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Editor's Foreward, Reader's Guide and Journal Launch

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Editor's foreword

Welcome to the first edition of what will be the most widely-read applied research journal in the engineering/built environment sector in Ireland. This journal concentrates on papers which present insightful findings to working professionals. All papers are evidence-based and are critically reviewed by engineering peers and academics to ensure good quality and authentic findings. The intention is to disseminate insightful research findings throughout the industry.

The quality of papers is judged less by the success of a project and more by the insight produced by the findings and the quality of evidence and analysis presented. There is as much to learn from the mistakes and the things that went wrong as there is from the things that went right. Insight is often borne out in research by the surprises involved.

Apart from papers by working engineers and researchers, this and all future editions will include papers from young engineers, post-graduate and undergraduate students.

The intention with this journal is to encourage applied research and disseminate interesting findings in sustainable design back into our industry. We encourage all professionals involved in the built environment to consider contributing articles to future editions.

Research is not just about people in white coats in laboratories. It is about critically evaluating your project innovations and comparing your findings with those of others. Evidence-based evaluation is applied research and every project is an individual case study waiting for analysis. Publication of that applied research allows us all to learn, increase the quality of what we do, and enhance value to the client.

Finally, I would encourage collaboration in this applied research process. This journal is a collaboration between CIBSE Ireland and DIT. Similarly, companies might join with academic institutions to produce good quality research of their own. My experience is that working professionals in companies tend to be time poor and data rich, whereas post-graduate students are time rich and data poor. This offers excellent opportunities for both parties to benefit, as well as industry generally, when the findings are disseminated.



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A Reader's Guide

The opening paper by **Keohane & Leonard** of PM Group was the winner of the 2011 CIBSE Ireland SDAR* Award. This is an interesting analysis and shows how a groundwater heat pump and a novel VAV underfloor mechanical ventilation system installed in the Western Gateway building of University College Cork can use lower energy consumption than traditional heating and cooling systems. This is



a case study evaluation of an innovative approach to the integration of three technologies in a university building.

The second paper by **Tooth, Burke and Saul** of J V Tierney was a runner-up in the SDAR* Awards 2011. This paper examines computer-simulated energy targets against actual energy



consumption for the new Criminal Courts of Justice building in Dublin. It also evaluates the benefits of engineering solutions such as twin-skin facades and heat recovery. Interestingly, the authors found that actual energy used is about 25% less than that predicted by the software. They conclude

this is due to occupancy levels and fluctuations that are not predicted by the software. They considered their evaluation a sanity check and proposed that energy usage profiles be generated. Their applied research also underpinned existing knowledge of the benefit of twin-skin facades and energy recovery systems.

In his paper **Wegner** reviews the Passiv Haus concept and examines a case study application on the Tesco supermarket in Tramore, Co Waterford. This was a collaborative paper between an ME post-graduate student and the Tesco energy management division. Wegner, in a critical analysis, found that electrical consumption was 23% lower in the passive construction in Tramore than in equivalent Tesco stores, and that the results are encouraging enough to suggest that this type of construction has potential in commercial settings. However, this paper also highlights the things that can go wrong when implementing innovative solutions.



Doyle's paper was the winner of the Irish Lighter awards in 2010 and this study was published as a completed thesis by Lambert Academic Publishing in Germany. Doyle set out to evaluate the performance of lighting controls in three buildings, as a mature undergraduate student. However, when he went to the buildings to gather data, the controls had been disconnected. This led to a whole new research question that required a complete change in methodology. The research question became: *why were*



the controls disconnected. Doyle used Qualitative Research (interviews) which is an unusual but growing methodology in engineering applied research. In order to analyse data he devised a conceptual framework from a literature review of previous research carried out internationally into this area. His

conclusions concurred with the previous research in many respects, but also added to this previous research with interesting insights into local practices and fee structures.

The following paper by **Duff** was the Young Irish Lighter Award winner in 2010. Duff was an undergraduate student at the time of submission and now works for Arup. This is an examination of compact fluorescent lamps (CFLs) in the domestic environment. Duff concludes that potential savings in energy costs and CO₂ emissions must be balanced against colour quality and other factors in a



clear way. He examines 12 characteristics of the lamps. This is worth a read by anybody using CFLs in their own home but the most insightful findings from an engineering perspective are linked to the poor power factor and the harmonic distortion of the



waveform when using significant numbers of CFLs. Duff used laboratory facilities in DIT to carry out his measurements.

The final paper by **Croly** of the Building Design Partnership was the SDAR* Award winner in December 2009. This is an

insightful and detailed analysis of low-energy commercial kitchen design, albeit in a training kitchen in Waterford Institute of Technology. Interesting findings relate to use of displacement ventilation in kitchens, use of advanced catering equipment, use of hybrid natural ventilation, and use of complex controls in this setting.

Providing best practice advice



CIBSE is the professional body that exists to “support the science, art and practice of building services engineering, by providing our members and the public with first class information and education services and promoting the spirit of fellowship which guides our work.”

CIBSE promotes the career of building services engineers by accrediting courses of study in further and higher education. It also approves work-based training programmes and provides routes to full professional registration and membership, including Chartered Engineer, Incorporated Engineer and Engineering Technician. Once you are qualified, CIBSE offers you a range of services, all focussed on maintaining and enhancing professional excellence throughout your career.

CIBSE members in Ireland are represented by an active Regional Committee who are involved in organising CPD events, technical evenings, training courses, social events and an annual conference. The committee welcomes new members, suggestions, and collaborations with other institutions in the built environment.

**The Chartered Institution of Building
Services Engineers
in Ireland**

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CIBSE News

SDAR Journal formal launch

Subsequent to the publication and distribution of the *SDAR Journal* late last year, a formal reception was held in Engineers Ireland in Clyde Road, Dublin 4 recently to mark the occasion.

Guest of honour and principal speaker was Owen Lewis, SEAI Chief Executive. He was especially complimentary about the *Journal* and said that it represented a very important initiative which would contribute enormously to sustainable design in building services.

Dr Kevin Kelly, *SDAR Journal* Editor and Head of Department, Electrical Services Engineering, School of Electrical Engineering Systems, DIT, gave a thorough background as to how the idea for the *Journal* came about.

He also complimented, and thanked, the various parties who helped make it a reality, including the authors, members of the reviewing panel, and of course DIT's primary sponsorship partners, CIBSE and Airtricity. Other speakers on the night included Dr Mike Murphy, Director and Dean, College of Engineering & Built Environment, DIT and Sean O'Dowd, Vice-Chairman, CIBSE Republic of Ireland Region. ■



Photo 1 – Back row: Owen Lewis, Chief Executive, SEAI and Sean O'Dowd, Vice-Chairman, CIBSE Republic of Ireland Region. Front row: Dr Mike Murphy, Director and Dean, College of Engineering & Built Environment, DIT with Dr Kevin Kelly, *SDAR Journal* Editor and Head of Department, Electrical Services Engineering, School of Electrical Engineering Systems, DIT and Peter Lord, Airtricity.

Photo 2: Brian West, UCD with Declan Kissane, Unitherm and Gary O'Dowd, Varming. All three are also CIBSE Committee members.

Photo 3: Michael Buckley, The Buckley Consultancy with Gerard Keating, Homan O'Brien and Greg Traynor, Traynor & Partners.



Pat Benson Memorial Lecture

CIBSE Chairman Derek Mowlds pictured with Niall Treacy prior to the Pat Benson Memorial Lecture in DIT Bolton St recently. Niall gave the primary address and the subject matter was "Adopting First Principles of MEP Engineering Design to the Projects in the Middle East".

