IAN FIRTH

BSc, MSc, DIC, CEng, FREng, FICE, FIStructE, HonFRIBA

Bridges and Structural Engineering

Contact:
email ian@ianfirth.com
phone +44 (0)7840 047738

Employment:

2018 – present	Ian Firth Structural Engineering
2017 – 2018	Technical Director, COWI (UK) Ltd
2008 – 2016	Director, Flint & Neill Ltd (a COWI Company)
1990 – 2008	Partner, Flint & Neill Partnership
1979 – 1990	Engineer, Flint & Neill Partnership

Education:
BSc. University of Bristol. 1979
MSc, DIC. Imperial College of Science and Technology. 1982

Professional Affiliations:
Fellow of the Royal Academy of Engineering, FREng. 2007
Fellow of the Institution of Civil Engineers, FICE. 1998
Fellow of the Institution of Structural Engineers, FIStructE. 2000
Honorary Fellow of the Royal Institute of British Architects. HonFRIBA, 2018

Appointments:
President, Institution of Structural Engineers, 2017.
Chairman, British Group, International Association for Bridge & Structural Engineering, 2013 – ongoing.
Trustee, Bridges to Prosperity UK Charitable Trust, 2014 - ongoing. (Chairman 2014 – 2020)
Royal Academy of Engineering Visiting Professor, Warwick University, 2018 – ongoing.

Career Summary:
Ian Firth has over 42 years of experience in the design, assessment and structural investigation of a wide variety of bridges and other structures. These include some highly complex and challenging projects, and range from very long suspension and cable stayed bridges, such as the Messina and Stonecutters Bridges, to much smaller but unique and unusual structures, such as the Bridge of Aspiration, Lockmeadow Footbridge and Taplow Bridge for example. He has developed a reputation as one of the world's leading bridge designers and strongest advocates for achieving quality and elegance in bridges and infrastructure.

Ian obtained most of his professional experience with Flint & Neill, the world-famous engineering consultancy, becoming a Partner in 1990 at the age of 34. He helped to develop the practice's bridge design capability, leading to success in hard-fought international design competitions like the Poole Harbour Crossing (1997) and Stonecutters Bridge (2001). He was jointly responsible for steering the firm towards joining COWI in 2008, whereupon he became Chief Operating Officer of the new entity. Since then, he has continued to direct the designs, independent checks and structural assessments of bridge projects, large and small, around the world.

He is well known for his pioneering work on bridge design, often working alongside leading bridge architects to deliver innovative and elegant design solutions, and is a frequent speaker on the subject, including in his 2018 TED Talk. Ian provides expert, specialist advice to clients on bridge design, construction, operation and maintenance, and participates on jury panels for design competitions.

In addition, Ian also has considerable experience in the design of complex building structures, especially those involving long spans such as stadia and large arenas. Such projects include the refurbishment and extension of London's National Theatre, the O2 Millennium Dome and the London Olympic Stadium.

Selection of Project Experience (with completion dates):

IAN FIRTH STRUCTURAL ENGINEERING

Ongoing FUTURA BRIDGE, UK
Consultant to COWI (UK). Design of new generation of station footbridges for Network Rail, using fibre-reinforced composites as the principal structural material.

Ongoing VYTON RAILWAY BRIDGE, PRAGUE
Consultant to COWI (UK). Assessment of existing historic railway bridge, and feasibility study for options for extension, refurbishment or replacement to achieve extra capacity.

2021 EWHURST PARK STRUCTURES
Assessment and refurbishment of existing masonry bridges and structures for a private client.

2021 UNION CONNECTIVITY REVIEW – IRISH SEA CROSSING FEASIBILITY STUDY
Consultant to COWI (UK). Leader of the technical feasibility study for building a multiple super-long span road and rail suspension bridge for the UK Department for Transport.

2021 SHIZYANG SUSPENSION BRIDGE, GUANGDON PROVINCE, CHINA
Consultant to COWI (UK). Special advisor and peer reviewer for the design of a 2180m main span suspension bridge with a double level girder carrying 16 lanes of traffic.

2020 HIGH SPEED 2 FOOTBRIDGES, UK
Consultant to COWI (UK). Concept design for a set of pedestrian bridges over the HS2 railway.

2020 ABBEY WAY FLYOVER, HIGH WYCOMBE
Review of inspection reports and structural integrity for Wycombe District Council.

2020 GRWYNE FAWR FOOTBRIDGE, UK
Design of suspended granite footbridge in an environmentally sensitive site for a private client.

2020 DUNSMUIR CONNECTOR, VANCOUVER, CANADA
Consultant to COWI (UK). Conceptual design for elevated pedestrian and cycle link.

Ongoing LESOTHO HIGHLANDS WATER PROJECT (PHASE 2), LESOTHO
Consultant to COWI (UK). International Expert advising on design and construction of bridges.

2019 COLNE VALLEY VIADUCT, HIGH SPEED 2 RAILWAY, ENGLAND
Consultant to COWI (UK). Design review of critical stretch of elevated high speed railway.

Ongoing NINE ELMS TO PIMLICO BRIDGE, LONDON, ENGLAND
Consultant to COWI (UK). Design of cable stayed pedestrian and cycle bridge over the Thames.

COWI (UK)

2019 CAMPBELL PARK FOOTBRIDGE, MILTON KEYNES, ENGLAND
Design of unusual 3-way steel pedestrian bridge over the Grand Union Canal.

2019 SECOND HINTERRHEIN BRIDGE, REICHENAU, SIWTZERLAND
Design of award-winning steel twin box girder railway bridge over the upper Rhine.

2019 WATER STREET BRIDGE, CANARY WHARF, LONDON
Design of steel bascule bridge connecting a major new development to Montgomery Square.

2018 TAPLOW BRIDGE, MAIDENHEAD, ENGLAND
Design of multi-award winning 40m slender steel arch footbridge over the River Thames.

2016 DESTRUCTOR BRIDGE, BATH, ENGLAND
Design of 50m steel arch road bridge over the river Avon, in a sensitive World Heritage site.

2016 INNER HARBOUR BRIDGE, COPENHAGEN, DENMARK
Design of 180m opening bridge for pedestrians and cyclists with innovative retractable spans.

2015 OLYMPIC STADIUM TRANSFORMATION, LONDON
Erection engineering to replace existing cable roof structure with new larger lightweight roof.

2015 NATIONAL THEATRE – NT FUTURE, LONDON
Redevelopment of landmark theatre, including new production, front and back stage facilities, and extensive re-configuration of listed structure. Architect: Haworth Tomkins.

2014 GREENWICH SWING BRIDGE, LONDON
Design of award-winning 45m cable stayed swing bridge over Deptford Creek by the Thames.

2012 THE SHED, NATIONAL THEATRE, LONDON
Structural design of temporary theatre, to operate during the main redevelopment works.

2012 WEST GATE BRIDGE, MELBOURNE, AUSTRALIA
Assessment and strengthening of the steel box girder cable stayed bridge and viaduct.

2011 GOODLAND GARDENS MOAT BRIDGE, TAUNTON, ENGLAND
Design of award winning pedestrian bridge with glass deck and balustrade at Castle Green.

2011 MESSINA BRIDGE, ITALY
Design of suspension system for world record 3300 m span road and rail suspension bridge.

2011 THIRD WAY BRIDGE, TAUNTON, ENGLAND
Design of award winning 36m steel tied arch highway bridge across River Tone.

2011 COMPIÈGNE BRIDGE, FRANCE
Design of award winning two-span arch and catenary highway bridge across the river Oise.

2011 PORTH TEIGR BRIDGE, CARDIFF, WALES
Design of unusual bridge dubbed the "Origami Bridge" due to folded plate appearance.

2010 ERSKINE BRIDGE, SCOTLAND
Assessment and strengthening of the 305m span cable-stayed steel box bridge over the Clyde.

2010 FEHMARNBELT LINK, DENMARK - GERMANY
Concept design for 1632m span suspension bridge for road and rail sea crossing. (Unbuilt)

2009 QUEENSFERRY CROSSING, SCOTLAND
Concept and preliminary design of 3-tower cable stayed bridge. (As part of Jacobs/Arup team.)

2009 TAIZHOU SUSPENSION BRIDGE, CHINA
Independent check and specialist advice for 3-tower suspension bridge over the Yangtze river.

2007 PADMA BRIDGE, BANGLADESH
Preparation of Terms of Reference for 5.8km long bridge and associated infrastructure works.

2006 BELGRADE THEATRE, COVENTRY, ENGLAND
Structural design of £7.5m re-development including a new auditorium and rehearsal spaces.

2005 CHACAO CHANNEL BRIDGE, CHILE
Independent design check for three tower steel box girder suspension bridge.

2005 MESSINA STRAIT BRIDGE, STRETTO DI MESSINA SPA, ITALY
Specialist design and construction advice to client for the world's longest suspension bridge.

2004 UNIVERSITY SWING BRIDGE, MALMÖ, SWEDEN
Design of 70m cable-stayed swing bridge over the inner harbour.

2004 CLEDDAU BRIDGE, MILFORD HAVEN, WALES
Assessment and design of strengthening of the 213m span steel box girder bridge.

2003 SAIL BRIDGE, SWANSEA, WALES
Design of award-winning 140m cable stayed pedestrian/cycle bridge over River Tawe.

2003 BARRAGE BRIDGE, SWANSEA, WALES
Design of pedestrian and cycle crossing of the River Tawe tidal barrage.

2002 BRIDGE OF ASPIRATION, COVENT GARDEN, LONDON
Design of award-winning link between the Royal Opera House and Royal Ballet School.

2001 HALGAVOR BRIDGE, BODMIN, CORNWALL, ENGLAND
Design of award-winning 47m fibre reinforced polymer suspension footbridge over A30.

2001 STONECUTTERS BRIDGE, HONG KONG.
Competition winning conceptual design of the award-winning cable stayed highway bridge.

1999 KENT MESSENGER MILLENNIUM BRIDGE, MAIDSTONE, ENGLAND
Independent design check of an unusual cranked stressed ribbon bridge over the Medway.

1999 LOCKMEADOW FOOTBRIDGE, MAIDSTONE, ENGLAND
Design of award-winning 90m cable-stayed aluminium bridge over the River Medway.

1999 TING KAU BRIDGE AND APPROACH VIADUCTS, HONG KONG
Independent design check and construction supervision of cable stayed bridge and viaduct.

1998 MILLENNIUM DOME (O_2 ARENA), LONDON
Independent design check of the entire large circular dome structure.

1997 POOLE HARBOUR CROSSING.
Competition-winning design for a 700m multi-span cable stayed bridge. (Unbuilt)

1997 KAP SHUI MUN BRIDGE, HONG KONG
Independent design check for 430m span steel composite cable-stayed bridge.

1997 TSING MA BRIDGE, HONG KONG
Independent design check for the 1377m suspension bridge carrying both road and rail traffic.

1990 WYE BRIDGE AND BEACHLEY VIADUCT STRENGTHENING, ENGLAND-WALES.
Assessment and design of strengthening to steel box girder cable stayed bridge and viaducts.

Publications:

Publications list (over 35 technical papers) available on request