1 Carter Lane
London EC4

Address of building	Peter's Hill House 1, Carter Lane London EC4
Date of independent inspection	October 2007
Use of building	Offices
Date of construction	1996
Environment	Urban – Quiet location – Adjacent to River Thames
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames – Window sills – Solid panels
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Anolok II Dark blue-grey B 717
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	24.4 µm
Visible signs of corrosion or surface degradation	None
Conclusion	The very minor variation between the original treatment specification and the test result could either be due to: (1) a very limited erosion of the anodic film or (2) a variance in the anodic film layer in production. In either case, the surface protection is intact after 11 years service life. No visible evidence of corrosion. No discernable colour change.

Hobart House
10 Grosvenor Place
London SW1

Address of building	Hobart House 10, Grosvenor Place London SW1
Date of independent inspection	October 2007
Use of building	Offices
Date of construction	1998
Environment	High traffic density – centre of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Anolok II Dark blue-grey B 717
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	26.4 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 9 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment. No discernable colour change.

40rty building
3-5 Plough Place
London EC4

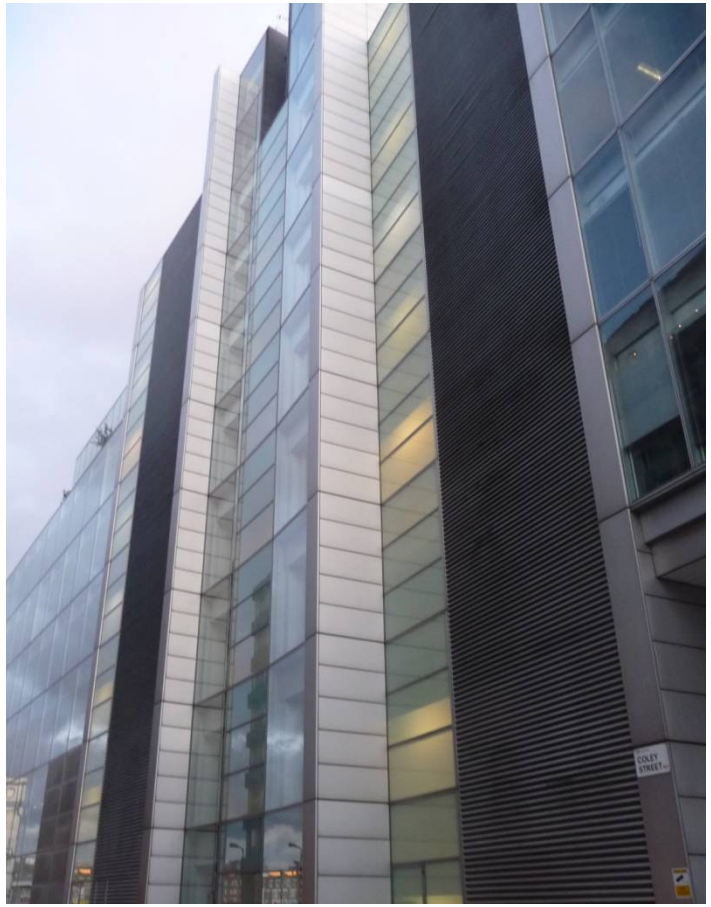
Address of building	40rty building 3-5 Plough Place London EC4
Date of independent inspection	October 2007
Use of building	Offices
Date of construction	2000
Environment	Urban – Quiet street – Centre of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames – Solid panels
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Anolok II blue-grey 715
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	27.4 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 7 years service life. No visible evidence of corrosion. No discernable colour change.

Two London Bridge
Southwark
London SE1

Address of building	Two London Bridge Southwark London SW1
Date of independent inspection	October 2007
Use of building	Offices
Date of construction	1997
Environment	Urban – Adjacent to the River Thames – Centre of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames – Solid panels
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Anolok II Pale blue-grey B 711
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	27.8 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 10 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment. No discernable colour change.

Enford House
191 Marylebone Road
London NW1

Address of building	Enford House 191 Marylebone Road London NW1
Date of independent inspection	November 2008
Use of building	AMV – BBDO offices
Date of construction	1990
Environment	Urban - High traffic density
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames – Solid panels
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Description of anodic colour and treatment	Clear Anodising
Anodic film layer on date of independent inspection (microns)	28.6 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 18 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment.

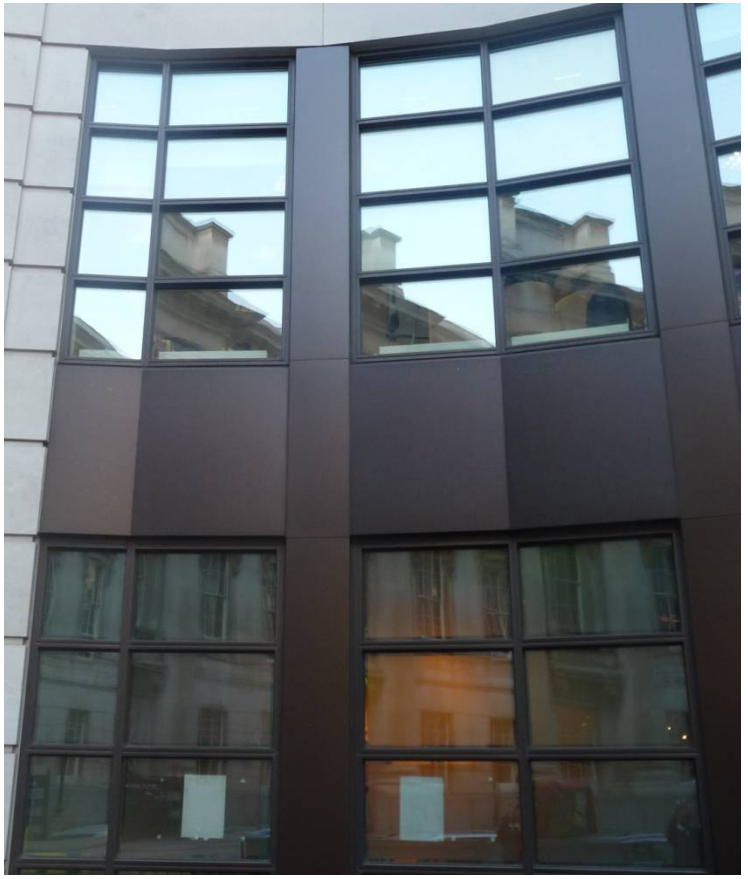


ITN Headquarters
200 Grays Inn Road
London WC1

Address of building	ITN Headquarters 200 Grays Inn Road London WC1
Date of independent inspection	November 2008
Use of building	Television news company offices
Date of construction	1990
Environment	High traffic density – centre of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Façade : Window frames – Solid panels Louvers : sheets
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Clear Anodising
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications) for façade Not determined for louvers
Anodic film layer on date of independent inspection (microns)	28.7 µm on façade elements; 22.7 µm on louvers
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 18 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment. Some minor colour differences between panels remain visible due to variations in the base metal supplied by the customer for anodising, which was not in accordance with the recommendations of LHT Anodisers.

RBS – Aldgate Building
(ex. Sedgwick centre)
Whitechapel High Street
London E1

Address of building	RBS – Aldgate Building (ex. Sedgwick centre) Whitechapel High Street London E1
Date of independent inspection	November 2008
Use of building	Bank offices
Date of construction	1977
Environment	High traffic density – financial district of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames – Canopy – Solid Panels
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Anolok I - Dark Bronze – 547
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	28.6 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 31 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment. No discernable colour change.



Investec – RBS Building
2 Gresham street
London EC2

Address of building	Investec – RBS Building 2 Gresham street London EC2
Date of independent inspection	November 2008
Use of building	Bank offices
Date of construction	1996
Environment	London centre - High traffic density
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames
Type of anodising	Batch
Anodiser	United Anodisers: Heywood Metal Finishers, Huddersfield
Description of anodic colour and treatment	Anolok I Dark Bronze -547
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	29 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 12 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment. No discernable colour change.

The Panoramic-Rivermill House
152 Grosvenor Road
London SW1

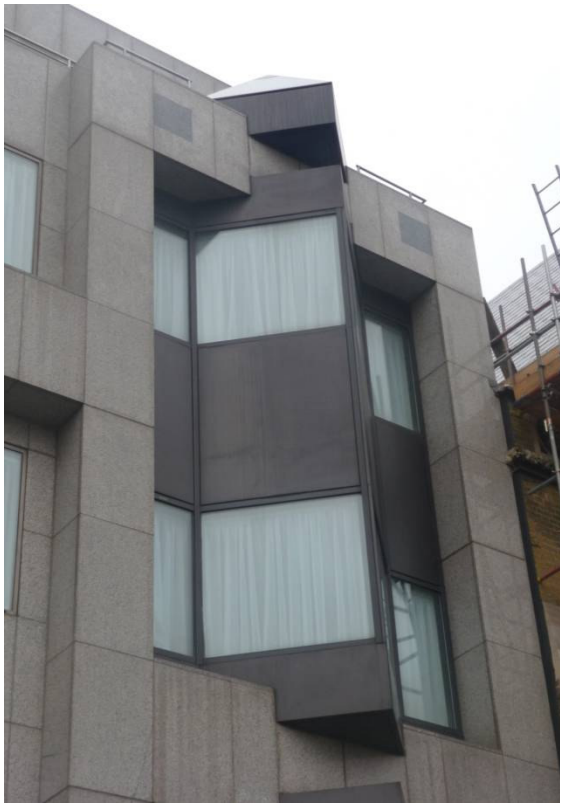
Address of building	The Panoramic-Rivermill House 152 Grosvenor road London SW1
Date of independent inspection	November 2008
Use of building	Residential
Date of construction	1999
Environment	Adjacent to the river Thames - Centre of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames – Solid Panels
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Anolok I - Light bronze 541 and dark bronze 547
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	No accessible for measurement
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 9 years service life. No visible evidence of corrosion notwithstanding high density polluted urban environment. No discernable colour change.

Felixstowe Leisure Centre
Undercliff Road West,
Felixstowe, Suffolk

Address of building	Felixstowe Leisure Centre Undercliff Road West, Felixstowe, Suffolk
Date of independent inspection	November 2008
Use of building	Leisure centre
Date of construction	1988
Environment	Marine – Sea front – North Sea coast
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Sandalor Red C62/2
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	29.1 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 20 years service life. No visible evidence of corrosion notwithstanding marine environment. No discernable colour change.

Ex. Olau Line Offices
Port of Sheerness
Sheerness , Kent

Address of building	Ex. Olau Line Offices Port of Sheerness Sheerness, Kent
Date of independent inspection	November 2008
Use of building	Shipping line offices
Date of construction	1985
Environment	Marine – Harbour front - Industrial – English Channel coast
Evidence of regular cleaning or maintenance	No (disaffected since 1994)
External parts of building which were anodised	Window frames – Sheets (curved)
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Sandalor Turquoise C63/3
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	28.1 µm
Visible signs of corrosion or surface degradation	Very limited in a single place – all other materials in the neighbourhood are severely corroded
Conclusion	No deterioration in anodic film protection after more than 14 years service life. Small isolated area of corrosion. Front line marine environment. No discernable colour change.



Premier Inn
24 Prescott Street
London E1

Address of building	Premier Inn 24 Prescott Street London E1
Date of independent inspection	November 2008
Use of building	Hotel
Date of construction	1988
Environment	Quiet street – Financial district of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Flat and curved panels
Type of anodising	Batch
Anodiser	United Anodisers : LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Anolok I Light bronze 541 Anolok II Dark blue-grey 717
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	30.5 µm (only measured on bronze)
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 19 years service life. No visible evidence of corrosion . No discernable colour change.

Abbey National Building
21 Prescott Street
London E1

Address of building	Abbey National Building 21 Prescott Street London E1
Date of independent inspection	November 2008
Use of building	Offices
Date of construction	1989
Environment	Quiet street – Financial district of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Sheets (Bronze) Windows frame (Sandalor)
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Description of anodic colour and treatment	Anolok I Light bronze 543 Sandalor Turquoise C 63/3
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	27.5 µm (bronze) 30.5 µm (turquoise)
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 19 years service life. No visible evidence of corrosion . No discernable colour change.

12 Arthur Street
London EC4

Address of building	12 Arthur Street London EC4
Date of independent inspection	November 2008
Use of building	Prestigious office complex
Date of construction	2003
Environment	Urban – Centre of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames – Sheets
Type of anodising	Batch
Anodiser	United Anodisers: Heywood Metal Finishers, Huddersfield
Description of anodic colour and treatment	Anolok I Bronze 547
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	28.5 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 5 years service life. No visible evidence of corrosion. No discernable colour change.

60 Gracechurch Street
London EC3

Address of building	60 Gracechurch Street London EC3
Date of independent inspection	November 2008
Use of building	Pharmacy + offices
Date of construction	1997
Environment	Urban – Centre of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Window frames – Extrusion sections
Description of anodic colour and treatment	Anolok I Bronze 545
Type of anodising	Batch
Anodiser	United Anodisers : LHT Anodisers, Uxbridge
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	27.4 µm
Visible signs of corrosion or surface degradation	None
Conclusion	No deterioration in anodic film protection after 11 years service life. No visible evidence of corrosion . No discernable colour change.

Bishop Square
London E1

Address of building	Bishop Square London E1
Date of independent inspection	September 2008
Use of building	Patisserie
Date of construction	2005
Environment	Urban – Centre of London
Evidence of regular cleaning or maintenance	No
External parts of building which were anodised	Tubes - Panels
Description of anodic colour and treatment	Sanodal – Orange 3LW
Type of anodising	Batch
Anodiser	United Anodisers: LHT Anodisers, Uxbridge
Original anodic film layer on anodised parts (microns)	Class 25 µm (AASC specifications)
Anodic film layer on date of independent inspection (microns)	Not accessible for measurement
Visible signs of corrosion or surface degradation	None
Conclusion	No visible evidence of corrosion or discoloration after 3 years service life in urban environment. No discernable colour change.