

CURRICULUM VITAE

NAME: Shaiq U.R. Khan
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DATE OF BIRTH: 1st of June 1944

MARITAL STATUS: Married with two Children

ACADEMIC QUALIFICATIONS:

- (a) Bachelor of Engineering (Civil)
Division: First
Year: 1966
From: N.E.D. Government
Engineering college,
Karachi, Pakistan.
- (b) Master of Engineering (Structural)
Grades: 80.6 percent
Year: 1969
From: Asian Institute of
Technology,
Bangkok, Thailand
- (c) Doctor of Philosophy (Civil Eng.)
Year: 1975
From: University of Manchester,
Manchester, England.

PROFESSIONAL QUALIFICATIONS:

Fellow Institution of Structural Engineer
Chartered Structural Engineer

Appointment and employer (Most recent appointment last)	Description of work carried out	From	To
Site Engineer: Hormazd Constructions 11 Preedy Street Saddar, Karachi	Execution and supervision of construction of Administration Building for the Machine Tool Factory, Karachi, involving site surveying, setting out, making bending schedules, cutting, bending and placing reinforcement and concrete, etc. During my supervision, 110 tons of reinforcement was used in concreting of the building basement.	Jan 1967	May 1967
Student: Asian Institute of Technology, Bangkok, Thailand	Research Project for the degree of M.Eng. leading to the publication: Khan, S.U.R., "The Influence of Tie Spacing on the Failure of Reinforced Concrete Columns", Thesis submitted to the Asian Institute of Technology in May 1969. This project was supervised by Professor W. McGuire of Cornell University, USA, seconded to A.I.T. for a period of 2 years.		
Special Research Assistant: Department of Civil & Structural Engineering, University of Manchester, Institute of Science & Technology, Sackville Street, Manchester M60 1QD	The work involved fabrication, testing and analysis of 13 half size single-bay 2 and 4 storey reinforced concrete frames. After testing of the frames, the analytical work predicted the behaviour of reinforced concrete frames in their elastic, in-elastic, plastic and the strain-hardening range. The predicted results were then compared with the experimental evidence. The following publications resulted from this work: Pannell, F.N. & Khan, S.U.R., "Investigation of the Behaviour of Reinforced Concrete Frames - Report on Experimental Evidence", Report submitted to CIRIA for its sponsored research at UMIST, April 1972 Pannell, F.N., Khan, S.U.R. & Brotton D.M. , "Analytical & Experimental Investigation into the Behaviour of Reinforced Concrete Frames, "Report submitted to CIRIA for its sponsored research at UMIST, April 1973	October 1969	December 1972
Ph. D. Student: Department of Civil & Structural Engineering, University of Manchester, Institute of Science and Technology, Sackville Street, Manchester M60 1QD	Researched into the behaviour of concrete frames, putting forward a stress-strain relationship for concrete and using it in the analysis of RC members and frames. To account for the behaviour of steel, a multi-linear stress stain relationship was used; the number and relative lengths of segments being varied according to the amount of non-linearity. A method of analysis was developed and used for predicting moment-curvature relationship in pre-ultimate and post-ultimate range of the sectional behaviour. Using the sectional analysis results, the behaviour of RC beams and columns was predicted and compared with the experimental evidence published by others. As a part of this study, 13 half-full size frame (12 single bay 2 storey and one single bay four storey frame) were tested to destruction. The experimental behaviour of these frames was then predicted and compared. A method of analysis and a computer program was developed to account for the inelastic deformations along the length of the members and the change in geometry of the frames. The results of this research have been published, entitled: Khan, S.U.R., "Behaviour of Reinforced Concrete Frames", Thesis submitted to the University of Manchester, in March 1975	January 1973	September 1973
Structural Engineer: Taylor Whalley & Spyra, Consulting Civil &	Worked on numerous projects, involving structural design, presentation of calculations, detailing, producing working drawings & site supervision as and when required. The materials used in these projects were generally steelwork, timber, brickwork, precast	October 1973	October 1985

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Structural Engineers, 35 Dale Street, Manchester M1 2HF	<p>concrete, and reinforced concrete.</p> <p>At times, it was necessary to provide research and development support in handling unusual design tasks.</p> <p>In 1978, I began developing software as a hobby in my spare time. This was always done to handle design jobs in hand, rather than develop software for its own sake. Initially the programs were written on Texas Instruments TI Programmable 59 calculator. Later Apple IIe , IBM PC and Macintosh computers were used for this purpose.</p> <p>Some of the projects I worked on are listed below:</p> <p>Structural Safety of High Alumina Cement Concrete Construction Carried out appraisals of safety for more than 100 buildings containing HACC units; work involved site inspections, loading tests to destruction of structural elements, developing ultimate strength analysis procedures (prior to the relevant publications from the Department of Environment), assessing ultimate strength of existing construction, outlining and devising remedial works, and writing formal reports to the clients.</p> <p>Public House, Mosborough Design, presentation of calculations, detailing and site supervision of this construction in timber, steelwork, precast concrete, brickwork, blockwork and reinforced concrete Project Cost £90,000</p> <p>Adcock Shipley, Machine Manufacturing Factory, Leicester Design & presentation of calculations for multi bay steel portal frame construction supported on piled foundation and having overhead cranes Structural cost £320,000.</p> <p>British Petroleum, Social & Recreation Club, Hull The main construction was 2 storey building with RC slab and foundations, brickwork walls and steelwork roof.</p> <p>An interesting feature of this project was to detail an outdoor reinforced concrete staircase, in which thickness of the steps was only 100 mm. This required a careful detailing and galvanising the reinforcement. As engineers, we are keeping an eye on this staircase and so far (1998) it is weathering OK in the outdoors. Total cost £320,000</p> <p>High Bay Warehouse, Clayton Design & Detailing of an adjacent warehouse. Checking of steelwork calculations produced by the specialist steelwork contractor for the main warehouse was also my responsibility. Strengthening of the racking legs was carried out as a result of our design checks.</p> <p>Bus Station, Wythenshaw, Manchester In a steel gable post construction, one leg was a 102x51 channel section. Although the stress factor in the channel leg was 0.5 bending plus 0.1 compression, the local authority rejected our design saying that, the leg being not a cantilever but a stanchion, its L/R ratio of 212 exceeded the allowable limit of 180. The stalemate in interpretation of the BS449 code was resolved by site testing of the frame and showing that the frame had sufficient strength.</p>	1974	1977
		1976	1977
		1977	1977
		1977	1977
		1979	1980
		1980	1981

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	<p>Ross Foods, Hull Alterations & extension involving steelwork and brickwork</p> <p>Dalgetty Spiller, Dock Road, Avonmouth Strengthening of existing roof steelwork so that the factory floor is kept in use and the roof becomes having adequate strength. Extensive use of my program SKELETON helped to identify weak members and the degree of their weakness.</p> <p>Office Extension, CIBA Geigy, Horsham A multi-storey reinforced concrete building in which the column size was a mere 300x300 mm section. Service holes were also required for pipes to pass through these columns. To have a peaceful sleep at night, it required a lot of daytime calculation to satisfy oneself that the columns had enough strength to carry their loads.</p> <p>Bank of England, Manchester Re-cladding of 15 storey building. Midway through the project, it was discovered that the contractor had not used the right strength/size bolts to fasten cladding. If these bolts had to be replaced, the project would have been delayed considerably and become too costly. Based on my analytical work and studying the behaviour of cladding in laboratory tests, it was established that the used bolts had sufficient strength and their replacement was not warranted.</p> <p>Pearl Assurance, Horsefair, Pontefract A concrete framed building with HACC units, requiring appraisal of safety in view of reduced HACC strength</p> <p>Sanofi, Wythenshaw A study into re-cladding and strengthening of an existing portal frame building.</p>	1980 1982 1982 1982 1983 1983 1984	1980 1982 1982 1983 1983 1984
<p>Director/Software-Developer:, Microsoft Structural Control Systems, 29 The Downs, Altrincham WA14 2QD</p>	<p>In association with Brain Clancy Partnership and Taylor Whalley & Spyra, I became a director of this company to develop and market software for structural analysis and design. The users of these programs are consulting engineers, academic institutions, local authorities and contractors in the UK and abroad.</p> <p>Personally written programs are:</p> <p>SKELETON for the linear elastic analysis of plane frames with any combination of pinned and rigid joints</p> <p>CAGE for the linear elastic analysis of space trusses</p> <p>JUNCTION for the interactive design of Bolted and Welded connections</p> <p>BLOCK for the design of rectangular pads with centroid of loading anywhere inside or outside of its middle third kern. (<i>NB: this program has been co-authored by Mr Neil Hindley, Partner Brian Clancy Partnership</i>)</p> <p>REVEAL for the analysis of single span elements e.g. fixed beams, cantilevers, propped cantilevers and simply supported beams; supports can be inclined and rollers</p> <p>STRESS LEVEL TO BS449 for the design of all British Sections except angles and tees; a unique program which does not discriminate between beams and stanchions and yet complies with all the relevant BS449 Clauses regarding them.</p>	October 1980	January 1987

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<p>Structural Engineer: Brian Clancy Partnership, Consulting Civil, Structural and Building Services Engineers, Downs Chambers, 29 The Downs, Altrincham WA14 2QD</p>	<p>Office Development, Manchester Road, Altrincham Checking on behalf of the Trafford Borough Council, examine Structural Calculations, seek further details and where necessary express reservations on the design submitted to the local council for Building Regulations Approval. Construction: 5 storey steel framed building with composite floors and brickwork cladding. Estimated Building Cost: £1.5 million.</p> <p>A Prestigious Office Development for Barclays Property Holdings Costing £8.5 million, a 64,000 square foot office development at 17 York Street, Manchester. The scheme involved constructing a new frame off the original concrete basement. As a part of the design team, I was responsible for the structural design of steelwork by using latest design facilities. To my knowledge and belief, the following two milestones were reached on this project:</p> <ol style="list-style-type: none"> 1) All structural steelwork calculations were fully typeset, and 2) All 4 Mb of documentation was kept on the computer hard disk to allow last minute changes in details (e.g. beam and column positions) and then print and submit all calculations in one day on a short notice. 	<p>April 1989</p> <p>June 1992</p>	<p>May 1989</p> <p>December 1992</p>
<p>Consultant: Taylor Whalley & Spyra, Consulting Civil & Structural Engineers, 35 Dale Street, Manchester M1 2HF</p> <p>Offices also at: London, Hull, Guildford & Warszawa, Poland</p>	<p>After working for 12 years, became Consultant to this organisation. Work involves analysis, design and detailing of industrial and public buildings, checking scheme and working drawings, presenting calculations to local authorities and providing support in resolving routine technical problems of the design office e.g. testing of structures, producing intricate structural details, developing analysis and design methods for unfamiliar problems, etc. Structural materials dealt with are reinforced concrete, steelwork, brickwork, blockwork, timber, precast concrete and prestressed concrete, etc.</p> <p>Use and development of computer hardware and software is also my responsibility. The projects handled by me are:</p> <p>London Office Job Costing System Helped developed Job Costing System based on Time Costs, Job Expenses, Client Information and Invoiced Amounts. Also trained staff in the use of computers and the new costing system.</p> <p>London Office Computer System for CAD, Structural Design & Management Installed and updated this system using Macintosh IIx computers, pen plotters and laser printers. The installation also included training of the staff at Manchester in the use ClarisCAD for structural detailing. Also retrieved all design specifications from the previous Apple IIe system and transferred them to the new Macintosh system. Overall cost of the installation £30,000</p> <p>MCB, Cross Street, Manchester A prestigious 5 storey office development with 2 storey parking for 50 cars. Steel frame construction with precast concrete floors and brickwork and precast concrete cladding. Structural Cost £2,600,000</p> <p>Extension to Cheetham Hill Mosque, Manchester</p>	<p>Jan 1986</p> <p>November 1986</p> <p>August 1989</p> <p>1988</p> <p>1989</p>	<p>To date</p> <p>June 1987</p> <p>December 1989</p> <p>1989</p> <p>1992</p>

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	<p>In order to establish the use of CAD in the office, this project was supervised, designed and detailed by myself. The construction was a 2-storey steel framed building, with precast concrete floors and deep pad foundations into sand, total cost of the project was £525,000</p> <p>ARCO, Hull A portal frame storage building span 27 m, 8m to eaves, having office accommodation and provision for future extension. The structure is on piled foundation. Structural Cost £750,000</p> <p>BP Chemicals, Hull A 2 storey laboratory building with extensive plant in the roof space. The laboratory consists of 3 wings off a centre core area with provision for 4th wing. The structure is steel frame with precast concrete floors and pile foundations Total Cost £6,000,000</p> <p>GF Smith, Hull A 40m span portal frame building 10 meters to eaves designed for fire boundary condition. The structure is built on pile foundations. The ground floor slab is designed for high bay stacking and is founded on vibro compaction. Flatness and levelness had to comply with category 1 finish Structural Cost £850,000</p> <p>Lex Brooklands, Sheffield A multi-bay single storey steel portal frame car showroom, body shop and workshop with 2 storey office accommodation within the building Structural Cost £900,000</p> <p>Automotive Industries, Colne A multi bay single storey steel portal frame industrial building, span 48 metres</p> <p>Courtaulds Project 2000, Silvertown, London A series of projects involving steel framed portal frame building and a mezzanine floor for heavy industrial use (16 kN/m² live load) Estimated Project Cost: over £4,000,0000</p> <p>NatWest, 55 King Street, Manchester Feasibility for major refurbishment and alterations Estimated Cost: over £1,000,0000</p> <p>Back Piccadilly, Manchester Feasibility to convert a brick warehouse to residential accommodation in the city centre.</p> <p>BUPA, Salford Quays Structural alterations to in-situ concrete building</p>	<p>1989</p> <p>1989</p> <p>1989</p> <p>1991</p> <p>1991</p> <p>1991</p> <p>1990</p> <p>1995</p> <p>1996</p> <p>1996</p> <p>1996</p> <p>1996</p> <p>1996</p>	<p>1989</p> <p>1991</p> <p>1991</p> <p>1991</p> <p>Current</p> <p>Current</p> <p>Current</p> <p>Current</p> <p>Current</p> <p>Current</p>
<p>Consultant: Byrom Clark Roberts Architects, Surveyors and Engineers, 117 Portland Street, Manchester M1 6EH</p> <p>Offices also at Sheffield, London, Bury & Chester</p>	<p>I was appointed as a Consultant to this practice in May 1992. In addition to providing support on numerous projects, I have worked on the following projects:</p> <p>Processing of Building Survey Reports This software system has been developed to process information collected from site surveys by using Dictaphone. The information items processed are Element, Construction, Condition, Remedial Works, Priority, Work Class, Time Period and Item Cost. Once the information has been transcribed from the Dictaphone, a mouse click produces the required meaningful report in a tvnset form</p>		

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	<p>produces the required meaningful report in a typeset form.</p> <p>Jetlag International, Chesterfield A portal frame construction 28m span, 10.1 m height to eaves. Estimated structural cost £675,000</p> <p>AM Paper, Skelmersdale A design and build project, involving portal frame building, spans up to 30m and height to eaves 8m. Work involved site visits, structural design, detailing of steelwork in expansion bays, floor slab, foundation pads, etc. When the main contractor attempted to save money in construction of the ground floor slab, fierce technical discussions and meetings took place, involving main contractor staff, a floor specialists sub-contractor and a ground floor design consultant working for BRE and engaged by the sub-contractor. Estimated structural cost £2 million, floor area 6500 m2 approx.</p> <p>External Survey of over 5,000 Properties This survey of residential properties was carried out for the Trafford Metropolitan Borough Council, using Psion hand held computers. A team of over 10 surveyors collected the data on site. I was responsible for the software handling of the entire information i.e. receiving property data from the council magnetically, up loading the survey structure and property information onto Psion computers for each surveyor in batches and then downloading the survey information from Psion computers to main computer in the office. Quality assurance procedure was devised and agreed with the local council and then implemented during the data collection. All properties were surveyed in a period of about 10 weeks.</p> <p>Engineering Database Development Compiled job information of over 6000 records from various archive and current information sources in the office. Using Visual Basic for applications, developed:</p> <ol style="list-style-type: none"> 1) Standardise plotting of crack monitoring data so that engineers can grasp building movements at a glance 2) Automate plotting of graphs so that juniors can manage this work with a little bit of training, 3) Automate printing of graphs, so that all data for various jobs can be input first and the software can then print all graphs on its own, thus freeing the staff to do something more useful. 4) Automate production of weekly schedules showing list of properties to be monitored by each surveyor. 5) Production a league table, showing time taken by each surveyors in producing their reports 	<p>1993</p> <p>February 1995</p> <p>February 1995</p>	<p>1993</p> <p>December 1995</p> <p>May 1995</p> <p>October 1996</p>
<p>Structural Design Engineer</p> <p>British Aerospace, Aviation & Construction Consultancy</p> <p>Chorley, Lancashire</p>	<p>During two years of my work, I have been worked on a variety of civil and structural engineering projects e.g. structural adequacy survey of existing buildings, structural detailing for strengthening works, design of new build structures, etc. Some of the projects are:</p> <p>Adequacy & Strengthening of East & West Wall, BAe Samlesbury, Estimated Cost £200,000</p> <p>Canopy Catch Net, BAe Warton Conception and Design of hammock shape net 20m x 20m in plan and 22m high to catch the canopy of Eurofighter plane, fired from a</p>	<p>May 1997</p>	<p>May 1999</p>

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	<p>test rig at Mach 2 speed. Estimated Cost £75,000.</p> <p>Strengthening of A&K Shed, BAe Brough Design and prepare structural details to upgrade 75 year old factory sheds to present day standards, Estimated Cost £1,500,000.</p> <p>Structural Survey and Strengthening of C-Shed, BAe Brough Survey, Design and prepare structural details to upgrade 75 year old factory sheds to present day standards, Estimated Cost £1,500,000.</p> <p>Junior Ranks Kitchen, RAF Kilnoss Design of a new build Kitchen facility having RC foundations, steelwork framing, brickwork cladding and tiled roof, Estimated Cost £1,200,000.</p> <p>Junior Ranks Kitchen and Mess, DST Leconfield Prepare tender documents and specifications for a new build kitchen and mess facility having RC foundations, steelwork framing, brickwork cladding and tiled roof, Estimated Cost £2,800,000.</p> <p>Swarf Reclamation Facility, BAe Brough New build construction having RC Raft foundation, steelwork framing and metal cladding, Estimated Cost £200,000.</p> <p>North Wall Upgrade, Structural Test Facility Building, BAe Brough Inspect existing condition of this 75 year old wall and make recommendations for it structural and visual upgrade, Estimated Cost £500,000</p> <p>Helipad Floor, Airbus Chester Strengthening of an existing steelwork for its change of use in the main factory shed, Estimated Cost £50,000</p> <p>Documentation and Analysis of Foul & Surface Water Drainage, BAe Samlesbury A desktop study to compile existing information and establish adequacy of drainage system at this site using Excel Spreadsheet, Study Cost £6,000</p>		

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NNC, Knutsford	<p>During a 10-week contract, I studied the impact of Pipewhip loads onto the stanchions, the stanchion splices and the beam-stanchion connections at Dungeness B Nuclear Power Station, Kent. The work involved site survey of the building 270 x 108 ft in plan and 227 ft high in elevation. To supplement and validate the site survey information, extracted and used 150 drawings from an overwhelming list of over 30,000 project drawings. The work has been reported in the following two reports:</p> <p style="padding-left: 40px;">S. Khan, Dungeness B Power Station, Stage 2 Steam Release Safety Case, Reactor Building, Assessment of Pipewhip Deflections, Stanchion 44X, NNC Calculations C5847/TN/01, July 1999</p> <p style="padding-left: 40px;">S. Khan, Dungeness B Power Station, Stage 2 Steam Release Safety Case, Reactor Building, Collapse Scenario of Stanchions 43X, 44X, 59Z and 60Z by Pipewhips between levels 61ft-8in and 96ft-8in, 44X, NNC Calculations C5938/TN/002, September 1999</p> <p>In summary, my work revealed an alternative load path so that if a serious damage occurs to a major stanchion, the adjacent stanchions can carry the involved load shed and thus prevent the overall building collapse.</p>	June 1999	August 1999
AMEC Design, Sale	<p>Museum for Scottish Country Life Design and Detail Precast Concrete Members and their connection involving Beams, Columns, Rafters, Purlins and RC Core Walls for a 3 storey Precast Concrete Frame building at Kittinghside, Scotland.</p> <p>As a part of this project, also investigate the stability of this building. This investigation was on behalf of the Precast Concrete Contractor CV Buchans, not having full responsibility for overall concept design of the building. The conclusion was that the floors could act as satisfactory diaphragms for resisting lateral loads. The roof construction, however, did not have sufficient numbers and satisfactory position of Precast Concrete members for transferring lateral loads to the 3 stair cores. Hence the originally proposed construction was deemed not adequate for overall lateral stability of the building. As a solution, it was necessary to introduce, design and detail RC Gutter Girders at eaves level to tie the roof rafters, eaves beams and stair cores to act together for building stability.</p> <p>Withington Transfer Block, Manchester Royal Infirmary</p> <p>Design and details foundations for this 3-storey steel framed building having tiled roof and brickwork/blockwork as cladding. The foundations comprised RC Pile Caps, Beams and Retaining Walls. Estimated cost of this project is £6m.</p> <p>As a part of this project, also design and detail an 83 m long link bridge to connect two adjacent buildings while construction of this building takes place. The work involved making openings in external walls of the adjacent building and providing RC foundations and steelwork beams and columns to resist vertical and lateral loads.</p>	September 1999	June 2000

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Structural Engineer/Director/Software Developer Techno Consultants Ltd, 117-119 Portland Street, Manchester M1 6ED	<p>This company has been set up to offer my services as a Structural Design Engineer and a Software Developer. The company endeavours to employ latest hardware and software facilities in both management and design. Besides the main Structural Design activity, the engagements also include project management, accountancy, planning, type-setting, quantity surveying, preparations of building cost estimates, CAD training and draughting, etc.</p> <p>While larger projects are handled by the organisations with whom I work as a consultant, I also handle numerous small jobs comprising structural surveys, design of brickwork, blockwork, timber, reinforced concrete and steelwork. All such jobs involve liaison with the clients, architects, members of other related professions, main & specialist contractors, and regular visits to site to attend site meetings and inspect the works as construction proceeds. Some notable projects are:</p> <p>Residential Care, 77 Grange Avenue, Manchester Design & Build project. Contractor: O'brian & Burke. Architect: H E Thomason. Work: Conversion and extension of an existing building involving structural design, calculations and site supervision for timber, brickwork, steelwork and earth retaining. Estimated project Cost £150,000</p> <p>Home for the Elderly, 109 Audenshaw Road, Manchester Design & Build project. Contractor: O'brian & Burke. Architect: S Mahmood, Chartered Architects. Work: Conversion and extension of an existing building involving structural design, calculations and site supervision for timber, brickwork and steelwork. Estimated project cost £200,000</p> <p>Major Refurbishment/Re-building of 6 Terraced Houses, 78 to 88 Hamilton Road, Manchester. Grant Aided Project. Contractor: Shaw Builders Architect: S Mahmood, Chartered Architects Work: Rebuilding of the entire front wall of 6 adjacent houses with retaining wall in the basement, strengthening of party wall foundations and other refurbishment works Estimated project cost: £240,000</p> <p>Job Costing System for GC McDonalds & Partners, Consulting Engineers, Oldham and Thame Installed and trained staff to use my job costing system</p> <p>Other items of my Activities</p> <p>A Template for the Design of Flat Slab Based on recommendation in BS8110, this document is being co-authored with Mr Geoff Crosby, Associate Taylor, Whalley & Spyra. As with all of my software programs, this template has been developed to handle design of 2 separate jobs involving Flat Slab. It appears, we have to wait for the arrival of one further design job to test this template and iron out limitations of its use.</p> <p>Analysis of 3D Frames Using Excel Spreadsheet and Visual Basic for applications Based on my experience of Excel, I feel a 3D analysis of frames in a spread sheet will be immensely powerful and will eliminate and or greatly simplify the user interface. The framework for input of data and output of results have been outlined and</p>	<p>October 1985</p> <p>August 1986</p> <p>June 1988</p> <p>December 1991</p> <p>December 1991</p>	<p>To date</p> <p>March 1987</p> <p>April 1989</p> <p>July 1993</p> <p>April 1992</p>

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	<p>Research into Brickwork/Blockwork</p> <p>I am assisting Professor Malcolm Phipps and his team in the above research at the Department of Civil & Structural Engineering, UMIST, Manchester.</p> <p>Internet and Intranet</p> <p>I am investing a great deal of my resources and time to explore and harness the potentials of this medium for structural engineering. While developing my own web site (http://www.surflink.co.uk/users/techno), I am also helping others to do so e.g. Bricktie Ltd, Manchester/Leeds and Aquinas College, Stockport. Using this media, I feel a great deal of technical wealth can be shared and developed among engineers throughout the world.</p> <p>IT Seminar</p> <p>During summer this year, I held a seminar entitled, "Handling Information in the Building Trade". Two venues were University of Manchester, Institute of Science & Technology, Manchester and Institution of Engineers, Karachi, Pakistan. The seminar contents are listed in the enclosed leaflet.</p> <p>Member of the Advisory Group, Reinforced Concrete Council, Crowthorne, Berks RG45 6YS</p> <p>Software Programs Developed Recently</p> <p>Shape: for the analysis of loaded areas. The areas can be any shapes enclosed by multi-linear sides. The program can be used for Brick Pier Design, Foundation Design, Seismic Analysis of Buildings, Calculation of Section Properties, etc.</p> <p>Stack5950: for the Design of Multi-storey steel columns. The number of storeys can be as many as required e.g. over 100 storeys.</p> <p>Libraries for Steelwork Sections: for 695 Standard British Steelwork Section for rapid insertions into ClarisCAD or AutoCAD drawings.</p> <p>JobCoster: for monitoring cost of jobs in professional firms. This program operates on 5 basic elements of job costs. It produces a concise summary giving totals for Time Spent, Travel, Disbursements, Printing and Invoiced Amounts. It also includes comprehensive year-end procedures.</p> <p>Portal Frame Design Template: Developed in Excel spreadsheet, this template has five parts. Part 1: Frame Geometry and Loading Part 2: Structural Analysis of the frame for Bending, Shear, Axial Load and deflection calculations, Part 3: Design of ratters and columns along member lengths to BS5950 and Part 4: Design of Eaves and Apex Connections</p> <p>Excel 97/2000 Template for Safe Loads in Axial Compression to BS449: Sections: UB, UC, RSJ, UB Piles, RSC, CHS, SHS & RHS Grades: 43, 50, 55, 43 Pre 89, 50 Pre 89 & 55 Pre 89 Casing: UB, UC, RSJ & UB Piles can be encased 50 or 75 mm Available free for use at Internet Site www.technouk.co.uk</p> <p>Excel 97/2000 Template for the design of RC Rectangular Sections: Calculations: Bending, Shear, Shear Bent up bars, Torsion, Span/depth ratio Concrete Grades: 15, 20, 25, 30, 35, 40, 45, 50 N/mm²</p>		

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	<p>Steel f_y: 250, 410, 425, 460 N/mm² Steel material safety factors: 1.05 and 1.15 (pre March 1997) Available free for use at Internet Site www.technouk.co.uk</p> <p>Excel 97/2000 Template for the design of masonry panels to BS5628 under lateral loads Available for use at Internet Site www.technouk.co.uk</p> <p>Excel 97/2000 Template for the Capacity of Bolts to BS5950: Bolts: Normal or Countersunk Shear Plane: Threads or Shank Bolt Grades: 4.6, 6.8, 8.8, 10.9, 12.9 and 14.9 Ply Grades: S275 (43), S355 (50), S460 (55) Edge Distance Can be: 1.25 to 2 bolt diameter Available for use at Internet Site www.technouk.co.uk</p> <p>Excel 97/2000 Template for the Capacity of Bolts to BS449: Bolts: Normal or Countersunk Shear Plane: Threads or Shank Bolt Grades: 4.6, 6.8, 8.8, 10.9, 12.9 and 14.9 Ply Grades: S275 (43), S355 (50), S460 (55) Edge Distance Can be: 1.25 to 2 times bolt diameter Available for use at Internet Site www.technouk.co.uk</p> <p>Excel 97/2000 Template for the Analysis of Beams: Calculations: Bending, Shear, Deflection along span at 30 points Number of Spans: 1, 2, 3 or 4 Load Types: UDL, Point Load, Patch Loads and Moments Storage: Data can be save for up to 500 beams Available for use at Internet Site www.technouk.co.uk</p>		