



**BUILT ENVIRONMENT  
RESEARCH INSTITUTE  
ANNUAL REPORT  
1 AUGUST 2007 - 31 JULY 2008**

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*ANNUAL REPORT*

*1 August 2007 – 31 July 2008*





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## ***ANNUAL REPORT***

***(1 AUGUST 2007 - 31 JULY 2008)***

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## **I. FOREWORD BY THE PRO VICE CHANCELLOR (RESEARCH AND INNOVATION)**

It is the responsibility of any institution which conducts academic research to do so in a way that makes a significant contribution both to the social, political and cultural fabric of the community which it serves in particular and to society and the economy in general. In reading the annual reports from University of Ulster Research Institutes I am confident that you will find the research undertaken at Ulster to have more than fulfilled expectations over the past year.

The University's growing reputation for high quality research has enabled us to continue to attract additional high-calibre research staff who have assisted colleagues in attracting external research and other income and in completing work that has led to highly prestigious papers, books and other key performance outputs.

In particular, the University has had a successful year in terms of research grant income with £11.5M of externally funded grants. The number of major external awards, the value of which exceeds £200k, rose to eight with income totalling £3M attracted from prestigious Research Councils.

In addition to the annual allocation of DEL postgraduate of £3.38M, this year, the University received just over £300k in support of 34 new DEL funded PhD studentships to be held in research areas that have specific relevance to the Northern Ireland economy; thus allowing further development of R&D talent essential for innovation in business and the public sector. This funding enables Ulster to support 244 full-time research students with a further 161 supported from a range of other sources of funding.

Research staff have made a significant contribution to Northern Ireland's largest every strategic review under the MATRIX programme. A number of colleagues contributed significantly as members on the main panel with many other colleagues on Horizon panels across all five sectors, ie: Advanced Engineering (Transport), Advanced Materials, Agrifood, ICT and Life & Health Sciences. The MATRIX recommendations are implemented under the leadership of DETI and Minister Arlene Foster and the University will play a significant role in implementing its recommendations and model.

In November 2007 Ulster made its largest submission to the national Research Assessment Exercise (RAE2008). Almost 500 staff in 25 Units of Research Assessment participated in the exercise and a number of Ulster staff participated in RAE Sub-Panels with two members of staff being asked to act as Chair (Professor Hugh McKenna – Nursing and Midwifery and Professor Seamus MacMathuna – Celtic Studies).

The RAE2008 outcomes will inform the future research strategy of the University and the University's research strategy document (*SUPPORTIVE: Strategy and Action Plan for Research, Research Training and Innovation 2006-2009*) is to be revised during 2008/09.

There continues to be a very strong flow of research findings coming out of our research activities this year, many as new disclosures, adding to our intellectual property portfolio. We continue to exploit this asset through knowledge and technology transfer activities managed through our Office of Innovation.

I trust that you will enjoy reading the Report and commend it to you as evidence that University of Ulster research ranks highly amongst UK institutions.



Professor ND Black  
Pro Vice Chancellor (Research & Innovation)

## 2. FOREWORD BY THE RESEARCH INSTITUTE DIRECTOR



The period considered by this Annual Report for the Built Environment Research Institute, August 2007 to July 2008, coincides with the first year of the Faculty of Art, Design and the Built Environment. The new faculty which embraces the key themes of creativity, sustainability, engagement and diversity has created the opportunity for new research synergies to be forged between built environment, architecture, and art and design and in particular with the Research Institute for Art and Design. The challenge for the new faculty is to create added-value through the development of new strategic thinking across common areas of interest such

as urban regeneration, sustainable communities, environmentalism, urbanism and emerging policy agendas.

The past year has also seen some changes within the structure of the Built Environment Research Institute, notably the establishment of a new recognised research group HySAFER (Hydrogen Safety Engineering and Research). HySAFER which initially developed in Fire Safety Engineering Research & Technology (FireSERT) undertakes research in hydrogen safety, particularly gaseous and liquefied hydrogen releases and dispersion, spontaneous ignition and high momentum jet fires, deflagrations and detonations, and development of innovative mitigation technologies. HySAFER is recognised for achievements in large eddy simulations of physical phenomena underlying multi-scale accidental scenarios involving hydrogen as an energy carrier, including hydrogen fuelled vehicles and stationary fuel cell applications. The centre is a member of the European Network of Excellence HySafe and collaborates with leading world research laboratories from Europe, North America, Japan and Russia.

The activities of FireSERT received considerable impetus during the year with the re-opening of the main burn hall following structural repairs. The availability of the burn hall has allowed completion of the existing European PREDFIRE project on nanomaterial burning behaviour, the continuation of an EPSRC project on Façade Flames and the initiation of a new experimental programme on cellular beams also funded by EPSRC. A new grant on phosphorous based fire retardants was awarded by EPSRC (fast track award, £324K) and a new European programme on brominated fire retardants was approved for funding in June 2008. An EPSRC award of circa £408K was received on the performance of cellular composite floor beams under severe fire conditions and £108K from CEC Coal and Steel for the fire resistance of long span cellular beams made of rolled profiles. These new research programmes are in line with FireSERT's profile and vision of addressing fire safety by investigating flammability of materials from nanoscale during the design stage to their behaviour in large scale fires in the built environment.

The Centre for Sustainable Technologies (CST) has continued its expansion over the year and has significantly developed its infrastructure base with the acquisition of new equipment under the SRIF funding arrangements. In particular this has allowed CST to undertake solar testing all year round with a state-of-the-art solar simulator, gasification facilities for biomass energy systems and a heat pump test chamber for the evaluation of in-house experimental systems with considerably higher performance than currently available systems. The enhanced infrastructure has enabled CST to position itself to secure EPSRC and other prestigious funding. Significant new funding was received for BMT-



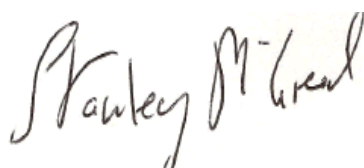
CES: Biofuel Micro-Trigeneration with Cryogenic Energy Storage (EPSRC, £118K), DECARBIT – Enabling advanced pre-combustion capture techniques and plants (CEC Framework 7 – Energy, £137K), Test method and set-up in the framework of a European Round Robin Test (European Multifoil Manufacturers GEIE (EMM), £107K) and for the investigation of design systems and methodology (InterTradelreland, £64K).

A core activity of the Centre for Research on Property and Planning (RPP) was the establishment of the Real Estate Initiative which was formally launched at the Waterfront Hall, Belfast in February 2008 with the guest speaker, Daniel Libeskind, attracting an audience of some 1800 persons – one of the largest public lectures organized by the University. The Real Estate Initiative is funded by private donations (£475K for the current year) and is designed to promote short, medium and long-term research projects in the real estate, design and associated areas of the built environment. In addition to research funding under the Real Estate Initiative, new projects funded by the Northern Ireland Housing Executive amounted to circa £90K and £67K from the Joseph Rowntree Foundation for a UK wide project for a housing and neighbourhood monitor.

Collectively, across the four research centres, 2007-08 has been highly successful year with a total value of new funding in excess of £1.8M, twelve research students graduated with doctoral degrees and the size of the post-graduate research community continued to grow with a further 57 students, including full-time and part-time, registered for doctoral degrees. The expertise of staff members is reflected in the wide range of international, national, regional and local activities that they are involved in, with many requests to act as invited or keynote speakers, serve on editorial boards, sit on government committees and other activities as noted in the section of this report on esteem indicators.

The period covered by this Annual Report has seen a further growth in the size of the Research Institute with membership at the end of July 2008 of 49 staff, split between core (30) and associate (19) members. During the year, we were pleased to welcome three of the new staff appointments in Built Environment: Dr Brennan (HySAFER), Dr Choi (FireSERT) and Dr Joseph (FireSERT) into the Research Institute. Also at the start of July 2008, Professor Greg Lloyd, took up post as Head of the School of the Built Environment. Professor Lloyds' appointment, and indeed other staff appointments to the School, are most welcomed, many of whom will enhance the activities of the Research Institute over future years.

In summary, I would encourage you to read through this Annual Report on the activities of the Built Environment Research Institute, University of Ulster over the period August 2007 to July 2008. I look forward to receiving any comments or queries that you may have on research activities in built environment.



Stanley McGreal  
Director, Built Environment Research Institute

### 3. RESEARCH INSTITUTE MEMBERS

Surname	Forename	Title	Position	Institute Status
<b>Adair</b>	Alastair	Prof	Dean, Faculty of Art Design and the Built Environment	Core
<b>Ali</b>	Faris	Dr	Senior Lecturer	Core
<b>Berry</b>	James	Prof	Professor in Urban Planning & Property Development	Core
<b>Blair</b>	Neale	Dr	Lecturer	Associate
<b>Boyce</b>	Karen	Dr	Lecturer	Core
<b>Brennan</b>	Sile	Dr	Lecturer	Associate
<b>Brown</b>	Louise	Mrs	Lecturer	Associate
<b>Choi</b>	Seng-Kwan	Dr	Lecturer	Associate
<b>Dahoe</b>	Arief	Dr	Lecturer	Core
<b>Davis</b>	Peadar	Mr	Lecturer	Associate
<b>Delichatsios</b>	Michael	Prof	Professor of Fire Dynamics and Material Flammability and Fire Modelling/Director of FireSERT	Core
<b>Elkadi</b>	Hisham	Prof	Head of School, Architecture & Design	Core
<b>Gray</b>	Paddy	Mr	Senior Lecturer	Associate
<b>Griffiths</b>	Philip	Dr	Lecturer	Core
<b>Gunay</b>	Banihan	Dr	Lecturer	Core
<b>Haran</b>	Imelda	Dr	Lecturer	Associate
<b>Harvey</b>	Harold	Dr	Senior Lecturer	Associate
<b>Heaney</b>	George	Mr	Senior Lecturer	Associate
<b>Hemphill</b>	Lesley	Dr	Lecturer	Core
<b>Hewitt</b>	Neil	Prof	Professor of Energy/Director of CST	Core
<b>Hine</b>	Julian	Prof	Professor of Transport	Core
<b>Huang</b>	Ye	Dr	Lecturer	Core
<b>Hyde</b>	Trevor	Dr	Lecturer	Core
<b>Joseph</b>	Paul	Dr	Lecturer	Associate
<b>Kashyap</b>	Anil	Dr	Lecturer	Associate

<b>Surname</b>	<b>Forename</b>	<b>Title</b>	<b>Position</b>	<b>Institute Status</b>
<b>Keenan</b>	Michaela	Dr	Lecturer	Associate
<b>Lim</b>	Lay-Cheng	Dr	Lecturer	Core
<b>Lo</b>	Stephen	Dr	Lecturer	Associate
<b>Lyness</b>	John	Dr	Reader	Core
<b>Makarov</b>	Dmitry	Dr	Lecturer	Core
<b>McCluskey</b>	William	Dr	Reader	Core
<b>McGreal</b>	Stanley	Prof	Professor of Property Research/Director of BERI and RPP	Core
<b>McIlveen-Wright</b>	David	Dr	Lecturer	Core
<b>McQueen</b>	Michael	Mr	Lecturer	Associate
<b>Molkov</b>	Vladimir	Prof	Professor of Fire Safety Science	Core
<b>Myers</b>	William	Dr	Reader	Core
<b>Nadjai</b>	Ali	Prof	Professor of Fire Structural Engineering	Core
<b>Novozhilov</b>	Vasily	Prof	Professor in Fire Dynamics	Core
<b>Odeyinka</b>	Henry	Dr	Lecturer	Associate
<b>Paris</b>	Christopher	Prof	Professor of Housing Studies	Associate
<b>Parsa</b>	Ali	Prof	Professor of Urban Planning & Business Development	Core
<b>Perera</b>	Srinath	Dr	Lecturer	Core
<b>Smyth</b>	Mervyn	Dr	Lecturer	Core
<b>Strong</b>	Alan	Mr	Senior Lecturer	Associate
<b>Thompson</b>	William	Dr	Lecturer	Associate
<b>Webb</b>	James	Prof	Professor of Property Finance	Core
<b>Woodside</b>	Alan	Prof	Professor of Highway Engineering	Associate
<b>Woodward</b>	William	Dr	Reader	Core
<b>Yohanis</b>	Yigsaw	Prof	Professor of Building Services Engineering	Core

BERI staff and status at 31st July, 2008.

## 4. Research Students

The following research students were registered on research degree programmes in the Institute during 2007-2008.

STUDENT NAME	THESIS TITLE
<b>Akashah, Farid W</b>	Fire risk simulation and assessment using multi-agent technology
<b>Alhaj, Tamin</b>	The potential of the application of photovoltaics to the housing sector and the future of energy
<b>Alharbi, Talal</b>	Accessibility of public buildings for the disabled community in Jordan
<b>Al Sheriani, Mustafa</b>	Economic globalisation and urban policy in UAE (A case study of Dubai as a global city)
<b>Anderson, Mark T</b>	Biomass pelletisation, fuel variability and pelletisation for co-gassification process
<b>Beji, Tarek</b>	Modelling soot and carbon monoxide in enclosure fires
<b>Bragin, Maxim</b>	Mechanisms of hydrogen ignition and fires
<b>Brown, Louise</b>	Time on the market for Single Family Residential Property: The UK Perspective
<b>Bukhari, Syed</b>	Public transport network change and access to transport in low income households
<b>Byrne, Orla M</b>	Investigation into the potential practical application of “smart growth” within an Irish Case Study
<b>Clarke, Mervyn C</b>	Strategic property performance management
<b>Colclough, Shane</b>	Thermal Energy Storage
<b>Davis, Peadar</b>	An Empirical Analysis of Property tax Policy Options and the Potential for using a Banded Approach
<b>Dwyer, Scott</b>	Low carbon energy solutions for high density urban housing
<b>Eadie, Robert W J</b>	e-Procurement in construction
<b>Goodfellow, Nathan K</b>	Cellular beams in fire: performance of cellular composite floor beams in fire situations
<b>Gore, Ricardo</b>	An investigation into the relationship between visual field/exposure and response time in a fire emergency
<b>Gunasekera, Sanwara</b>	Modelling the relationship between organisational and supply chain performance in the construction industry
<b>Hardie, Brian</b>	The behaviour of compartment masonry walls in fires
<b>Hillis, Colin JG</b>	Transport security and terrorism
<b>Kamruzzaman, Md</b>	Public transport network change and access to transport in low income households
<b>Keatley, Patrick</b>	Dynamic techno-economic analysis of power generation systems
<b>Kelly, Hugh F</b>	24-hour cities: advantages in commercial real estate investment

<b>STUDENT NAME</b>	<b>THESIS TITLE</b>
<b>McAlister, Michael P</b>	Development of a nett zero carbon campus for Omagh College of Further and Higher Education
<b>McAllister, Barry</b>	Quantified risk assessment for health care facilities
<b>McClements, Sharon</b>	Selection of consultants based on trust
<b>McCord, Michael J</b>	Modelling affordability in housing markets
<b>McGarry, Marion</b>	The Norman revival in Irish architecture
<b>McGrath, John</b>	Interchange and travel choice: implications for mode shift
<b>McIlhatton, David</b>	Spatial planning – cellular automata urban growth modelling
<b>McKeown, Paul James</b>	Legislative and operational issues for sustainable urban drainage systems
<b>McPhillips, Karen Marie</b>	An examination of afforestation in Northern Ireland
<b>Nichols, Emma</b>	Chemically-Enhanced Water Mist Suppression of Fires
<b>Nguyen, Quing-Minh</b>	Development of a high temperature heat pump for domestic applications
<b>Novaes, Marcio F</b>	Oilseed rape as a potential feedstock for domestic boilers
<b>Nursetiawan, Nursetiawan</b>	The effect of hydraulics on the performance of bituminous materials
<b>Pelan, John</b>	Computerisation of supervision of asphalt and bitmac resurfacing contracts
<b>Quigley, Denise</b>	Achieving an optimum balance across capital, life-cycle and environmental costs
<b>Quinlan, Patrick D</b>	Enhanced integrated collectors storage solar water heaters
<b>Rahman, Sazzadur</b>	Knowledge-based cost model for optimising the selection of product and technology for building design
<b>Ramos, Reynaldo</b>	Mixed use development: practice, potential, feasibility and performance
<b>Rodgers, William John</b>	An investigation into non-salt based methods of anti-icing
<b>Rolfe, Angela</b>	Integrated wind-compressed air energy storage system with combined heating and cooling
<b>Saffers, Jean-Bernard</b>	Principles of Hydrogen Safety Engineering
<b>Said, Rosli</b>	Evaluation of housing finance system: Assessing impacts on the housing market in Malaysia
<b>Shamsudin, Zarina</b>	Privatisation of property development in Malaysia: Negotiation frameworks and equity sharing

<b>STUDENT NAME</b>	<b>THESIS TITLE</b>
<b>Singh, Harjit</b>	An experimental study of natural convection heat and fluid flow phenomena in concentrating CPC and V-trough solar collector cavities
<b>Singhal, Shaleen</b>	An evaluation of complementarities between urban regeneration and business strategies: International perspectives
<b>Stephen, Raphael C</b>	Application of computer assisted valuation in Grenada
<b>Sultan, Zahid</b>	Managing transport demand and sustainable transport
<b>Tepe, Bulent</b>	Evaluation of Pretreatment Process in Powder Painting in Automotive Industry
<b>Ukleja, Sebastian S</b>	Production of smoke and CO in enclosure fires
<b>Vaganay, Marie</b>	The safety impact of public roads on child pedestrians/ reducing child pedestrian casualties
<b>Verbecke, Franck</b>	Formation and combustion of non-uniform hydrogen-air mixtures
<b>Zanjiri, Yasser</b>	Urban regeneration policies towards a sustainable urban space development in Tehran
<b>Zao, Wei</b>	Radiation modelling for fires
<b>Zbikowski, Mateusz</b>	Hydrogen deflagration-to-detonation transition and its mitigation technologies

### **Graduated December 2007**

<b>STUDENT NAME</b>	<b>THESIS TITLE</b>
<b>Hamilton, Gavin John</b>	How to influence a sustainable modal change on Belfast's southern approaches
<b>Shaheen, Abeer</b>	An ICT approach towards the development of an environmentally responsive architecture education
<b>Stevenson, William</b>	The inter-relationship between property infrastructure of schools and pupil academic achievement

### **Graduated July 2008**

<b>STUDENT NAME</b>	<b>THESIS TITLE</b>
<b>Donnelly, Conor Michael Thomas</b>	Business location decisions and managing transport demand: the land use planning system and business decisions.
<b>Girst, Berna</b>	The legislative and regulatory framework for the delivery of infrastructure in the Republic of Ireland.
<b>Gough, Brian</b>	An Evaluation of the Effectiveness of Current Management Strategies and Legal Controls for Controlling Accidents and Injuries to Fire Service Personnel in the Performance of their Duties, in Operational and Non-operational Environments, and Whilst Responding to Emergencies.

STUDENT NAME	THESIS TITLE
<b>Haran, Martin Edward</b>	Interrelationship between property development and urban regeneration.
<b>Murphy, Martina</b>	Sustainable innovation within the construction industry.
<b>Redpath, David Alastair Gwilym</b>	An investigation of the contribution of existing and potential barriers to the uptake of solar thermal technologies in Northern Ireland.
<b>Sumon, Sarwan Kumar</b>	Innovation and effective transport solutions for masonry arch bridges safety barriers and road humps through testing and numerical simulation.
<b>Wong, Ing Laing</b>	Evaluation of environmental design in built environment related to cost and quality aspects.
<b>Yazdani, Rahila</b>	Generic tools and techniques to simulate and evaluate port logistics.

## 5. Research Publications

- Adair, A, Berry, J, Hutchison, N and McGreal, WS (2007) Attracting Institutional Investment into Regeneration: Necessary Conditions for Effective Funding, *Journal of Property Research*, 24(3), 221-240.
- Adair, AS, Berry, JN and McGreal, WS (2008) A Review of Research Evidence on Factors Influencing the Renovation of Business Premises in Disadvantaged Areas, HM Revenue & Customs Research Report No. 43, pp 71.
- Adair, AS, McGreal, WS and Brown, L (2007) Northern Ireland Quarterly House Price Index Report No. 91 pp 8.
- Adair, AS, McGreal, WS and Brown, L (2007) Northern Ireland Quarterly House Price Index Report No. 92 pp 8.
- Adair, AS, McGreal, WS and Brown, L (2008) Northern Ireland Quarterly House Price Index Report No. 93 pp 8.
- Adair, AS, McGreal, WS and Brown, L (2008) Northern Ireland Quarterly House Price Index Report No. 94 pp 8.
- Ali, F and Nadjai, A (2008) Fire resistance of concrete columns containing polypropylene & steel fibers, *ACI special edition* 11.
- Ali, Z, Adair, A, McGreal, WS and Webb, J (2008) Corporate Real Estate Strategy: The Malaysian Experience, *Journal of Real Estate Literature*, 16(1), 3-22.
- Ali, Z, McGreal, WS, Adair, A and Webb, J (2008) Corporate Real Estate Strategy: A Conceptual Overview, *Journal of Real Estate Literature*, 16(1), 35-54.
- Allam, A and Nadjai, A (2008) Finite Element Modelling of Structural Steel Frame in Fire, *CTBUH 8th World Congress, Dubai*, 1-12.
- Allam, A and Nadjai, A (2008) Fire Safety Engineering: Getting it Right, *Fire Middle East Magazine*, No. 5, July/August, 24-26, 2008.
- Beji, T, Zhang, J and Delichatsios, MA (2008) Determination of soot formation rate in a laminar diffusion flame by the mean of an Arrhenius law and the laminar smoke point approach, *Combustion Science Technology*, 180:927-940.
- Belaire-Franch, J, McGreal, WS, Opong, KK and Webb, JR (2007) A Nonparametric Variance-Ratio Test of the Behavior of U.K. Real Estate and Construction Indices, *International Real Estate Review*, 10(2), 65-83.
- Blair, N, Adair, A, Bartley, B, Berry, JN, Creamer, C, Driscoll, J, McGreal, WS and Vigier, F (2007) Delivering cross-border spatial planning: proposals for the island of Ireland, *Planning Review*, 78(4), 485-510.
- Borst, RA and McCluskey, WJ (2008) Using Geographically Weighted Regression to Detect Housing Submarkets: Modeling Large-Scale Spatial Variations in Value, *Journal of Property Tax Assessment & Administration*, 5 (1), 21-54.
- Brennan, S and Molkov V (2008) Assuring the Quality of Simulation Results: An Engineering Case Study, *Proceedings of the 16th Software Quality Management and 13th INSPIRE International Conferences, University of Ulster*, 18-19 March 2008, 145-156.
- Brennan, S, Makarov, D and Molkov, V (2008) LES of high pressure hydrogen jet fire, *Proceedings of the 7th International Symposium on Hazards, Prevention and Mitigation of Industrial Explosions*, 6-12 July 2008, 168-178.
- Choi, SK, Burgess, IW and Blank RJ (2008) Performance in Fire of Long-Span Composite Truss Systems, *Engineering Structures*, 30(3), 683-694.
- Coyle, P and Novozhilov, V (2007) Further Validation of Fire Dynamics Simulator using Smoke Management Studies, *International Journal on Engineering Performance-Based Fire Codes*, 9(1), 7-30.



- Creamer, C, Blair, N, O’Keeffe, B, Van Egeraat, C and Driscoll J (2008) Tough Love: Local cross-border cooperation faces the challenge of sustainability, *Journal of Cross Border Studies in Ireland*, No 3, 80-95.
- Dahoe, A and Molkov, V (2008) On the implementation of an International Curriculum on Hydrogen Safety Engineering into higher education, *Journal of Loss Prevention in the Process Industries*, 21 (2), 222–224.
- Delichatsios, MA (2007) A correlation of Flame Heights in “Group” fires, *Int. Journal of Fire Science and Technology*, 26(1):1-8.
- Delichatsios, MA (2007) Upward Flame spread for correlating Standard SBI and ISO room tests, *Journal of Thermal Science*, 11(2):7-22.
- Delichatsios, MA and Zhang, J (2008) Pyrolysis of a finite thickness composite material, *International Journal of Heat and Mass Transfer*, 51:1480-1487.
- Eadie, R, Perera, S, Heaney, G and Carlisle, J (2007) Construction contractor’s perspective on web-based advertising of public sector construction contracts, Boyd, D (Ed), *Proceedings of 23rd ARCOM*, September 2007, Belfast, 767-776.
- Eadie, R, Perera, S and Heaney, G (2008) Identifying and Confirming Drivers and Barriers to E-Procurement in Construction Organisations, Amaratunga D & Haigh R edited proceedings of the international conference on Building Education and Research, Kandalama, Sri Lanka, 927-1939.
- Ebdon, JR and Joseph, P (2008) Flame-retardant polyester and polyamide textiles: In *Polyesters and Polyamides*, Deopura, B. L., Alagirusamy, R., Joshi, M and Gupta, B (Eds.), Woodhead publishing Limited, Cambridge, 306-324.
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- Elkadi, H and S. Al Maiyah (2008) Daylight for Strategic Intervention in Historical Towns, *Journal of Urban Technology*, 14 (3), 83- 103.
- Elkadi, H, Roulac, S, McPhillips, K and Shaheen, A (2008) Strategic Design Guidance on Tall Buildings in the Arab Region, *Instant Cities*, Mitchell et al (ed.), 255 -269.
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- Gray, P (2007) Is there a Housing affordability Crisis in Northern Ireland? *Annals of the University of Craiova*, 35, 24-44.
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- Woodward, D, Woodside, A, Ellis, R, Phillips, P, Walsh, I and Sinhal, R (2008) The effect of aggregate type and size on the performance of thin surfacing materials. International Conference Managing Road and Runway Surfaces to improve safety, Cheltenham, England 11-14 May 2008.
- Wu Y, Eames PC and Smyth M (2007) Optical and thermal analysis of different Asymmetric Compound Parabolic Photovoltaic Concentrators (ACPPVC) systems for building integration ISES Solar World Congress, Beijing, China, 18-21st September, 2007.
- Zacharopoulos, A, Mondol, JD, Hyde TJ and Smyth M (2008) CPC reflectors for enhanced solar radiation collection of an evacuated tube solar water heater. 10th World Renewable Energy Congress, 19th to 25th July, Glasgow, UK.
- Zbikowski, M, Makarov, D and Molkov, V (2007) Numerical simulation of large scale hydrogen-air detonation in the open atmosphere, XX International Symposium on Combustion Processes, 2-5 September 2007, Pultusk, Poland

## 6. Research Funding: New Awards Notified – 1st August 2007 to 31st July 2008

Staff Name	Title of Award	Funding Body	Value
<b>Adair Berry McGreal</b>	Real Estate Initiative	Donations through UU Foundation	£475,000
<b>Adair McGreal</b>	Evaluation of Investment Vehicles in Urban Regeneration	Investment Property Forum	£16,214
<b>Brown Blair McGreal</b>	Housing and Neighbourhoods Monitor	Joseph Rowntree Foundation	£67,042
<b>Delichatsios</b>	Eng 2008 3.1.4.1 Substitution options for Brominated Fire Retardants and alternatives: a lifecycle analysis	I.N.I Networking	£124
<b>Gray</b>	Private Rented Sector (Phase 3)	N.I.H.E	£19,000
<b>Hewitt Huang McIlveen-Wright</b>	BMT-CES: Biofuel Micro-Trigeneration with Cryogenic Energy Storage	E.P.S.R.C.	£117,762
<b>Hewitt Huang McIlveen-Wright</b>	DECARBIT – Enabling advanced pre- combustion capture techniques and plants.	C.E.C. – Framework 7 – Energy	£137,412
<b>Joseph</b>	The effects of nano- and molecularly- dispersed additives on the flame retardance in some chain-growth polymers containing covalently bound phosphorus	E.P.S.R.C.	£323,876
<b>Hyde Hewitt</b>	Test Method and set-up in the framework of a European Round Robin Test	European Multifoil Manufacturers GEIE (EMM)	£106,754
<b>Kashyap Berry McGreal</b>	The impact of urban form on energy use in developing countries	Royal Institution of Chartered Surveyors	£7,000
<b>McCluskey Lim</b>	Investigation into Land Value Taxation	Department of Finance and Personnel (N.I.)	£5,000
<b>McCluskey Lim</b>	Investigation into Land Value Taxation	Department of Finance and Personnel (N.I.)	£2,500
<b>McGreal Adair Brown</b>	Northern Ireland Quarterly House Price Index	N.I.H.E.	£15,000

<b>Staff Name</b>	<b>Title of Award</b>	<b>Funding Body</b>	<b>Value</b>
<b>McGreal Adair Brown</b>	Resale Performance of former Housing Executive Property 2007	N.I.H.E.	£10,000
<b>McGreal Adair Brown</b>	Private Rented Sector – Rent Index	N.I.H.E.	£25,000
<b>Nadjai Ali</b>	Performance of cellular composite floor beams under severe fire conditions	E.P.S.R.C.	£407,683
<b>Nadjai</b>	Fire resistance of long span cellular beams made of rolled profiles (FICEB)	C.E.C Coal and Steel	£107,650
<b>Paris</b>	Sponsorship of ENHR Colloquium for new housing researchers and ENHR Conference	N.I.H.E.	£3,500
<b>Paris</b>	Second Homes in Northern Ireland – Growth, Impact and Policy implications (Phase 2)	N.I.H.E.	£15,000
<b>Yohanis</b>	Investigation of design systems and methodology	InterTradelreland	£64,250

## 7. Indicators of Esteem 2007-2008

### *Adair*

- RAE 2008 member of Sub-panel 3 I Town and Country Planning
- The American Real Estate Society Richard Ratcliff Award for 2008
- Visiting Professor Universiti Tun Hussein Onn Malaysia
- Northern Ireland Executive Ministerial DSD appointment to Chair Advisory Panel of Experts for Implementation of Sir John Semple's Review of Affordable Housing
- Editorial Board, Journal of Property Research

### *Ali*

- Invited Lecture, University of Bordeaux.
- Reviewer of Fire Safety Journal.
- Reviewer ACI Structural Journal.
- Reviewer of the Journal of Materials and Structures.
- Reviewer of the Journal of cement and concrete composite.

### *Berry*

- Member Editorial Board, Journal of Property Research.

### *Blair*

- Reviewer for Urban Studies Journal.
- Member of the Brownfield European Regeneration Initiative network group, Belfast.

### *Boyce*

- Member of the Programme Committee for the 9th International Association of Fire Safety Science (IAFSS) Symposium, Karlsruhe Germany, 2008.
- Reviewer for Fire Safety Journal and Journal Fire Protection Engineering.

### *Brennan*

- Reviewer for Journal of Loss Prevention in the Process Industries, International Journal of Hydrogen Energy.

### *Brown*

- Invited speaker to EPLANI 'A Review of the Northern Ireland Housing Market' June 2008.

## Choi

- Member of Editorial Board, International Journal of Steel Structures
- Reviewer, Fire Safety Journal.

## Davis

- Invited Expert Witness, Evidence Session on the Review of Domestic Rating Reform, Northern Ireland Assembly Committee For Finance and Personnel, Wednesday, 10 October 2007, Parliament Buildings.
- Expert Witness for the Rating of Domestic Vacant Property and Derelict Land Taxation, Northern Ireland Assembly, 2008.
- Member of the Steering Group CASLE International Conference, 2008.

## Delichatsios

- Associate Editor Fire Science and Technology.
- Visiting Professor Centre of Excellence Tokyo University of Science.
- Session chairman in the International Symposium on Combustion, August 2008.
- Co joint Professor University of Newcastle Australia.

## Elkadi

- Appointed member of the Ministerial Advisory Group, Northern Ireland.
- Invited Keynote speaker, Role of Diversity in Building Shared Future Urban Environment in Belfast, Keynote speech, International Symposium: Sustainable development and diversity, San Sebastian/Donostia, Basque Country, Spain, 1-3 July 2008.

## Gray

- Advisory Panel of Experts Simple Review of Affordable Housing.
- Chair Conference of the Isles Cork April 2008.
- National Treasurer and Management Board of Chartered Institute of Housing UK.
- Member of Working Group, Housing and Urban Settlements, International Federation of Housing and Planning.
- Member of Judging Panels: UK Housing and NI Housing Council awards.
- Member European Network for Housing Research Working Group on Private Rented Sector.
- Editorial Advisory Board, Inside Housing, London.
- Visiting Professor of Real Estate, Spiru Haret University, Romania.

## Griffiths

- Reviewer, International Journal of Renewable Energy, International Journal of Thermal Sciences, International Journal of Ambient Energy.

## **Gunay**

- Editorial board of Pavement Reservation Journal.
- Advisory board for the 11th World Conference on Transportation Research.
- Referee for Transportation Research Journal - Part C.
- Referee for Transportation Research Board - Transportation Research Record Journal and Annual Conference.
- Referee for Institute of Civil Engineers – Transport Journal .
- Peer reviewer for EPSRC.
- The Turkish Road Association (YTMK) Annual Best Paper Award 2008.

## **Harvey**

- Editor in Chief, Journal of Environmental Health Research.

## **Heaney**

- Director, Constructing Excellence in Northern Ireland.
- Member, Regional Directors Forum, Constructing Excellence.
- Committee Member, Northern Centre, the Chartered Institute of Building in Ireland.

## **Hemphill**

- Reviewer for Urban Studies.

## **Hewitt**

- Invited keynote speaker at the 22nd IIR International Congress of Refrigeration, 25th August, 2007.

## **Hine**

- Adjunct Professor, School of Humanities and Social Sciences, Charles Sturt University, NSW, Australia.
- MATRIX Advanced Engineering (Transport) Panel, Northern Ireland Science Industry Panel.
- UK Council Member of the Chartered Institute of Logistics and Transport.
- Invited Speaker at the European Science Foundation Seminar on How to Measure Access, 27th-28th September 2007, Dresden.
- Invited speaker at the International Conference on Public Transport and Urban Citizenship, Trinity College, Dublin, 21st September 2007.
- Invited speaker at the Rural Australia without Petroleum Workshop, Institute for Land, Water and Society and the EH. Graham Centre for Agricultural Innovation, Charles Sturt University, Wagga Wagga, NSW, Australia, 13th March 2008.

## **Huang**

- Reviewer Renewable Energy Journal.

## Hyde

- Selected as the Irish partner for a European Round Robin test program for multifoil insulation sponsored by EMM.

## Joseph

- Reviewer Polymer Degradation and Stability; Functional Polymeric Materials; Fire Safety Journal; The Combustion Institute Journals.
- Secretary of the Fire Chemistry Discussion Group (a joint venture of the Society for Chemical Industry and the MacroGroup, UK).
- Member of the organising committee for the Fire Retardant Technologies 2009 (FRT09).

## Kashyap

- Reviewer for Impact Assessment and Project Appraisal.
- Appointed Honorary Adviser to Gateway College of Architecture, India.

## Lim

- Member IAAO/IPTI Editorial Review Board.
- Visiting researcher and collaborator of knowledge transfer and research training for National Institute of Valuation, Malaysia.
- Reviewer, Journal of Valuation and Property Services.
- Panel Chair for the Seminar on Market Value of Landed Properties, Kuching, Malaysia, September 2007.
- Invited Speaker for the 12th Commonwealth Head of Valuation Agencies Conferences, Sarawak, Malaysia, 2007.
- Expert Witness for the Rating of Domestic Vacant Property and Derelict Land Taxation, Northern Ireland Assembly, 2008.
- Member of the Steering Group CASLE International Conference, 2008.

## Lyness

- Reviewer for the Institution of Structural Engineers.

## Makarov

- Reviewer Fire Safety Journal, Journal of Loss Prevention in the Process Industries, International Journal of Hydrogen Energy.
- Paper “LES of hydrogen-air deflagrations in a 78.5-m tunnel” by V.Molkov, F.Verbecke, D.Makarov was selected for publication in Combustion Science and Technology Journal as one of the best papers presented at 5th Mediterranean Combustion Symposium, Monastir, Tunisia, September 2007.

## McCluskey

- Invited expert speaker to participate in ‘Making the Property Tax Work’, organised by Andrew Young School



- of Policy Studies, Georgia State University and the Lincoln Institute of Land Policy.
- Invited speaker at the African Tax Institute (ATI), University of South Africa, Pretoria.
- Outstanding Paper award for 2007 in Pacific Rim Property Research Journal Comparative Evaluation of the Comparable Sales Method with Geostatistical Valuation Models, Pacific Rim Property Research Journal.
- Invited expert speaker to participate in 'Training the Trainers', organised by Lincoln Institute of Land Policy, Changsha, China.
- Member of organising committee for 2nd Mass Appraisal Valuation Symposium, IPTI, Toronto, Canada.
- Editorial boards of Journal of Property Management (UK), Pacific Rim Property Research Journal (AUST), Journal of Financial Management of Property and Construction (UK), RICS Research Paper Series (UK).
- Reviewer for Journal of Property Research; Journal of Housing Studies, Journal of Public Policy.
- Board member of International Property Tax Institute.
- Editor, Journal of Property Tax Assessment and Administration.

### **McGreal**

- 2008 Reviewer of the Year Award, Journal of Real Estate Literature, American Real Estate Society.
- Appointed Adjunct Professor, University of Southern Australia, Adelaide.
- Board member of the International Real Estate Society.
- 2007 American Real Estate Society Best Research Paper on Real Estate Education sponsored by Dearborn Financial Publishing and the Real Estate Education Association for paper "Inside Value Creation and Destruction: Opportunism and Risk Management in Development Deal Making Strategies".
- Member of editorial boards: Journal of Property Research (UK), Journal of Real Estate Literature (US), Journal of Real Estate Portfolio Management (US), Journal of Real Estate Education Policy and Practice (US), Journal of European Real Estate Research (Europe), Journal of Corporate Real Estate (UK) and International Journal of Economics and Management (Malaysia) – International Advisory Board.
- Reviewer: Urban Studies, Cities.

### **McIlveen-Wright**

- Fellow, Energy Institute.
- Chairman, Steering and Management Committee of CEC FP6 Project, Ramses.
- Reviewer, Chemical Engineering Communications, Bio-mass and Bio-energy, Bio-resource Technology, Renewable Energy, Fuel, Fuel Processing Technology, Applied Energy and International Journal of Ambient Energy.

### **Molkov**

- Keynote presentation at international research conference: 2nd International Conference on Hydrogen Safety (San Sebastian, September 2007): "The Status and Trends in Hydrogen Safety Training and Education" (<http://conference.ing.unipi.it/ichs/index.php?id=122>).
- Invited lecture at international research centre: Series of lectures for PhD students and staff at Al-Farabi University (Almaty, April 2008) on hydrogen safety.
- Guest Editor of Special Issue on Hydrogen Safety of the Journal of Loss Prevention in the Process Industries (published in March 2008).

### **Myers**

- Reviewer for EPSRC & International Hydraulics Journals.

## **Nadjai**

- Honoured guest speaker: 21st century centre of excellence Program: 3rd International Symposium, Tokyo, Japan, March 2008.
- Scientific Committee - Structure Engineering Fire, Singapore, 2008.

## **Novozhilov**

- Editorial Board member: International Journal on Engineering Performance-Based Fire Codes.
- Editorial Board member: Works of the International Academy of Sciences "Collegium".
- Invited Panel member and presenter: IAFSS 9th Fire Spread Modelling Workshop.

## **Odeyinka**

- Member of Scientific Committee: CIB Joint International Symposium 2008: Transformation Through Construction.
- Member of Scientific Committee: Postgraduate Researchers of the Built & Natural Environment (PRoBE) 2007 Conference.
- Reviewer for Journal of Financial Management of Property and Construction.

## **Parsa**

- Invited keynote speaker at the International Symposium on Aiming for Sustainable Society: Towards Environmental Symbiosis and Regeneration by Sustainability Governance at Hokkaido University, Sapporo, Japan. 28th March 2008.
- Invited key note speaker and panel chair at International Real Estate Research Symposium (IRERS 4), Kuala Lumpur, Malaysia, April 2008.
- Invited Speaker at RTPI Irish Branch-Northern Section Conference, One Size Fits All? Tall buildings in Northern Ireland, Hilton Hotel, Belfast, Thursday 29th May 2008.
- Editorial Advisory Board, Sri Lankan Journal of Real Estate.

## **Perera**

- Member of the editorial Advisory Board for the Journal of Construction, Association of Schools of Construction of South Africa
- External Reviewer for EURASIA - EUROpean and ASian Infrastructure Advantage University of Salford, UK (December, 2007).

## **Smyth**

- External reviewer for the International Solar Energy Journal and Renewable Energy Journal.
- Vice chairman of the NI CIBSE regional committee (May, 2008).
- Invited paper to the World Renewable Energy Congress X, Glasgow, 20th to 25th July 2008.
- Chairman to solar thermal sessions at the World Renewable Energy Congress X, Glasgow, 20th to 25th July 2008.

## Strong

- Reviewer - ICE Engineering Sustainability Journal.
- Reviewer - ICE Municipal Engineer Journal.
- Appointed to Northern Ireland Ministerial Advisory Group on 'Architecture and the Built Environment' to lead on sustainable development issues - Aug 2007.

## Thompson

- Communicating member of CIAT innovation and research committee.

## Woodside

- Vice President for Europe for ISMARTI.
- Appointed Visiting Professor to UTM (Technical University of Malaysia).
- Keynote address at Geotropike 2008 International Conference on geotechnical and highway engineering, 26th and 27th May 2008 Seri Pacific Hotel, Kuala Lumpur.
- International Scientific Committee for Mairepav5 Fifth International Conference on Maintenance and Rehabilitation of Pavements and Technological Control, 8th to 10th August, 2007, Utah, USA.
- Appointed to International Scientific Committee for Mairepav6 Sixth International Conference on Maintenance and Rehabilitation of Pavements and Technological Control, 8th to 10th July, 2009, Turin, Italy.
- International Advisory Committee Geotropika 2008 International Conference on geotechnical and highway engineering, 26th and 27th May 2008 Seri Pacific Hotel Kuala Lumpur, Malaysia.
- Associate Editor of International Journal of Pavements.
- Member of Highway Agency Research Community.
- Member of Joint Board of Moderators.

## Woodward

- Invited keynote speaker at Seminar on Sustainability in Road Pavement Materials, Institut Teknologi Nasional, Bandung, Indonesia, 2nd June 2008.
- International Scientific Committee for Mairepav5 Fifth International Conference on Maintenance and Rehabilitation of Pavements and Technological Control, 8th to 10th August 2007, Utah, USA.
- International Advisory Committee Geotropika 2008 International Conference on geotechnical and highway engineering, 26th and 27th May 2008 Seri Pacific Hotel, Kuala Lumpur, Malaysia.
- Reviewer for International Journal of Pavements.
- Reviewer for Fuel.
- Reviewer for EPSRC proposals.

## Yohanis

- Reviewer for Solar Energy Journal.
- Fellow of the Institution of Mechanical Engineers, 2008.
- Fellow of the Institution of the Chartered Institution of Building Services Engineers.
- Fellow of the Institute of Energy.
- Appointed Visiting Professor at Darma Persada University in Jakarta, Indonesia.
- Invited keynote speaker, 29th International Conference of CIGAR Section IV in Olsztyn, Poland, 2007.
- Appointed to the Editorial Board of Research Letters in Physical Chemistry (Low Energy Buildings).
- Research leader in the Memorandum of Understanding between the University of Ulster and the Russian Academy of Sciences.

