

# BACKGROUND AND EXPERTISE

**Eur Ing Professor John Roberts Hon DSc Hon MIET**

BSc(Eng), PhD, CEng, FIStructE, FICE, FIMS, FCMI, FICT, FRSA.

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## PERSONAL DETAILS

Name	Professor <b>ROBERTS</b> , John James	
Date of Birth	26 <sup>th</sup> March 1947	
Degrees	Batchelor of Science (Engineering) -Civil Engineering Doctor of Philosophy	
Professional Qualifications	Chartered Engineer FEANI Registered European Engineer Fellow Institution of Structural Engineers Fellow Institution of Civil Engineers Fellow International Masonry Society Fellow Chartered Management Institute Fellow of the Institute of Concrete Technology Fellow Royal Society of Arts	
Honorary Distinctions	Doctor of Science Member of the Institution of Engineering and Technology Henry Adams Bronze Medal - Institution of Structural Engineers.	
Career Progression	2005 to Date	Principal -Technical Innovation Consultancy
	1992 - 2005	Dean of Faculty of Technology Kingston University
	1988 - 1992	Mowlem Professor and Head of School of Civil Engineering Kingston University
	1987 - 1988	Head of Technical Marketing and Standards BCA
	1983 - 1986	Manager- Building Group C&CA
	1974 - 1983	Head of Section C&CA
	1972 - 1974	Senior Research Engineer C&CA
	1969 - 1972	Research Engineer C&CA

## **Introduction.**

Professor Roberts is an independent consultant and the Principal of the Technical Innovation Consultancy which specializes in supporting innovation in construction. Recent and current projects include:

- The development of design and construction guidance for insulated concrete formwork systems
- The development of new design guidance on Basements for Houses and production of an updated Approved Document
- The development of new guidance on the use of steel fibre reinforcement in concrete
- The production of new “How to design” guides for the Concrete Centre
- The production of design information for the introduction of innovative methods of construction such as low density Aircrete and thin joint mortar.
- Reviewing product assessment methods for Agrément purposes
- Assessment of concrete products for a notified body
- The production of the Structural Eurocodes Guide for Students on behalf of BSI.
- Support for the development of an E-learning package on the Eurocodes for the International Development Division of BSI.

He is a CEDR accredited mediator and has participated in mediations to resolve construction, property, software and other technical disputes. He serves as Chairman of the Examinations committee of the Institute of Concrete Technology, is a Council member of the International Masonry Society and serves on various BSI committees. An academic role is maintained as Emeritus Professor of Civil Engineering at Kingston University and Visiting Professor to the department of Civil Engineering at Surrey University.

## **Work as an expert witness.**

Professor Roberts has completed over 40 expert reports and has presented expert evidence and been cross examined in the Technology and Construction Court. Examples of expert work completed include:

- A dispute over the quality of readymixed concrete supplied for use with an Insulating Concrete Formwork System.
- Investigation of water leakage through basement walls.
- Investigation of mortar failures in masonry construction.
- Investigation of cracking of masonry walls.
- Investigation of the failure of system built houses.
- Determining the cause of a precast concrete cladding failure.
- Investigating colour change problems with facing masonry.
- Investigating major efflorescence problems with a proprietary masonry unit.
- Assessment of performance aspects relating to an imported cement.
- Determining the cause of problems with a cast stone building.
- Evaluation of the design of a reinforced masonry basement.
- Assessment of manufacturing facilities at a precast concrete works
- Investigation of the condition of system built houses
- Investigation of wall tie failure

## Publications

He is co-author of *Design and Construction using Insulating Concrete Formwork*, the *Concrete Masonry Designer's Handbook*, the *Handbook to BS 5628 Part 2, Efficient Masonry Housebuilding Design Approach*, *Efficient Masonry Housebuilding Detailing Approach*, the *Design Guide for Eurocode 6*, *The Essential Guide to Eurocodes Transition* and the *Students Guide to the Eurocodes*. He has published over 130 papers related to various aspects of design and construction.

## Research

Recent research includes various aspects of the design and construction of basements for dwellings. He is the author of the Basement 2 report published by the British Cement Association and received funding for two "Partners in Innovation" research programmes looking at the design of plain masonry basement walls for houses and a research programme funded by the Readymixed Concrete Industry on the design of plain concrete basements. This work included the drafting of additional clauses for the Approved Document for Basements. Other PII research has looked at Masonry Diaphragm Wall Technology. EPSRC has supported projects on prefabrication and low density Aircrete and an industry supported programme has looked at the thermal performance of walling.

## Professional activities

Professor Roberts has extensive experience of work on British Standards and Codes of Practice and is a member of the BSI head committee for Eurocodes. He currently chairs the UK panel for Eurocode 6 (Masonry) and is closely involved in the development of the European standards for masonry materials. He is a past President of the International Masonry Society. He was a member of the General Engineering panel for RAE 2007 and was a member of the General Engineering panel for RAE 2001 and the EPSRC peer review college.

## Experience

Before establishing the consultancy Professor Roberts was Dean of the Faculty of Technology and Director of the Sustainable Technology Research Centre at Kingston University. The Faculty of Technology had around 200 staff and over 3000 students and generated a total income around £25M. The Faculty operated substantially as an autonomous unit of the University and he was responsible for all aspects of its performance. A number of externally funded activities were undertaken and the mission of Kingston University to work closely with industry was strongly supported by the Faculty. Throughout his period as a member of the University Executive he spent around 30% of his time supporting research and representing the UK in the development of European and International Codes and Standards. He established and led the Sustainable Technology Research Centre at Kingston. Representational roles included:

- Council Member and Past President of the International Masonry Society
- Chairman, CEN(European Committee for Standardization) TC125/WG1/TG4 (European Masonry Standard for Autoclaved Aerated Concrete)
- Chairman British Standards Institution Committee B525/6/102
- Chairman, British Standards Institution Committee B519/1(U.K. input to European Masonry Unit Standards)

- Member British Standards Institution Committee B525(U.K. input to the 10 Structural Eurocodes)
- Chairman of the Office of the Deputy Prime Minister, Department of Trade and Industry and Engineering and Physical Sciences Research Council masonry research advisory committee.
- Member Masonry Industry Alliance Management Committee
- Member of the Research Assessment Exercise panel for General Engineering in 2001 and 2007.
- Engineering and Physical Sciences Research Council college member
- Member, Higher Education Funding Council review group for Engineering in London.
- Chairman of the University Investment and Re-structuring fund.

### **Head of the School of Civil Engineering, (1988-1992)**

On the 1st July 1988 he was appointed as Mowlem Professor and Head of the School of Civil Engineering at Kingston. This coincided with a time of great change in Higher Education particularly with respect to the expansion of student numbers and changes in the method of funding. The school had at that time a teaching staff of 18.5, 12 technicians and 3 secretarial staff. The staff needed to be re-motivated after a long period of uncertainty when the future of the school had been in doubt. On taking up the appointment the responsibilities within the school were substantially reorganized. A major review and reorganisation of both the degree and HND schemes was carried out and new schemes implemented. The courses retained full accreditation in a period of difficult recruitment and increasingly stringent accreditation requirements. A new MSc "Management Systems In Construction" was introduced and received support from the High Technology National Training Programme for 1991. A second MSc scheme in "Structural Design" was commenced in September 1992 and both schemes received support from HTNT for the 1992-3 academic year.

### **Head of Technical Marketing and Standards Department, BCA(1987-1988)**

In 1987 he was appointed as Head of the Technical Marketing and Standards Department of the British Cement Association. The Department had a complement of 20 professionally qualified staff and covered the areas of Market Development, Standard Co-ordination, Building and Structures, Civil Engineering and Pavements, and a press office. A full advisory service was provided to industry including the provision of expert help and advice when problems occurred on site.

One of his main duties was responsibility for liaison with product associations, trade associations, building materials producers and the technical press. He was responsible for producing Market Development plans co-ordinating all the Association's work in a given market sector and also establishing Association technical policy in key areas for standards, and specification documents. His responsibilities also involved the briefing and supervision of PR agencies running BCA and joint industry accounts, and the supervision of consultants and contract work carried out at Universities. The Department also organized the form and content of all BCA training events.

Part of his role was to identify areas where the expertise of the Association could be used to maintain or increase the market share held by cement based materials. This was carried out very successfully in the housing sector and he was very heavily involved in developing the competitiveness of concrete in the multi-storey building market. In this work it was

necessary not only to be fully aware of the requirements of the client and the factors which influence the professional advice he receives, but also the pressures acting on the different segments of the building industry. His total direct budget responsibility was approximately £0.75M but a key part of the activity was the gearing of this expenditure by the formation of common interest groups to contribute additional support to specific activities.

### **Manager of the Building Group, C&CA(1983-1986)**

In 1983 he became Manager of the Building Group, a multi-disciplinary team comprising Structural Engineers, Civil Engineers and an Architect. The work of this Group included all aspects of Building Design and Construction and involved research, development training, advisory and general trouble shooting (This involved an extensive number of site visits to troubleshoot problems and advise at first hand on technical issues).

The work of the Group included the following projects:

- structural design of reinforced and pre-stressed masonry;
- design of reinforced concrete and reinforced masonry retaining walls;
- simplification of the rules for the structural design of reinforced masonry structures;
- innovation in single-storey "shed" type buildings including tilt-up, masonry diaphragm walls, double Tee construction and precast concrete frames;
- aspect ratio effects in masonry walls;
- determination of characteristic masonry strengths for the revision of BS 5628
- evaluation of the fire resistance of concrete structures;
- design of precast concrete suspended floors;
- operational studies of the efficiency of house building;
- sound performance of separating walls;
- weathering of concrete buildings;
- evaluation of changes in the Building Regulations and preparation of guidance documents;

He was responsible for all personnel, financial and management aspects of the work including the commercial exploitation of technical developments. Part of his role was to manage projects carried out under contract by professional practices.

### **Head of Section, C&CA(1974-1983)**

As Section Leader from 1974, he was responsible for the work of a group of ten staff. This involved a number of projects including, for example:

- the effect of restraint condition on elements subjected to thermal movements;
- the optimum quantity and disposition of reinforcement to control cracking;
- construction joints in water retaining structures;
- tensile strain capacity of lightweight concrete;
- design and performance of floors subjected to point loading;
- shear behaviour of reinforced concrete blockwork;
- rain penetration through walling;
- thermal performance of walling;
- external insulation;

- joint systems for precast concrete tunnel segments;

In addition to the formulation, funding and management of research, my role included external liaison with outside organizations.

**Senior Research Engineer, C&CA(1972-1974)**

Following a review of the available literature, a programme of research was initiated to investigating the structural performance of reinforced concrete masonry. This programme was pursued over a number of years and more than 100 reinforced blockwork elements were instrumented and tested to destruction. In order to investigate the long-term durability of reinforced masonry, an electrical resistance technique was developed which enabled the potential for corrosion to be monitored non-destructively. Five sites were instrumented and these were monitored for a period of ten years.

**Research Engineer, C&CA(1969-1972)**

As a research engineer responsible for a variety of research projects on behalf of the Cement and Concrete Association.

**A full list of publications and further career details may be found at  
[www.johnroberts.org.uk](http://www.johnroberts.org.uk)**