



News

Your quarterly insight into all things that directly affect the Society and all those involved with it

Work on derelict site wins top young engineer award

The winner of the Young Environmental Engineer of the Year for 2011 is James Regan, BSc(Hons), MSc, MSEE, CEnv, a senior geo-environmental engineer with Sirius Midlands.

The award is made annually to an engineer under 35 years of age who has made a significant contribution to environmental engineering.

James Regan's submission described turning a vacant and derelict brownfield site into a safely habitable site.

He said: "The majority of work undertaken by geo-environmental engineers involves the assessment, investigation and remediation/reclamation of sites which have been damaged and contaminated by historical industrial activities. Within any typical week, my work takes me through a range of tasks including environmental survey inspections, site audits, site inves-

tigations, risk assessments and meetings with regulators.

"My vocation for chemical sciences led me to a specialist position within Sirius Midlands as one of their main risk assessment and contaminated land engineers. This role combines aspects of chemistry, microbiology, hydrogeology and statistical analysis into a truly multidisciplinary approach to understanding risks from contamination to both human health and the environment."

Recently, James became a Chartered Environmentalist with a submission and interview that showed a very high level of competence and commitment.

The full text of James's submission can be found on the SEE website. Nominations for the 2012 Young Environmental Engineer of the Year Award are welcome and should be sent to the SEE Secretariat.



Winning combination: James Regan's winning entry reflected his work as a geo-environmental engineer on a difficult brownfield site project



Bloodhound takes its message to the younger generation

The Bloodhound Supersonic Car (SSC) project is aimed at retaining and increasing the world land speed record to 1000mph. But at the same time it is an iconic project designed to encourage young people to consider careers in science and engineering.

In the 1960s and 1970s children were inspired and stimulated by aerospace projects such as Concorde, Vulcan, and the Harrier. In the US the manned space programme stimulated a massive increase in postgraduate studies.

But in recent years it has seemed that there have been



fewer stimulating projects and interest waned at school level. Bloodhound SSC is designed to be the modern iconic project and its promoter says there has never been an educational activity with this degree of potential.

To date Bloodhound has cost £5.4 million (plus some grant

money) with some 30 man-years of work. The project employs 38 people and 200 companies are taking part. Rolls-Royce is helping with the Eurofighter engine installation and has made a substantial technical contribution to the research. The car design is now frozen and due for a

Inspiring example: Bloodhound is already a huge success in its educational role

"roll out" in December 2012, with first runs on the South African Hakskeen Pan desert in 2013. The project is expected to conclude in 2014.

There is a substantial education grant of £615,000, and the five-person fulltime education team has now signed up 4,694 UK schools, colleges and universities. Included in this number are 2,400 primary schools.

Over 25,000 Bloodhound balloon cars have been built and many schools are developing their own playground rocket cars: one school set a Guinness World Record. The project is being followed in 207 countries.



Comparison of reliability standards report available

The final agreed report prepared by Expert Group 17 (Dependability and Safety) of CEN Workshop 10 is now available. The report was delivered by the Expert Group 17 convenor Nicholas Barnett of the UK Ministry of Defence, a joint member of SaRS and SEE, **David Richards** reports.

CEN Workshop 10, and its 19 expert groups, were tasked by the EU European Defence Agency (EDA) to recommend requirement standards for defence procurement related to the European Defence Procurement Directive 2009.

This section of the European handbook encompasses standards related to the more traditional areas of reliability, availability and maintainability including testability (RAM), both in terms of engineering design assessment and verification techniques.

The Dependability and Safety working group identified relevant standards commonly used in individual countries. This activity encompassed five nations – France, Germany, Italy, Spain and the UK – and totalled 230 standards. The group reviewed each of them, forming a consensus on which standards should be included in the handbook as best practice.

Preference was given to international standards where possible but only when the group agreed that those standards represented best practice. Where international standards were not available or not considered as best practices then multinational or national standards were recommended.

The process produced a total of 77 standards that were selected for inclusion in the Dependability and Safety part of the European Handbook for Defence Procurement.

The expert group found

many standards encompassing the Dependability and Safety domains and it proved difficult to recommend just one set of standards. They recognised that many standards are inter-related or complementary to each other and that the recommendation of one standard implied the inclusion of others, particularly in management areas where multi-national standards, typically NATO, are based on civil standards with additional requirements for military applications.

The expert group identified that some standards encompass very specific domains, for example road vehicle safety, but still contain activities that need to be tailored for a particular project. They noted in the conclusions that utilising any standard without a thorough understanding can often lead to the inclusion of unnecessary tasks and cost. Even where a standard is recommended as best practice it is vital to ensure it is applied intelligently and adds value.

The expert group observed that the Dependability and Safety domains are changing rapidly as a result of new legislation, incidents occurring in service, and research that is providing new and better methods for achieving safe and dependable products.

There is a vast number of standards in the Dependability and Safety domains, both civil and military, and the group felt there is an urgent need for a review all standards in each domain to both remove old and obsolete standards, and merge the best parts of some “complementary” standards, both civil and military in one document.

The final report of Expert Group 17 will be made available on the SEE website. The CEN Workshop 10 reports will be on www.defense-handbook.org.

It proved difficult to recommend one set of standards



Sustainable living: The BRE site provides interesting examples of sustainable housing

Building Research labs host the Engineering Council annual retreat

The Engineering Council retreat and board meeting took place on 14/15 September and was held at the Building Research Establishment (BRE) at Watford. SEE Chief Executive Professor Raymond Clark took part as the representative of Group C institutions.

In depth discussions took place on:

- CPD and the policy Engineering Council should adopt for the future
- Relationships with employers and encouragement for them to support registration
- International qualifications and registration procedures
- Promotion of IEng and how it is perceived

During the retreat there was a tour of the BRE facilities. Of particular interest was the Innovation Park that comprises a number of complete houses built in different and novel ways, designed to give a glimpse of how the future delivery of sustainable buildings and communities can be achieved not only in the UK but around the world.



It features eight of the world's most sustainable houses (built to the code for sustainable homes), with over 400 different construction innovations and emerging technologies as well as a state of the art community landscape design.

Collectively these buildings demonstrate diverse and innovative approaches to sustainable design and construction. They each share the common goal of having a low impact on the environment but a high impact on the quality of life of building and community occupants and CO₂ emissions reduction.

Council approves Hong Kong Chapter

The SEE Council has approved the setting up of a Hong Kong Chapter to provide services to our increasing number of Members in that region.

Tommy Ho of HCL in Hong Kong has kindly agreed to be chairman of the Chapter. Contracts are being exchanged and more information will be available in our next issue.

NEW REGISTRANTS & MEMBERS

SEE - ENGINEERING COUNCIL REGISTRATIONS

We are pleased to announce that the following have been nominated to the Engineering Council Register through the Society:

ICorr

- Mr Barry Lamb, CEng
- Mr John M Graham, CEng
- Mr Richard Weare, CEng

IExpE

- Dr Caroline Lowe, CEng
- Mr Nicholas Savage, CEng
- Mr Robert Seddon, CEng

SaRS

- Mrs Ann Zakaszewska, IEng

- Dr Branka Subotic, CEng
- Mr Julian Lockett, CEng
- Mr Mark Brennan, CEng
- Mr Simon Burwood, CEng
- Mr David Hepworth, CEng

SEE - SOCIETY FOR THE ENVIRONMENT REGISTRATION

The following member has gained CEnv registration through the Society:

- SEE - Mr Alan Millin, CEnv

SEE NEW MEMBERS

We are pleased to welcome the following new members to the Society.

Corporate Members

- Mr Wai Lung Leung, HangHong Yip Service Ltd, Hong Kong
- Mr Ahmed Elsherbiny, BP, Egypt
- Miss Victoria Leigh, Engineering Services Consultancy, Birmingham, UK
- Mr William John Hitchcock, Green ?Energy Nayland, Colchester, UK
- Mr Wai Man Leung, Government Offices, Hong Kong
- Mr Sze Lok Man, Sing Fat Construction, Hong Kong
- Dr Kiran Tota-Maharaj,

- University of Salford, UK
- Mr Vipin Baichoo, MS2 Energy, Lytham St Annes, Lancashire, UK
- Dr Christine Switzer, University of Strathclyde, Glasgow, UK

Member

- Mr Timothy Mudiaga Umukoro, Green Solutions Glasgow, UK

Student Members

- Mr Simon Wilde, Swansea University, UK
- Dr Ghulam Raza, University of Birmingham, UK

Joint Members - with other

Engineering Institutions

ICorr
Mr John Michael Graham, QGC, Australia

■ Mr Barry Lamb, BAC Corrosion Control, Telford, UK

SaRS

■ Mr Mark Andrew Brennan, Lockheed Martin UK - Insys Ltd, Amptill, UK

■ Mr Julian Lockett, BMT Isis, Portsmouth, UK

■ Mrs Ann Margaret Zakaszewska, Ebeni, Wiltshire, UK

■ Mr David Hepworth, Risk Engineering, Aberdeen, UK

GREETINGS OF THE SEASON



■ The President, Council and Secretariat of SEE wish all our Members a Very Joyful Christmas and a Prosperous 2012.

BRE's Olympics sustainability lead to guest at SocEnv Christmas reception

■ BRE chief executive Dr Peter Bonfield has for the past five years been on part-time secondment to the Olympic Delivery Authority (ODA) helping create the sustainable development strategy for the Olympics and support its delivery.

Since November 2006 he has led for ODA on construction products, playing a key role in ensuring that the significant quantities of materials required to construct the games are sustainably procured and delivered and perform as required.

Dr Bonfield will be the guest of honour at the Christmas reception of the Society for the Environment on 7 December in London when he will describe his work with the ODA. Anybody wishing to attend should contact the SEE Secretariat.



The gap in the dam: The scale model of the breached Möhne dam used in wartime testing

Memories of the Dambusters' tests flood back to visitors at the BRE

The BRE site has a fascinating history and Engineering Council delegates were amazed to see, over a stream, a 1/50th scale model of the Möhne Dam. As seen in *The Dam Busters* film, this is one of the originals used for the wartime tests, and it still exists intact at BRE. It is now a listed building and can be visited by arrangement with BRE.

The replica of the Möhne

Dam in the grounds of the Building Research Establishment is a unique survival; it is the only test dam to survive from a small number built for the dam destruction experiments at Garston and as such is not only of national but also international importance.

It gives testimony to the exhaustive nature of the top secret experimental bombing trials

prior to the Dambuster raid on the Ruhr river dams in Germany. It also illustrates the multiplicity of tasks for which local construction companies as well as national scientific staff could be conscripted into during the course of World War II.

The Dambuster raid is a world famous event. The secret trials prior to the event are, however, not so well-known.



LATEST STANDARDS IN THE FIELD OF ENVIRONMENTAL TESTING

By David Richards Hon.FSEE, CEng, CEnv
Lockheed Martin UK Ampthill

ENVIRONMENTAL CONDITIONS

BS 8905: Framework for the assessment of the sustainable use of materials. Guidance.
BS ISO 13253: Ducted air-conditioners and air-to-air heat pumps. Testing and rating for performance.
ISO 14006: Environmental management systems. Guide lines for incorporating ecodesign.

ENVIRONMENTAL TESTING

BS EN ISO 6272-2: Paints and varnishes. Rapid-deformation (impact resistance) tests. Falling-weight test, small-area indenter.
BS EN 50130-5: Alarm systems. Environmental test methods.
BS EN 60068-2-5: Environmental testing. Tests. Test Sa: Simulated solar radiation at ground level and guidance for solar radiation testing.
IEC 60068-3-1: (Edition 2) Environmental testing. Supporting documentation and guidance. Cold and dry heat tests.

ACOUSTICS

BS ISO 10302-2: Acoustics. Measurement of airborne noise emitted and structure-borne vibration induced by small air-moving devices. Structure-borne vibration measurements.
IEC 60268-16: Sound system equipment. Objective rating of speech intelligibility by speech transmission index.
BS EN 60534-8-3: Industrial-process control valves. Noise considerations. Control valve aerodynamic noise prediction method.

CONTAMINATION

BS EN ISO 10769: Clay geosynthetic barriers. Determination of water absorption of bentonite.
BS EN 15820: Polymer modified bituminous thick coatings for waterproofing. Determination of watertightness.
EN 15967: Determination of maximum explosion pressure and the maximum rate of pressure rise of gases and vapours.

CORROSION

BS EN 1965-1: Structural

adhesives. Corrosion. Determination and classification of corrosion to a copper substrate.
BS EN ISO 8565: Metals and alloys. Atmospheric corrosion testing. General requirements.

CLIMATIC

BS EN 4593: Aerospace series. Paints and varnishes. Determination of solar absorptance.

SHOCK AND VIBRATION

BS EN ISO 6272-1: Paints and varnishes. Rapid-deformation (impact resistance) tests. Falling-weight test, large-area indenter.
BS ISO 7626-1: Mechanical vibration and shock. Experimental determination of mechanical mobility. Basic terms and definitions, and transducer specifications.
ISO 12111: Metallic materials. Fatigue testing. Strain controlled thermo-mechanical fatigue testing method.
ISO 16063-41: Methods for the calibration of vibration and shock transducers. Calibration of laser vibrometers.

ELECTRO-MAGNETIC

BS EN 50536: Protection against lightning. Thunderstorm warning systems.
BS EN 55022: Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement.
BS EN 61000-4: Electromagnetic compatibility (EMC). Testing and measurement techniques. -15 Flicker meter. Functional and design specifications
-21 Reverberation chamber test methods
BS EN 61000-6: Electromagnetic compatibility (EMC). Generic standards. -3 Emission standard for residential, commercial and light-industrial environments
-4 Emission standard for industrial environments
PD IEC/TR 61000-2-5: Electromagnetic compatibility (EMC). Environment. Description and classification of electromagnetic environments
BS EN 62305-3: Protection against lightning. Physical damage to structures and life hazard.

PD IEC/TR 62669: Case studies supporting IEC 62232. Determination of RF field strength and SAR in the vicinity of radio communication base stations for the purpose of evaluating human exposure.

PACKAGING

BS ISO 11156: Packaging. Accessible design. General requirements.
BS ISO 22742: Packaging. Linear bar code and two dimensional symbols.

MISCELLANEOUS

BS EN 1127-1: Explosive atmospheres. Explosion prevention and protection. Basic concepts and methodology.
BS EN ISO 1518-1: Paints and varnishes. Determination of scratch resistance. Constant-loading method.
BS EN ISO 11925-2: Reaction to fire tests. Ignitability of products subjected to direct impingement of flame. Single-flame source test.
BS ISO 7401: Road vehicles. Lateral transient response test methods. Open-loop test methods.

Birch retires from council

After 11 years of flying the flag and fighting UK's corner Dr Jim Birch has retired from the post of Head of International Recognition at the Engineering Council. Dr Birch says it has been an interesting decade which saw the Engineering Council and the institutions working together, and in particular adopting a collaborative approach to international activities.

Some of the significant achievements are:

- Built up good trust and cooperation with the institutions
- Built up relations with relevant government departments and agencies
- Ensured that FEANI has UK compatible policy
- Ensured that EUR-ACE standards are outcome based and UK-Spec compatible
- Ensured that UK engineers and technicians are not disadvantaged by the recognition of the Professional



Birch: Interesting decade

Qualifications Directive

- Built up the International Engineering Alliance and ensured that the globally applicable standards and procedures which it applies are UK compatible.

SEE is particularly grateful for Jim Birch for help over many years to answer many questions about our overseas applicants and we wish him a very happy retirement.

2012 DIARY DATES

- The next Annual General Meeting of the Society will be held on Thursday 29 March 2012 at 2.00pm at the Manor House in Buntingford following a Council Meeting.
- ET - Sustainability Live, exhibition at the NEC, Birmingham, 22-24 May.
- EIS - Instrumentation, Analysis & Testing exhibition at Silverstone, 6 March.

- Big Bang 2012, 15-17 March 2012, the NEC, Birmingham
Only a week into registration, over 12,000 attendees booked for the Fair which is on track for its target of 35,000 people on site.

The showfloor activities, which include everything from Welding with Chocolate to Chemistry Goes Live, are looking really strong this year, while the theatre shows - including the award-winning Sky One's Brainiac Live! - which complement cutting-edge, hands-on workshops like Alton Towers' Rollercoasters and Relativity, will make the Fair for 2012 the best so far.

Once again SEE, in collaboration with Lockheed Martin, will be providing an activity to construct a simple solar water heater. This will be in the form of a competition and two winning schools will each receive project kits to repeat the experiments at their schools.

Booking for teachers and families takes place at the website at www.thebigbangfair.co.uk

If you have any further questions, please contact Georgina Goodman at ggoodman@engineeringuk.com.