



Karen Burt Memorial Award winners

Launched in 1998 by the Women's Engineering Society, the **Karen Burt Memorial Award** is made annually to an outstanding newly qualified Chartered Engineer in the following disciplines – engineering, applied science, IT.

The award recognizes the candidate's excellence and potential in the practice of engineering and highlights the importance of Chartered status, as well as offering recognition to contributions made by the candidate to the promotion of the engineering profession.



wes
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1998-2013

The Karen Burt Memorial Award



The Karen Burt Award is an annual award presented to the best newly qualified Chartered Engineer by the Women's Engineering Society (WES). It was set up in 1998 in memory of Dr Karen Burt, an eminent physicist, gifted communicator and an inspiration to all who knew her. She was an active member of the WES Council, and campaigned for the recruitment and retention of women in science and engineering. From her own experience and her extensive research she was regarded as an expert in the management of career breaks and women 'returners' to engineering.

Karen graduated from Newnham College, Cambridge and obtained a PhD from Reading University. She joined British Aerospace Systems at Stevenage as Project Engineer for scientific satellites and progressed to Senior Systems Engineer. Karen developed an interest in management and the Total Quality Environment, subsequently becoming Business Acquisition Manager. Leaving BAe, she set up her own consultancy and was instrumental in establishing the Centre for Advanced Instrumentation Systems within University College, London. She had just accepted a position on the staff of UCL when her career was abruptly ended by a devastating stroke.

The Women's Engineering Society recognises the importance of encouraging young female engineers to achieve Chartered status. This award attempts to raise the profile of Chartership and encourages women engineers to become Chartered as early as possible in their career.

This award was originally funded by a donation made to WES by Karen's father, Professor Cyril Hilsum, CBE, FRS, FREng., and was later supplemented by contributions from Leonard Weisberg FIEEE, a family friend, Professor E P Raynes FRS and Dr Colin Waters, work colleagues, and the Rank Prize Funds.

We are extremely grateful to Karen's Father Professor Cyril Hilsum for his continuing support and sponsorship of this award.



Kate Cooksey MEng CEng MICE

Kate is a tunnelling engineer employed by UK construction and infrastructure business Morgan Sindall, currently working on the Crossrail project as a Senior Tunnel Design Engineer.

Kate's path to civil engineering was developed through her interest in social geography and creative flair in design and technology, as well as a passion for STEM subjects. She realised that this would be a career that enabled her to make a positive impact on the built environment.

She graduated from Cardiff University with a First Class degree in Civil Engineering with a Year in Industry in 2007. During her student days she was President of the Civil Engineering Society and helped to establish the Cardiff University Engineers without Borders (EWB) Branch.

Since her student days she has been actively involved in the set-up and running of student and graduate groups to promote civil and tunnelling engineering, notably setting up the British Tunnelling Society Young Members (BTSYM) Committee in 2008.

She established the BTSYM committee to promote the activities of the Tunnelling industry to young people and the public. She led the committee as its Chair from 2008 to 2010 and has been a member of the British Tunnelling Society Main Committee since 2008. The committee has gone from strength to strength now celebrating its fifth anniversary. It runs a regular lecture series, site visits to help young engineers get underground and understand the engineering challenges along with technical workshops. In addition the committee has hosted many schools workshops and has developed a teacher's pack. Kate was particularly

proud that the BTSYM Committee won the 2010 Tunnels and Tunnelling Investors in People Sustainability Award against tough competition from corporate bodies.

Additionally, Kate worked with the University of Warwick and the British Tunnelling Society for three years to develop an MSc Tunnelling and Underground Space to help provide a clearer route into the industry for young people and an opportunity for further learning in her field. The course took on its first students in 2011 and she has a role as a guest lecturer and course advisor. She is particularly proud that the course is accredited with the ICE to ensure a path to Chartered Engineer Status is available for those that choose the course.

She has also played an active role with the ICE starting as a student representative whilst at university through to Chairing the ICE West Midlands Graduates and Students Group in 2009. Her work with the committee included organising a 'Future of Construction Networking Dinner' in 2008, as well as taking part in many schools initiatives including 'Bridges to Schools', Imagineering and the Paper Project all helping to promote a role in Civil Engineering.

In recognition of her achievements, Kate made the 2012 Management Today 35 Women Under 35 List, was a finalist of the Women of the Future Awards – Science and Technology Category – in 2009, and a finalist of the NCE Graduate Awards 2008.



Gemma's interest in engineering began at a young age, receiving innovation and engineering awards whilst still at school. During this time, she was fortunate to gain a place on two engineering summer schools and an aeronautical engineering club that were major influences in helping her decide on her future career in engineering.

Gemma has always been fascinated in the design, construction and function of devices that help people. This led to her studying medical engineering, gaining a first class honours MEng degree from Cardiff University in 2005. During her degree, she gained work experience at BiometUK, on a surgical equipment design project, and on a Zimmer funded study at the University, to assess how effectively patients walk with total hip replacements.

An interest in improving patient care and assessing joint replacements prompted her to undertake a PhD in Mechanical Engineering at Cardiff, sponsored by DePuy Int. Ltd., graduating 2009. For this she used a range of novel techniques to assess joint function of patients with arthritis and joint replacement. One technique was not available in the UK, so she learned this at the University of Florida, and then established it for the first time in Cardiff.

In 2009, she was appointed to her current position as an Academic Fellow at Cardiff University, working for the Arthritis Research UK Centre of Excellence in Biomechanics and Bioengineering Research. The main focuses of her research are to investigate how movement and forces in joints are affected by osteoarthritis and to monitor changes following surgical interventions including total knee replacement and knee realignment surgery. Her research is aimed at providing evidence on the effectiveness of different treatments,

and to develop new tools to assist with surgical planning and monitoring recovery.

Even at such an early stage of her career, Gemma has had some incredible experiences made possible through her work, which includes being awarded an International Travelling Fellowship in 2012 from the British Orthopaedic Research Society. She regularly presents her work at international conferences and publishes in international peer reviewed Journals. Her role within the University changes in October 2014, when she will become a lecturer.

Throughout her education and career to date, she has been inspired by a variety of role models and has extremely supportive and encouraging mentors who have provided invaluable support and guidance. She also mentors others and has been instrumental in setting up women's networks and an early career researcher network within the University to help ensure others benefit in the same way.

Gemma has been involved in initiatives to encourage girls into a science or engineering since she was 16 and continues to this day on a voluntary basis through workshops, lectures and a variety of engagement projects. She is a WES Council member overseeing their higher education student's initiatives, Trustee of the South Wales Institute of Engineers Educational Trust overseeing their apprenticeship and higher education initiatives, sits on the WISE committee in Wales and is a STEM Ambassador.



Julie Templeton MEng CEng MICE MWES

Julie won the 2010 Karen Burt Award after obtaining her Chartered Engineer status with the Institution of Civil Engineers (ICE).

Her passion for engineering was developed at a young age by teachers who were enthusiastic about STEM subjects and that passion has remained with her ever since. She thanks those teachers for encouraging her into a career she loves.

She graduated from Queen's University of Belfast in 2005 with a Master of Engineering honours degree in Environmental & Civil Engineering. This course combined her love of all things engineering with a wider interest in the environment and sustainability. During her time at Queen's, Julie took a study break to participate in a Business Education Initiative Scholarship from the NI Department of Employment and Learning. She studied business subjects at Carroll College, Helena, Montana in 2002/2003. She did not know that all that business training would come to great use later on.

Julie has spent her career to-date with Atkins where she was enrolled on the Graduate Development Programme and an ICE Training Agreement. With great mentors and lots of training opportunities, she obtained her Chartership within five years of graduation.

She is an active member of the ICE NI Committee and held numerous roles on the G&S Committee up to Chairman in 2008/2009. Julie has been a STEM ambassador since graduation and has

hosted careers stands, activities and given schools presentations to encourage others into the profession.

Julie's career with Atkins has spanned several disciplines in water engineering. From 2009-2012 she was the PM for a Flood Alleviation Scheme which she took from concept to detailed design and construction.

In 2012 she moved to Peterborough on secondment to the Rivers & Coastal team where she worked on the Environment Agency NEECA Framework. She was able to utilise her environmental engineering knowledge in the design of a habitat scheme in Cambridgeshire.

Her current role as Project Manager has taken her to Scotland where she leads a team of designers and modellers resolving Unsatisfactory Intermittent Discharges from combined sewer overflows in the Glasgow area. This has proved to be a real challenge for Julie but has provided ample project, programme and people management experience and will take her to the next level in her career.

Since obtaining chartered status, and winning the Karen Burt Award, Julie has worked closely with young engineers to mentor them through their training and chartership examinations. She is currently a Delegate Engineer but is hoping to become a Supervising Civil Engineer for the ICE in the near future.

Katy Deacon BEng(hons), MSc, CEng, MIET

Katy always knew she wanted to be an engineer. Whilst studying for her A-Levels in mathematics, physics, chemistry and computer science, she demonstrated a flair for engineering and took part in the Headstart Engineering Education Scheme and achieved The Crest Gold Award.



2009

In 1998, Katy embarked on a four year apprenticeship placement with British Airways and completed her BTEC Higher National Diploma (HND) in Aeronautical Engineering as part of this training. Here she was able to utilise her practical talents and gain firsthand experience of working on aircraft in maintenance hangers at Manchester, Cardiff and Heathrow Airports.

Katy completed her BEng (Hons) in Airport Transport Engineering in 2002 with first class honours.

Following the aftermath of the tragedy of 9/11 Katy left British Airways, joining Kirklees Council in 2003 in the role of Electrical Engineers Assistant. This was an electrical design role rather than a practical installation role, so Katy studied AutoCAD at evening school to build her skills. Over the next few years, Katy built up her skills and experience, working through the ranks in the design office to achieve the role of Electrical Engineer.

During her time as an Electrical Engineer, Katy has been a figurehead in the implementation of a number of renewable energy systems in Kirklees and has been presented with several awards for her work within the energy sector.

The use of wind turbines and solar power in schools are just some of the projects that Katy has worked on. As part of her Masters degree, she created a renewable energy 'tool kit' for architects, engineers and other developers to maximise efficiency and integration of renewable energy into the development of buildings. This 'toolkit' won

the NICEIC Energy Efficiency Product of the Year in 2006.

Following on from this success, she changed roles to become an Energy Engineer at the Council and developed smart metering systems to measure the energy being used by council buildings; encouraging building users to reduce energy wastage by improving their awareness of their energy usage.

Katy was presented with 'The IET Young Woman Engineer of the Year' award in 2007. She attained Chartered Engineer Status in 2008 and received the Women's Engineering Society (WES) 'Karen Burt Award' in 2009.

With the changing economic climate reducing the opportunities for development within the local engineering sector, Katy made the decision to change her career direction to develop her strategic managerial skills. She began her new role as Information Governance and Senior Support Manager in January 2012. This role requires a broader range of strategic, communication and technical skills than the available roles within the engineering sector at the time, so it was a fantastic opportunity for Katy to develop and grow. To continue her development, Katy is now studying via distance learning for her MScEcon in Information Governance and Assurance at Aberystwyth University.

Katy lives in West Yorkshire with her husband and balances working life with being a mother to two wonderful and very active children.



Emily Spearman MBA, CEng, MEI, AIEMA

Emily decided to study Environmental Engineering and Resource Management at Nottingham University as it combined maths, problem solving and the environment. She identified that this course would equip her with the skills for the exciting and fast changing energy sector.

On graduating Emily's first job was with Schlumberger Oil Field Services as a Wireline Engineer. She worked offshore in the UK and onshore in Indonesia and USA. When promoted, aged 23, she was the Company's youngest Senior Field Engineer in US Land responsible for managing multi-million dollar projects and equipment along with a crew of operators. Her experiences included handling a well "blow out" and being right underneath a forming tornado.

In 2005 Emily joined Parsons Brinkerhoff as an Environmental Engineer based in the UK working around the world on projects such as the construction of Palm Jumeirah, Dubai, and environmental engineering design of LNG facilities in Egypt. In 2008 Emily was awarded Chartered Energy Engineer with the Energy Institute. Emily became an Environmental Consultant at URS (formally Scott Wilson) and rose to become the youngest Associate Director in the Company.

Emily's extensive experience in both the environmental and oil & gas sectors included being Project Manager for the Environmental and Social Impact Assessment (ESIA) of the world's largest new Greenfield Fertiliser Plant in Gabon, valued at \$1.3bn US. She was seconded into OMV UK and Norway as the key environmental HSEQ team member and in 2008 she successfully led OMV (U.K.) through their ISO 14001 (Environmental Management System) certification process. Other projects include Project Managing an ESIA of an emergency power station in

Cameroon, Project Managing an EIA of an Energy Distribution Centre in Cyprus and being Lead Environmental Design Engineer on CrossRail.

Emily joined DONG Energy in 2012, a Danish energy company, as Commercial Manager for the Hornsea Offshore Wind Project, one of the UK's largest offshore wind projects. Emily has been promoted to Senior Commercial Manager and more recently to Asset Manager of two of DONG Energy's offshore wind farms in the UK.

Emily's other achievements include being elected to the Nottingham University Students Union Executive Committee as the Environment Officer and on graduating in Environmental Engineering being presented with the departmental Globe Award. In 2008 she won the Karen Burt Award after being nominated by the Energy Institute, more recently, Emily was highly commended by Management Today in their Future Leaders Awards. In September 2010, Emily was one of two selected to represent the UK on the World Energy Council Future Energy Leaders Programme. She was then selected for the Future Energy Leaders Advisory Board where she is leading the discussions for the 2013 Daegu World Energy Congress on the 'Global Energy Master Plan'.

Whilst working full time Emily studied for the Global Energy Executive MBA at Warwick Business School and was awarded the degree with distinction in June 2013. Emily has found this course immensely valuable in preparing her for the next stage of her career.

Jane won the Karen Burt Award in 2007 in recognition for her contributions to the industry and the judges were 'particularly impressed with her efforts in promoting the profession, particularly to young people and students'.



Jane began her working life as an architectural technician before beginning a career in highways and engineering with Barrow Borough Council in 1996 as a trainee technician. From there, she transferred to the private sector in 2001, joining Capita Symonds as a traffic engineer and completed her undergraduate degree in Civil Engineering from Bolton Institute.

Later, Jane became the Traffic and Design Team Leader, based in Barrow-in-Furness, and was involved in many projects from local traffic management issues to traffic calming measures and road lighting design. During this time, she completed her Masters degree in Transport Engineering and Planning at the University of Salford.

After working as a consultant for Lancaster City Council on their Cycling Demonstration Project, Jane began preparing her professional review submission and identified transport planning as an area of weakness. In a bid to remedy this, she joined Gifford in 2007 as a Principal Engineer in their transport planning team, based in Manchester. Later that year she achieved Chartered Engineer status through the Chartered Institution of Highways and Transportation.

Jane became a member of Chartered Institution of Highways and Transportation in 2003 and was persuaded by the then Chairman to join the Northern Branch Committee as their Web Officer. She was elected as the first female Chairman

of the Branch in 2007 and served an unprecedented three years.

Following acquisition by Ramboll, Jane was promoted to Associate and became responsible for the transport planning team in Manchester. In 2012, Jane became the team lead for Ramboll's Transport Planning Group in the UK, which included staff in Manchester, Chester, Southampton and London.

More recently, Jane joined the England and Wales team of Waterman Transport & Development as an Associate Director in their Manchester office, and has responsibility for several key areas: management and development of the transport planning team across the north of England; business development and client relationship management, including input to marketing plans and corporate events; supporting the development of best practice and product development for transportation planning across the company; contributing to business planning and strategic direction; and supporting cross discipline / group company initiatives within the region.

Jane hopes to keep enjoying what she does and share her knowledge and expertise through her part-time lecturing at the University of Bolton on their Civil Engineering courses. 'The most rewarding aspect for me is sharing knowledge. I'm a firm believer in showing someone where to find the information rather than just giving them an answer.'



Louise Dougan (nee McDevitt) MSc DIC BEng CEng MCIHT

Louise won the Karen Burt Award in 2006 after successfully passing her Chartered Professional Review and gaining her CEng qualification with the Chartered Institution of Highways and Transportation (CIHT).

Having an enthusiastic interest in Lego from an early age and a keen mind for mathematics, it was inevitable that Louise would end up as an Engineer. She decided to study civil engineering at Queens University, Belfast and graduated in 1996. She then spent her early years with the Department for Regional Development Northern Ireland – Roads Service. It was here that she was first introduced to the fields of traffic management, road safety engineering and transport planning and developed her design, public consultation and negotiation skills. She was lucky to get involved in a number of innovative transport planning projects at that time, including the first ever 20mph zone to be introduced in Northern Ireland.

In 1999, Louise moved to London where she worked with the London Borough of Bromley and then Transport for London (TfL). At TfL, she was a member of the core team that introduced the London Congestion Charging Scheme in 2003. The scheme was introduced on the world stage with everyone, including politicians and the press, keen to see if it would work successfully. The scheme remains to this day, one of the largest congestion charge zones in the world and Louise is extremely proud to be part of the team that designed and implemented it. It was in the midst of this high-pressured project that Louise also achieved her MSc in Transport from Imperial College, London.

In 2004, Louise returned to Belfast where

she took up employment with Atkins – one of the UK's largest engineering design consultancies. Louise continues to work with Atkins to this day on a wide range of transport planning projects, providing technical advice and project/programme management support. Her portfolio of work extends to projects across the UK, including the development of major scheme business cases, bus rapid transit, sustainable travel, scheme development, local transport plans and rail franchising.

Louise is also an active member of the Northern Ireland branch of the CIHT. She undertook the role of Recruitment Officer at first, providing a mentoring role for younger members to gain their professional chartership qualifications and promoting membership of the Institution with major employers. She undertook the role of Junior Vice-Chairman in 2009/10 and was delighted to receive the CIHT 'Young Transportation Professional' Award in 2010 for her efforts.

Since then, Louise has taken her foot off the pedal slightly – getting married in 2009, and having her daughter in 2010 and her son in 2011. She is currently working part-time to spend quality time with her family while they are young. However, as her family grow up Louise will be keen to seek out new challenges and reinvigorate her career, especially her involvement with the CIHT and young engineers. She is due to restart her role as CIHT Junior Vice-Chairman in September 2013.



Katy took a slightly circuitous route into engineering graduating with a BSc in Chemistry from Durham University in 1998.

The desire to control and remediate environmental pollution drew her to an Environmental Engineering Masters at Newcastle University, where her passion for engineering really began. A course on environmental engineering in developing countries inspired her to spend time after her Masters experiencing development work first-hand. She investigated the potential to develop rural water and sanitation projects, ran field trials for an electricity-free lab incubator and visited fog-water catchment trials with Nepal Water for Health.

On her return to the UK she joined a small environmental engineering firm and quickly took responsibility for a range of environmental management and contaminated land remediation projects. Highlights from this period include a construction project at an inner city farm; remediation of a former bomb factory and environmental management of the clean-up of a nuclear bomb test site on Christmas Island.

The variety of projects and early responsibility allowed Katy to gain the necessary experience to become a chartered member of the Institute of Water and Environmental Management very early in her career. She was actively involved in her local branch and was co-opted to the board for her contribution to setting up a northern sub-committee in the Newcastle area. During this period Katy contributed to the CITB funded project to attract young women to engineering, helping to run school visits and activity days.

In 2005, Katy moved jobs and counties to join Arup in Leeds, where she set up

the waste and resources team. In addition to her engineering work she was a member of the Education Working Group of Arup's charitable foundation, the Arup Cause, designing and delivering a series of seminars on international water and wastewater challenges. She also managed Arup's pro-bono work for International Water Charity, WaterAid.

At Arup, she got the taste for research and moved to the Stockholm Environment Institute at York University in 2010. Here she led the sustainable consumption and production team and was co-leader of the Rethinking Development Theme across SEI, working on European Union funded projects to quantify and reduce the impact of our consumption. Working with economic modellers and software designers was a new and rewarding experience but she was keen to retain a link with engineering so moved in 2011 to the University of Leeds where she currently holds a Senior Research Fellowship split between the School of Civil Engineering and the School of Earth and Environment.

She has a portfolio of projects funded by the UK Research Councils, mainly centred on sustainable and resilient infrastructure (sure-infrastructure.leeds.ac.uk). This year she came full circle and started teaching undergraduate students, surprising herself by how much she enjoyed it. She is thrilled to be involved in giving the next generation of engineers a sound understanding of sustainability and hopes to inspire them to embrace the vast array of opportunities open to them as engineers.



Suzanne Speed (nee Bland)
BSc(Hons) MSc(Dist) DIC FGS CEng MICE

Suzanne developed her interest in science by following the family vocation with a degree in Geochemistry at the University of Manchester, followed by an MSc in Engineering Geology at Imperial College, with dissertation at the Ecole des Mines in Paris.

Her professional career commenced in 1997 with KBR's geotechnical and tunnelling section. She worked on a variety of civil engineering projects including London Underground earth structures, A13 Thames Gateway DBFO and Environment Agency flood defences. A secondment to the Environment Agency in 2001-2002 enabled Suzanne to gain significant project management experience which led to a new role in the KBR Eurasia, Middle East and Africa section. This gave her the opportunity to be involved in projects across the KBR group of companies and to experience the work environments in Algeria, Cyprus, Tanzania and Kazakhstan. During her time with KBR Suzanne became Chartered as a civil engineer in 2003 and was the chair of the Institution of Civil Engineers Thames Region Graduate & Student Group organising a full programme of events. For KBR she established new school liaison programmes, led training groups and was involved in mentoring.

Suzanne's first language is French and she has had the opportunity to use her language skills in her career: firstly in early work experience with the Bureau de Recherches Geologiques et Mineralogiques; secondly for her MSc dissertation; and subsequently translating technical articles and project documents into English for her colleagues and leading communications on projects in Algeria.

In 2005 Suzanne left KBR to travel to Indonesia as a tsunami volunteer. Here she was required to return to the basics of her initial training in geology in

seeking new sources of potable water for community supply and hospitals within the devastated zone of Banda Aceh. Beyond her defined role of water engineer she also prepared and gave a series of introduction to drilling and basic groundwater geology lectures, lectured on the geographical processes that generate earthquakes, provided advice on best practices in project management and contract management, was an inaugural member of the cross-organisational groundwater sectoral group and established a database of new wells and water quality tests. During this time her language skills were extended further in learning Indonesian – by the end of 3 months she was holding technical conversations on water quality as well as bargaining for food in the local markets.

On her return to the UK Suzanne joined the Environment Agency Wales as a project manager in the capital projects group. Here she was responsible for the appraisal, design and construction of new flood defences including a £6M scheme in Hereford as well as other major schemes across Wales. Whilst working she also studied for a Post Graduate Certificate in Engineering Management and became a PRINCE2 Practitioner.

In 2011 following the birth of her first daughter Suzanne chose to take voluntary redundancy to devote herself to her young family. Her second daughter was born in 2013. Suzanne is already starting to think about the best way to re-enter the profession at the end of her career break.



A Chartered Engineer with a degree in Mechanical Engineering with German from the University of Bath, Jane, who lives in Hampshire, spent her early career working as a project engineer for BP and GKN in the UK, France and Germany.

During this time, she received a Royal Academy of Engineering Leadership Award, the Sir William Siemens Medal and a Smallpiece Trust Group Design Prize. She was also instrumental in setting up the Birmingham Young Members Panel of the IMechE and supporting the Engineering Education Scheme.

In 2000, Jane took up the position of chief executive of W.J.Wild Group Ltd. – a family business. She was wholly responsible for the significant corporate turnaround and subsequent strategic divestment of the diverse engineering companies within the group, the largest of which produced precision pressed metal components for the automotive industry. During this time, Jane was a member of the SMMT Automotive Component Section Committee. She was also invited to take up a position as a member of the Faculty of Science Advisory Board at the University of Warwick, a role which she continues with today. Jane completed an MBA at Warwick University in 2002.

Following the successful sale of the

W.J.Wild Group Ltd. companies, Jane spent a year sailing an Atlantic circuit with her husband, returning in 2004 to start a family. During this time, whilst her children were of pre-school age, Jane and her husband worked from home, investing in industrial property and continuing the refurbishment and development of a site in the New Forest which currently supports around 30 small businesses.

Having completed a PGCE in Secondary Mathematics at Southampton University in 2010, Jane is currently thoroughly enjoying teaching mathematics at a school in Hampshire, where she has introduced an Engineering Club and is inspiring and encouraging the next generation of budding young engineers into STEM careers. However, she does not rule out a move back into mainstream engineering at some stage in the future.

In addition to work and family life, Jane enjoys sailing her 28 foot catamaran and training her arab horse to compete in endurance riding competitions and carriage driving trials.



Helen Fennell (nee Marson) CEng FICHEM MSaRS
Registered Professional Process Safety Engineer

Helen's interest in science and engineering was developed under the guidance of her physics teacher at The Red Maids' School in Bristol. An engineer turned teacher herself, Miss Jones played a key role in introducing Helen to the opportunities within the STEM industries.

Helen attended various engineering courses and taster sessions at Bradford and Loughborough Universities as well as Rolls Royce and Astra Zeneca, finally setting on a Chemical Engineering degree from which she graduated in 1997.

Helen joined the graduate training programme at Air Products in Surrey in 1997, completing assignments in operations, projects and process design. Following her graduate roles, Helen returned to the Operations business as an process support engineer for plants in the North West of the UK and Germany. She identified and progressed long term efficiency improvements as well as solving short term operating issues. Her most successful project was identifying the ability to run an Air Separation Unit and associated liquefier closer to the design point, simply by opening a key valve; this improved efficiency by several percentage points, and saved around £250k per year in operating costs.

In 2003 Helen was awarded the WISE Excellence award for her work on the BCECA (British Chemical Engineering Contractors Association) Graduate committee which she chaired for several years.

Following five years in the operations department, Helen transferred to the Process Safety team, supporting both existing operating facilities and new design work across multiple technologies. It was during this time that she developed a passion for safety engineering, in particular process safety hazard identification and

process safety consequence modelling.

In 2009 Helen transferred to Petrofac Engineering Services Ltd, an oil and gas services provider as a senior safety studies engineer and within six months had taken on a leadership position, leading a team of thirty safety engineers in the Risk Safety and Environmental group. She is a company subject matter expert on quantified risk analysis and technical authority.

Helen has significant interest in engineering matters outside of her role at Petrofac, including past roles on the IChemE Council, and on the IChemE membership committee as Honorary Registrar. She is currently supporting the launch of the new Professional Process Safety Engineer professional qualification for IChemE. This is a new professional qualification, aimed at Process Safety engineers as an indicator of peer reviewed competence in the process safety area. Helen has been instrumental in developing the standards and training assessors.

"Since winning the Karen Burt Award in 2002, so much has happened, which I could never have predicted. I have moved in to an area of engineering which I am passionate about and allows me to make a real difference to how new designs are implemented with respect to safety and the environment. I hope that young women can recognise the opportunity within STEM industries to make a positive contribution to society through their work" comments Helen.

Beth Hutchison worked in IT for 36 years, from early days with PDP 11s and paper tape, through Apple micros and IBM mainframes, to web computing across the internet. Throughout her career she maintained a technical focus, working as a software programmer, designer and architect.



Beth has a PhD in physics. However, when she was analysing the results of her experiments, she realised that the computing part of it was much more interesting than the physics. Beth's first few computing jobs were still science-related: analysing data at the European Space Agency centre in Germany, working at the Atomic Research Authority, and writing a central heating calculator for hospitals.

In parallel, Beth and her husband founded a small company, manufacturing disk drives for Apple computers, and after 4 years she joined it full-time. She was immediately promoted to Software Director with responsibility for defining processes for independent test teams and library systems, as well as continuing to write code.

This was followed by a two year career-break – not to start a family, but to sail in the Mediterranean. For anyone taking time-out from a career, for whatever reason, there is always the question about how easy it will be to get back in again. When she returned, she had to learn about object oriented programming, but this wasn't a disadvantage, because everyone is constantly learning about the next new IT technology.

When Beth returned to work, she deliberately chose a large company – IBM – to see what was done differently, how to develop software 'properly'. But there is no 'silver bullet' – software development everywhere depends on bright people

thinking clearly about the design and logic of their programs.

One of the advantages of a large corporation is that you can change job without changing company. Beth started as a programmer, then moved on to design, team leading, and software architecture. She was responsible worldwide for the performance of Java™ on IBM's platforms, working with Java during its emergence as a vital component of the web technology we all now take for granted. From there she moved on to work on various other web technologies, such as Web Services and Complex Event Processing, which enables businesses to correlate events to discover patterns, and consequent situations. Within IBM she was appointed a Distinguished Engineer, and elected by her peers to the IBM Academy of Technology.

Beth thoroughly enjoyed her career in software engineering, and wants to persuade others, particularly women, that it is a fulfilling and fun career choice. She also wants to ensure that within the profession women have equal opportunities, and equal confidence to make the most of those opportunities. Beth was a founder member of the IBM UK Women's group, and an committee member of the BCSWomen group.

Beth was appointed a Fellow of the British Computer Society, and became a chartered engineer, in 2000. She retired from IBM in 2010, and is currently renovating a house in Hampshire.



Una Beagon (nee Mc Quaid)
MEng PGDip CEng MICE MIStructE MIEI

Una was lucky to realise at a young age that she wanted to be a Civil & Structural Engineer. She always wanted to build things and even today that remains with her. She is luckier still to have been given many opportunities over the years to work on exciting projects, with gracious colleagues across a wide range of industries.

Una graduated from Queen's University of Belfast in 1994 with a first class honours degree and spent her early years with Doran Consulting in Belfast, a civil & structural engineering firm moving to open their London office in 2000. She was mentored by some excellent engineers who not only assisted her in developing her design skills but gave her great confidence in her abilities, and her potential to progress within the industry. She was both encouraged and supported to obtain chartership of the ICE and Institution of Structural Engineers (IStructE) which she did at ages 26 and 27, which was relatively young in hindsight.

Una moved back to Ireland in 2004 to be closer to family and took a position with PHMcCarthy Consulting Engineers, as a Regional Director. Here, she worked closely with young graduate engineers to mentor them through chartership examinations and visited schools to promote engineering as a great career choice.

It was during this time that she extended her family with two daughters and she decided to take a part-time lecturing position in Dublin Institute of Technology. She loves teaching and finds it very rewarding to see how her students have developed over the year. During her second year of teaching she undertook a Postgraduate Diploma in Third Level

Teaching and Learning and successfully graduated last year. She enjoyed her part time work when the children were very small but as they progressed to school, she was keen for a new challenge.

Last year, she joined CH2M Hill, a global leader in consulting, design, operations and program management with nearly 30,000 staff worldwide. She is a Project Manager working on a multimillion Euro project for a semiconductor facility based in Ireland. CH2M Hill encourage a work life balance and have also allowed Una to continue lecturing part-time which she really enjoys.

"As I review my first 20 years in industry, I realise that since the Karen Burt Award, my career has blossomed, not only in the sense of receiving promotions and climbing the career ladder, but also in terms of my self confidence and career development. My roles have changed over the years, from being a technical engineering designer, to managing a team and being responsible for the financial performance of a company, to lecturing and now project management of a high tech industry project. Who knows what the next 20 years will bring!"

"I would really encourage any young people interested in engineering as a career to take the plunge. I continue to love what I do every day and each new project brings a new challenge."

Rebecca Dowsett (nee Smith) BEng (previously CEng MIET)

Rebecca graduated from the University of Nottingham with a 2:1 in Manufacturing Engineering and Operations Management. She had been sponsored throughout her time at University by Glynwed International, however her dream was to speak German fluently and so she left to join IMI Plc, where she spent 7 months working as a design engineer in Germany and achieved her aim.



1999

Returning to the UK she requested a commercial placement, and undertook a couple of further projects working as a senior production controller and then a secondment to cover the training schemes manager's maternity leave.

Alongside her career she joined a group of Neighbourhood Engineers in Coventry and visited schools to promote engineering as a career. She also worked alongside teaching staff at parents evenings, trying to dispel prejudices of being a woman in industry. She was awarded Chartered Engineer Status by the Institution of Electrical Engineers in 1998 at the age of 26.

Rebecca then became Ecommerce Manager for IMI Norgren. She was able to use her varied skills and knowledge of the technology in order to develop an ecommerce site as well as other ecommerce products to suit Norgren's varied customer requirements.

Whilst on maternity leave she sought career advice from her old University and took up a totally new career as the first Graduate Centre Manager at the University of Nottingham; working with postgraduate engineers in developing their transferable skills to make them more employable. The role was a success and the University introduced other Graduate Centres around its campuses. In 2007, after 2 years at the University, she was nominated by the postgraduates for the Lord Dearing

Award for Teaching and Learning. She was very surprised to hear that she was successful, as previously these highly prestigious awards were exclusively made to Academics.

After almost 8 years she recently left the University to embark on another new career as a Primary School teacher. She has been offered a place on the Schools Direct (salaried) programme whilst training to become a teacher. With two primary-aged children herself, Rebecca is looking forward to inspiring other youngsters in the fields of Science and Mathematics. "Not everyone can be a brilliant scientist but through innovative teaching methods I want children to be inspired to find out more about the workings of our world. Hopefully in 10 years there will be an influx of children wanting to study science and engineering from the East Midlands!" Rebecca has enjoyed a varied and changing career although the roles she has most enjoyed have all had the common theme of communicating her passion for STEM. "It has been wonderful to have had my passion for science and technology recognised by receiving two prestigious awards; the Karen Burt Award and the Lord Dearing Award. These have given me increased confidence as well as pride in the work I do. Engineering as a career offers you a world of exciting, and sometimes unexpected, possibilities!"

MORGAN SINDALL

Morgan Sindall is a UK construction, infrastructure and design business with a network of local offices. The company works for private and public sector customers on projects and frameworks from £50,000 to over £1 billion. Activities range from small works and repair and maintenance, to the design and delivery of complex construction and engineering projects where it is able to provide specialist design, tunnelling, utilities, building, civil engineering and mechanical and electrical services. The company operates across the commercial, defence, education, energy, healthcare, industrial, leisure, retail, transport and water markets.

Morgan Sindall is part of Morgan Sindall Group plc, a leading UK construction and regeneration group with revenue of over £2 billion and which operates through five divisions of construction and infrastructure, fit out, affordable housing, urban regeneration and investments.

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