

FABIO BRANCALEONI

GENERAL DATA

Born

Nationality

Education

Degree in Civil Engineering, University of Rome "La Sapienza", 1974
Chartered Engineer, Province of Rome, n. 9732, 1976

Languages

English: excellent (Proficiency BC, RMA level II)
French and German: High School level

Expertise

Long span bridges
Steel and prestressed concrete bridges and viaducts
Large structures, underground structures
Seismic and wind engineering, special engineering problems, computational mechanics
Structural health assessment and diagnostics
Proof engineering, load testing, experimental testing and NDT for bridges and structures
Arbitration and expert witnessing for structural engineering

ACADEMIC QUALIFICATION

Appointments

Full professor of Structural Engineering since 1990, retired 2019. Associate Professor of Structural Engineering since 1988, Research Engineer since 1981. Last appointment at University of Rome TRE, previously at University "G. D'Annunzio", Pescara and at University "Sapienza" in Rome. In 1977-78 Research Fellow at University of Manchester Institute of Science and Technology. Expert member of the High Council of Public Works, former member of the committee for the preparation of the Italian National Constructions Codes.

Courses

Chair of "Scienza delle Costruzioni", in his career gave courses of Bridges at University of Rome "Sapienza", courses of Structural Design, Structures and Materials Mechanics, Strength of Materials at University of Rome TRE, courses of Strength of Materials at University "G. D'Annunzio". Before professorship participated to courses on Bridges, Structural Dynamics, Theory of Structures, Strength of Materials at University "Sapienza" and of Strength of Materials at University of Manchester Institute of Science and Technology. After retirement still gives a course on Bridges at University "Sapienza", Rome

Research

Author of over one hundred scientific papers, most published internationally, on themes of structural dynamics, long span suspension and cable stayed bridges, identification and structural diagnostics, computational mechanics, seismic engineering.

MAIN PROFESSIONAL EXPERIENCES & SELECTED PROJECTS

Selected projects, participation either as independent consultant or as Partner of E.D.IN. Ltd. Consulting Engineers, that prof. Brancaleoni founded in 1981.

*Long Span
Bridges*

- Santos-Guaraya **suspension bridge**. Sao Paulo, Brazil, main Client ECORODOVIAS, in progress.
- Final design and detailed design, 1120 m span **suspension bridge on the Danube River, Braila, Romania**, Client Astaldi-IHI Association, in progress.
- Over the shoulder design review, **New Gerald Desmond cable stayed bridge**, Long Beach, US, Main Client Shimmick-FCC-SaliniImpregilo JV, 2018
- **Windsor Road prestressed concrete cable stayed** Rail Bridge, Sydney North Rail, **Australia**, design review, consultancy for erection stages, Client Salini Impregilo JV, 2017.
- Road and rail **cable stayed bridge on the river Congo**, main span 200 m, design review, Economic Community of Central Africa States, 2017.
- **Hisgaura river prestressed concrete cable stayed bridge**, main span 400 m, Colombia, design review, Client Sacyr Colombia, 2017.
- Feasibility study and tender design, 1120 m span **suspension bridge on the Danube River, Braila, Romania**, Client the Romanian Highway Authority, 2015.

- Crossing of the **Sulafjorden, Norway**, part of the E39 project. Concept design of a suspension bridge alternative with 2800 m main span, that would become the largest in the world. Client MULTICONCONSULT, Oslo, Main Client Statens Vegvesen, Norway, 2015.
- PNW LNG project, Canada, 1200 m span **Lelu Island Suspension bridge**, consultancy and alternative concept design for bid preparation, client Technip Italy Inc., 2014
- **Izmit Bay Crossing**, consultant for COWI for the detailed design of the 1550 m suspension bridge, main Client IHI/NOMAYG, 2012.
- Feasibility analyses for two 2200 m span road and rail **suspension bridges, Sunda Strait Crossing**, 1996/2009/2012, Client Stretto di Messina Inc.
- **Messina Strait Bridge**, participation to feasibility analyses (1974-1979 and 1982-1986), concept design (1987-1992), tender design (2002), Client Stretto di Messina Inc, G.P.M. Inc. Consultant to the contractor Eurolink Inc. and to COWI Inc. for the final design (2006-2011). The bridge, main span of 3300 m, would become the largest in the world.
- **Fehmarnbelt Crossing** from Germany to Denmark through the Baltic Sea, comprising two 900 m road and rail cable-stayed bridges, member of the International Review Board for the preliminary design, Client Femern A/S, 2009.
- **Stonecutters Bridge**, Hong Kong, member of the design review board, 2002-2003. The bridge, main span of 1024 m, was when erected the second longest cable stayed span in the world. Client OVE ARUP & partners Hong Kong – COWI Consulting Engineers – BMT Asia Pacific.
- **Storebaelt Crossing**, Denmark, tender design of access viaducts (winner) and main bridge, Client CMF Sud Inc., 1991. The bridge, main span of 1624 m, is the largest in Europe. Consultancy and arbitration for construction, Client Coinfra Inc., 1995. Formerly consultant to Storebaelt A/S for the preparation of the tender design, 1989-1990.
- Collaboration with Dr. William C. Brown for studies comprising suspension bridges on the Rion-Antirion crossing, Dardanelles Straits, Java to Bali crossing, third Bosphorus crossing, Izmit Bay, 1986-2003.
- Collaboration with the main designer prof. M.P. Petrangeli for numerical analyses of the **prestressed concrete railway cable stayed Bridge on the Po River**, Milan-Bologna High Speed Line, 1995, for the **prestressed concrete cable stayed Bridge on the Uadi Dib** and for the rehabilitation design of the **prestressed concrete cable stayed Wadi Kuf bridge** by prof. Riccardo Morandi, 1994.
- Second **suspension Bridge on the Bosphorus**, span 1010 m, 1986-1990, semi permanent monitoring, Client Stretto di Messina Inc., collaboration with Dr. William C. Brown for the erection stages and catwalk structure analyses.
- Research project on the aerodynamic stability in erection of the **Humber suspension Bridge**, 1977-1978, at University of Manchester Institute of Science and Technology. The Humber Bridge, main span 1410 m, was the largest in the world from 1981 to 1998.
- Numerical analyses for the construction design for the **Kirumi cable stayed** bridge, Tanzania, Client GSLE Inc., 1985.
- Consultant or designer for international tenders, not awarded or suspended: **Chacao Suspension Bridge**, JV with RAMBOLL A/S, main client Salini Impregilo 2013, **arch bridges** on the Etihad motorway, UAE, Client Impregilo-Samsung-Tristar JV, 2013; **3rd Bosphorus Crossing** (Development of concepts for the 1400 m span road and rail **suspension bridge**, Client Impregilo 2011); 550 m span road and rail **cable stayed** bridge & access viaducts for the **3rd Tagus crossing** (Client Tavetejo Consortium, 2008-2009); **prestressed concrete cable stayed** bridge and steel truss bridges, **RN 77 motorway, Algeria** (Client Condotte ; 610 m span steel **arch** bridge for the **6th Dubai Creek Crossing** (Client Impregilo-Cimolai JV, 2007); two **cable stayed** bridges and 30 composite or prestressed concrete viaducts on the **Ragusa-Catania motorway** (Client Condotte Inc., 2007); access viaducts and 490 m span **cable stayed** bridge on the **Oresund** (Alternative design development, 1995, Client CMF Sud S.p.A. and Burmeister & Wein A/S),.

Pedestrian bridges

- Two **pedestrian steel arch bridges**, Metro Napoli, Cavour and Montesanto Stations, main client RFI Inc., in progress
- **Pedestrian bridge on the Tiberina Road**, Archaeological Park of Lucus Feroniae, Client Soprintendenza ai Beni Archeologici della Regione Lazio, 2014.
- **Pedestrian bridge "Ponte della Scienza"** on the Tiber River, Rome, Client Municipality of Rome, design (2005) & work supervision, 2015.
- **Pedestrian stress ribbon suspension bridge** on the Aniene River, Rome. Features an innovative deck fabricated with stainless steel thin coils instead of strands or ropes. Client Romametropolitane Inc., 2010.
- Preliminary design of a stainless steel **pedestrian cable stayed bridge on the Tiber River**, Rome, Aventino-Porta Portese crossing, 2004, Client Risorse per Roma Inc..
- Structural design of a pedestrian bridge in **Manziana**, Rome, Client Municipality of Manziana, 2004-2007.
- Design of three **pedestrian bridges in historical areas in Rome**, 1999-2000, winner of international design contest, Client Municipality of Rome. One of the bridges, on via degli Annibaldi, has been built.
- Preliminary design of a pedestrian bridge on the **Mugnone River**, Florence, Client Italferr Inc., 2000.
- Tender design of a pedestrian bridge at the **Giachery Station**, Palermo urban railway, Client Italferr Inc., 1999.
- Design and work supervision of a **pedestrian bridge on the Temo River**, historical town of **Bosa**, Sardinia, Client Municipality of Bosa, 1997-2004.

Road and rail bridges

- **New Polcevera bridge** to replace the collapsed "Morandi" bridge, consultancy, Main Client PERGENOVA Scpa and FINCANTIERI Inc., Genoa, Italy, in progress.
- **Major prestressed concrete and composite road bridges** on a variety of roadway projects, maximum span 120 m, Main Client ANAS, in progress.
- Major **railway bridges, Palermo-Catania** line, Italy, Italy, Main Client Italferr, in progress..
- **Seismic upgrading of ten prestressed concrete railway viaducts on the Ferrandina Matera** line. First application of seismic isolation techniques for a rail bridge in Italy. Consultancy, main Client Italferr, Matera, Italy, 2019.
- Major **prestressed concrete railway bridges** on a variety of railway lines in Italy, Italy, Main Client Italferr, 2017.
- **"Landbridge" project for a railway line from Jeddah to Ryadh, Sauti Arabia**, design of prestressed concrete viaducts and of an concrete arch bridge of 200 m span, Client Italferr Inc., 2015.
- **High Speed Railway viaducts and cut and cover tunnels** for the Padova Mestre line, Client CEPAV 2, 2015.
- **Lift Bridge on the Fossa Traiana**, Fiumicino, Rome. Features an innovative stainless steel orthotropic plate deck. Client Fiumicino Municipality, 2012-1013.
- Concept design for the crossing of the **Santos Harbour** entrance, comprising a **300 m span concrete arch** and a **300 m span steel truss moving bridge** alternative. Client Consorcio Sierra do Mar, 2011.
- Road and rail **Pantano viaduct** for the Messina bridge access, orthotropic steel plate & composite construction, Client SINA Inc., 2010-2011
- Composite viaducts for the **A1 motorway**, Italy, Clients Vianini Inc. & Toto Inc., 2008-2010.
- Participation to several projects for the upgrading of the **Salerno-Reggio Calabria A3** motorway, main Client ANAS Inc., comprising tender design of thirty bridges and viaducts with the **Ruiz steel arch bridge** (DG10/04), tender and construction design of ten composite and steel bridges (Dg1/00, 2002), consultancy for orthotropic plate steel bridges, among which the **Italia viaduct, the Sfalassà viaduct, the Tanagro and Petroso viaducts**, and for the **Favazzina** cable stayed bridge (2000-2007).
- New **arch bridge on the Tronto River**, Ascoli Piceno, Italy, Client Municipality of Ascoli, 2007.
- Construction design of substructures for the new **Ring Road Bridge on the Tiber River** 2005, Client Tiber Consortium.

- Independent checking of steel suspended **arch & cable-stayed bridges** by Santiago Calatrava in Reggio Emilia, Client ITALFERR Inc., 2004.
- **Lift Bridge on the Candiano Canal**, Ravenna, 2004, Client Ravenna Harbour Authority.
- Tender and construction design of twenty composite viaducts and two **arch bridges** on Fiumarella river for the **Ionica SS 106** Highway, 2004-2006, main Clients ANAS Inc. and Astaldi Inc.
- Engineering services and consultancy for several **railway bridges**, Client Italferr S.p.A., 1997-2015 (among others lines Voltri-Brignole, Bologna-Verona, Termoli-Lesina, La Martella-Venusia, Messina-Palermo, Caserta-Foggia, Turin node). Mayor bridges comprise three steel bridges on the Biferno River, a multiple **arch masonry bridge** on the Polcevera River, Genoa, a bridge on The Dora River, Turin, the Bridge-Station on the Impero River, Imperia.

Other projects

- Consultancy for the state assessment of the lockhead reinforced concrete structures, **The Third Set of Locks, new Panama Canal**, Client GUPC Consortium, Panama, 2016.
- Consultancy for the state assessment of the Pond Creek railway viaduct, **Sydney North Rail** project, Australia, Client Salini Impregilo Inc., 2016.
- Consultancy for the evaluation of the effects of settlements cause by the new high speed railway tunnel boring on **historical buildings in Florence**, Client NODAVIA, 2015
- State assessment of the Aciliu viaduct, **Romania**, Client Salini Impregilo inc., 2015.
- Independent check of the structural design for the new **Niarchos Foundation Centre** Canopy, Athens, Greece, Client Impregilo-Terna, 2015.
- Evaluation of explosion effects, **Femern road and rail tunnel**, Germany-Denmark, consultancy for bid preparation, Client Salini Impregilo, 2014.
- **Mausoleum of Augusto Imperatore**, structural design for the new layout of the area, architect F. Cellini, Client Municipality of Rome, 2015.
- Consultancy for the independent check of the construction design, **Rome Underground, C Line**, including effect of settlements on **monumental buildings in Rome**, among which the Colosseum, Basilica di Massenzio, Aurelian Walls, Client Romametropolitane Inc., 2007 - 2012.
- Consultant for the seismic design of the steel Lock Gates of the **new Panama Canal**, Client GUPC Consortium, 2009-2012.
- Buildings in **L'Aquila**, Italy, following the April 6th 2009 earthquake, comprising temporary structures for the Sanctuary of SS Massimo and Giorgio, the "Duomo" and the Curia Palace, rehabilitation design Church of Santa Maria del Suffragio, called of the "Anime Sante. Client the Special Commissioner for Monumental Buildings. 2010-2012.
- Structural design for the re-use of the **Colonna Palace**, Colonna, Rome, Italy, 2012.
- Construction design of underground structures for the **Maldonado** hydraulic works, Buenos Aires, Argentina, Client Ghella Inc., 2008-2011.
- Seismic evaluation and monitoring of about 40 buildings and bridges, "**Seismic Observatory of Public Structures**" project, Client Servizio Sismico Nazionale, Italy, 2003 – in progress.
- Preliminary design for concession, winner, **Rome Underground, D Line**, Client JV Condotte-Pizzarotti, 2007.
- Structural design of the **S. Pio da Pietralcina Sanctuary**, Rome, Client Vicariato di Roma, 2007.
- Final and construction design, new **Town Library, underground parkings, station and services buildings, new Town Park**, Pescara, Client TOTO Inc., 2006.
- Structural design for the University campus at the **Ex Mattatoio, Testaccio**, Rome, Client University of Rome TRE, 2007.
- Structural design for re-use of the former **Rome Maritime testing complex as University campus**, Client University of Rome TRE, 2006.
- Structural design for the New **Library of the Literature Faculty**, Perugia, Client University of Perugia, 2004.
- Upgrading of r.c. structures with **carbon reinforced polymers**, comprising the **New Rome Auditorium, SS 1 Flyover, Roofs of industrial facilities** in Rome. Client MAC Inc. and Freyssinet Italia Inc., 2000-2002
- Tender structural design for the University Campus at **ex AURUM complex**, Pescara, 1995, Client University "G. D'Annunzio", Chieti-Pescara.

*Proof
Engineering,
Arbitration,*

- Consultancy on **state assessment procedures of bridges and viaducts**, A4, A5, A6, A10, A12, A15, A21, A31, A32 motorways, Italy, SIAS Group, Main Clients the Concessionaires, in progress.
- **Collapse of prestressed concrete road flyover, A14 Motorway**, Italy, expert witness, in

*Expert
Witnessing*

- progress.
- Expert witness for claims concerning the seismic Design Basis for the **The Third Set of Locks, new Panama Canal**, Client White & Chase International Lawyers, Paris Branch, in progress.
- Proof engineering for the new Madonna del Monte viaduct, Savona-Torino motorway, Main client Autostrada dei Fiori Inc., 2020
- **New Riyadh Metro Station**, Saudi Arabia, expert witnessing on prestressed concrete walls, Client CWG JV, 2019.
- **Proof engineering, Monza road cut and cover tunnels**, expert witnessing, Client SaliniImpregilo, 2019.
- **Farma Viaduct**, Italy, expert witnessing on the collapse of prestressed concrete bridge beams at disassembling, Client Strabag Inc., 2018.
- **Gerald Desmond cable stayed** bridge, expert witness on deck design, Los Angeles, USA, Client Musick Peeler International Law Firm, 2017.
- Expert witnessing and independent materials proofing ("*Alta Vigilanza*") for the **Civitavecchia Harbour extension works**, Italy, Client the Port Authority, 2017.
- **Collapse of wall structure, Civitavecchia Harbour, Italy**, expert witness for the Port Authority, 2018.
- **Collapse of "Scorciavacche" embankment, Sicily, Italy**, expert witness, 2017.
- **Collapse of viaduct in Fossano, Italy**, expert witness for the Ministry of Infrastructures, 2017.
- **Collapse of one span of the "Italia" viaduct, A3 motorway, Italy**, expert witness, 2016.
- Expert witness for the structural health assessment of the **New Fiera di Roma** complex, Italy, 2015.
- Expert witness for the High Tribunal of Rome ("*Corte d'appello*") for the state assessment of buildings subject to foundation settlements, Via Calcutta, Rome, Italy, 2015.
- Expert witness for the Tribunal of Rome for the structural health assessment of the Bari **Tribunal building**, 2013.
- Seismic assessment of the **Guardiagrele Hospital**, Chieti, Italy, 2012.
- Expert witness, Tecnimont against Immobiliare Novoli procedure, **Florence**, Italy, Client the Arbitration Tribunal, 2009 - 2011.
- Proof Engineer for two aluminium and stainless steel geodetic domes of 150 m span, **Torrevaldaliga Electric Power Plant**, Client the National Power Authority (ENEL), 2006-2009.
- Proof Engineer for the **High Speed Milan-Bologna Railway Modena viaduct**. Comprises 400 spans in six viaducts and four continuous span bridges, Client T.A.V. S.p.A., 2004-2009.
- Structural health assessment for the **"Le Torri" University complex**, Client University of Roma TRE, 2007
- Proof Engineer for nine viaducts of the **High Speed Rome-Naples Railway**. Client T.A.V. S.p.A., 1998-2005.
- Arbitration at the Paris International Chamber for the SDEM against IRITECNA procedure related to claims for the **Storebaelt crossing** access viaducts, Client IRITECNA Inc., 1995-1997.
- Expert witness at the Lazio Administrative Tribunal for procedures related to tender of the Appennine by-pass of the **A1 motorway**, Client Vianini Lavori Inc., 2006-2007
- Expert witness at the Lazio Administrative Tribunal for procedures related to tender of the DG/48 segment of the **Salerno-Reggio Calabria motorway**, Client Pizzarotti Inc., 2007.
- Expert witness for the assessment and rehabilitation measures of tunnels of **the High Speed Railway Rome-Naples** subject to cracking phenomena, 2002, Client IRICAV UNO.
- Expert witness for the assessment of collapse strength of prestressed concrete railway bridge pre-cast beams, **Rome-Naples High Speed Line**, Client Italferr Inc., 2000.