TECHNICAL SYMPOSIUM 2018

Stretching the Envelope
Techniques, applications and technologies
for healthy and productive environments

Programme
Day One Programme

08:45  Registration and refreshments

09:30  Welcome – Room A
Welcome: Welcome from London South Bank University
Opening address: Peter Wong – CIBSE President

09:45  Opening session – Room A

Session 1
Chair – Tim Dwyer – Symposium chair
1.1 Tony Day – International Energy Research Centre
Collaborative research in the building services sector: adding value and delivering impact

10:15  Parallel sessions

Session 2 – Room A

Designing, and assessing, high performance buildings
Chair – Ashley Bateson – Home for the Future Group, Hoare Lea
2.1 Robert Cohen – Verco
Design for Performance: towards nearly zero energy buildings in operation

2.2 Paula Morgenstern – BAM Construct UK Ltd
An in-use comparison of classroom ventilation strategies in recently built schools

2.3 Zoe De Grussa – London South Bank University
A real-world study of the relationship between subjective assessment of productivity, subjective perception of environmental conditions and objective productivity measures

2.4 Annie Marston – Sim2
Post occupancy evaluation – how building energy models bridge the gap between design and operation

Session 3 – Room B

Novel lighting design and evaluation
Chair – Eleonora Brembilla – Loughborough University
3.1 Gordon Lowry – London South Bank University
A comparison of metrics proposed for circadian lighting and the criterion adopted in the Well building standard

3.2 Ian van Duivenbode – Ramboll
Classroom design using parametric Climate Based Daylight Modelling

3.3 Seda Kacel – Istanbul Technical University Faculty of Architecture
Pre-test of a lighting questionnaire for post-occupancy evaluation through cognitive interviewing

3.4 Kevin Kelly and Antonello Durante – DIT
A new interior lighting design methodology – using MRSE & TAIR

Session 4 – Room C

CHP, heat pumps and district energy systems
Chair – Simon Rees – Leeds University
4.1 Phil Jones – Building Energy Solutions
The feasibility of using surface water source heat pumps to supply district heating at Henley Business School

4.2 Aaron Gillich and Andy Ford – London South Bank University
Overcoming practical challenges and implementing low-carbon heat in the UK: lessons from the balanced energy network at LSBU

4.3 Nick Stevenson – Inspirit Energy
Review of micro-CHP technology for commercial and residential buildings

4.4 Alfred Sit – Hong Kong EMSD
District cooling system in Hong Kong

Session 5 – Room A

11:50  Symposium sponsor address
Nigel Coston – Zehnder
Chair – Sara Kassam – CIBSE

12:00  Compendiary presentations 1

Session 6 – Room A

Chair – Sara Kassam – CIBSE
6.1 Alastair Howard – Oxford Brookes University
Meta-study of actual energy use, occupant satisfaction and productivity in low energy office buildings

6.2 Luigi Venturi – London South Bank University
The challenge of modelling solar shading products and their impact on the built environment
### Session 7 – Room A

**Sourcing heat, and evaluating performance, for heat pumps**

Chair – David Hughes – CIBSE Past President

| 7.1 Andrew Corney – Sefaira | How cheap, renewable energy is about to disrupt building services engineering |
| 7.2 Sharon Duffy – Transport for London | Opportunities to utilise transport for London’s secondary heat sources |
| 7.3 Metkel Yebiyo – The School of the Built Environment and Architecture, London South Bank University | Control strategy of novel dry air ground source (DAGS) system |
| 7.4 Carlos Jimenez-Bescos – Anglia Ruskin University | A case study on the thermal comfort of social housing in Suffolk following an air source heat pump retrofit |

### Session 8 – Room B

**Optimising and assessing heat and mass transfer**

Chair – Kevin Gaughan – DIT

| 8.1 Michael Lim – AECOM Ltd | Lifecycle cost and operational carbon comparison of various heating systems types |
| 8.2 Ismanizam Abd Manaf – Loughborough University | Investigating performance of solid desiccant dehumidification in an evaporative cooling system |
| 8.3 Rebecca Ward – Energy Efficient Cities initiative, Cambridge University Engineering Department | Simulation of plant-air interactions within the built environment |

### Session 9 – Room C

**Measuring and evaluating IAQ**

Chair – Julie Godefroy – CIBSE

| 9.1 Tom Spurrier – Hoare Lea | Measuring, assessing and improving the environmental conditions of an office to improve health, comfort, wellbeing and productivity |
| 9.2 Jiannan Luo – Foster + Partners | Assessing thermal comfort and performance of the Airfloor HVAC system using multi-software coupled modelling method |
| 9.3 Rupert Kazlauciunas – Zehnder Group UK | Balancing the intrinsic conflict between energy efficiency and Indoor Air Quality |
| 9.4 Mohd Firrdhaus Mohd Sahabuddin – University of Strathclyde | Assessing the Indoor Comfort and Carbon Dioxide Concentration in High-Rise Residential Buildings in Kuala Lumpur: The People’s Housing Programme (PPR) |

### Parallel sessions

**Session 10 – Room A

**Data driven development and assessment**

Chair – Charlotte Mercer – Cundall

| 10.1 Jonathan Sykes – University of Sheffield | An empirical approach to modelling climate change impact on building energy use |
| 10.2 Geoffrey Levermore – Manchester University | An empirical model for designers to use for the urban heat island of London |
| 10.3 Christine Pout – BRE | BREEM new construction 2018: tackling the energy performance gap |
Session 11 – Room B

Assessing and modifying the lit environment
Chair – Kevin Kelly – CIBSE Vice President

11.1 Paul Kenny – Loughborough University
The properties of our everyday spectral microclimate

11.2 Alkyoni Papasifaki – Elementa Consulting
Liquid crystal window performance in building façade systems

11.3 David Garlovsky – Schools & Homes Energy Education Project/Solar Active and Recovery Insulation
Street lights effect on buildings/landscape design, trees, wildlife, circadian rhythms and health/well-being

Session 12 – Room C

Integrating sensing and data systems
Chair – Tony Day – International Energy Research Centre

12.1 Leonidas Bourikas – University of Southampton
Person-centric activity Profiles for homecare support

12.2 Derek Clements-Croome and Kay Pollaris – Reading University
Designing for Flourishing Environments

12.3 Wim Zeiler – TU Eindhoven
Neighbourhood Energy & Big Data Management Integration to operate building’s energy flexibility

16:45 Debate

Session 13 – Room A

Debate – The linear economy wreaks planetary havoc – stretching new ideas are vital for sustainable future cities
Chair – Andy Ford – Past CIBSE President, LSBU

18:15 Informal buffet and drinks reception

18:45 Opening remarks

20:00 Day one close

CIBSE Technical Symposium 2018 Posters

P1 Lauren Ashmore – World Heat Ltd
Zero Carbon Homes: An investigation into home design and LZC technologies across the UK

6.4 Miriam Butti – Ramboll UK
Thermal bridging – Quantifying performance more accurately in compliance with Part L1

21.1 Nick Conlan – Apex Acoustics
A case study of the north west Cambridge development: using attenuated ventilation to control overheating in dwellings

6.3 Carlos Gonzalo – London South Bank University
Improving fire resistance of ventilated cladding panels via air cavity replacement

6.1 Rajat Gupta – Oxford Brookes University
Comparative evaluation of actual energy use, occupant satisfaction and productivity in nine low energy office buildings

21.5 Jenny Love – University College London (UCL)
Does compulsory airtightness testing result in airtight buildings or creative ways of passing the test?

6.5 Thomas Mitchell – University of Exeter
Predicting and monitoring school energy use to achieve targets

21.2 George Papachristos – University College London (UCL)
A multi-method approach to total building performance: coupling project management to building performance

21.3 Antonio Ricchetti – London South Bank University
Study of energy and cost savings of demand controlled fresh air systems

21.4 Craig Robertson – Allford Hall Monaghan Morris Architects
Future proofing for function and environment: Architectural and operational adaptation

6.2 Luigi Venturi – London South Bank University
The challenge of modelling solar shading products and their impact on the built environment

21.6 Derek Wardle – Staffordshire University
Ozone control in electrostatic precipitators

Posters will be displayed throughout the Symposium commencing at lunchtime on day 1. Posters include those presented in Sessions 6 and 21.
Day Two Programme

08:45  Registration and refreshments

09:20  Parallel sessions

**Session 14 – Room A**

*Big data driven design and operation*

Chair – Emilia Tagonska – Foster + Partners

14.1 Abigail Hathway – University of Sheffield
Big data and model predictive control for improved building performance

14.2 Jia Michelle Cui – Nottingham Trent University
The longitudinal monitoring programme and ICT infrastructures in an EU-funded urban regeneration smart city project

14.3 Andrew Bullmore – Hoare Lea
An evidence based future for buildings

**Session 15 – Room B**

*Harnessing and optimising utility of natural resources*

Chair – Alex Paurine – London South Bank University

15.1 Stephen Dance – London South Bank University
Urban wind turbines: A Feasibility Study

15.2 Martin Crane – Carbon Alternatives Ltd
Gas CHP on heat networks – how to maximise and estimate carbon savings in operation

15.3 Rod Green – Environmental Protection Group
Sustainable urban water management system

**Session 16 – Room C**

*Business skills to boost building performance*

Chair – Geoff Levermore – University of Manchester

16.1 Peter Brown – WSP
Buildings for business

16.2 Edward Murphy – Ollio-The Building Performance Consultancy
Reaching the building performance *sweet spot* with certainty

16.3 Tony Cookson – Imtech Low Carbon Solutions
Do energy performance contracts really deliver savings for emergency services buildings?

10:35  Refreshments and posters

11:00  Parallel sessions

**Session 17 – Room A**

*Performance assessment of built environments*

Chair – David Fitzpatrick – Colt

17.1 Barry Mc Carron – Queens University Belfast / South West College
Radon levels and indoor air quality in Northern Ireland Passive House buildings

17.2 Khasha Mohammadian – Willmott Dixon
Evaluating the benefits of Soft Landings and Passivhaus Standard at DEC A rated Leicester Centre for Medicine

17.3 Jack Harvie-Clark – Apex Acoustics Ltd
An integrated assessment of acoustic, ventilation and overheating conditions for dwellings

17.4 Ben Roberts – Loughborough University
Overheating in dwellings: a matched pair of test houses with synthetic occupants

**Session 18 – Room B**

*Training and commissioning for effective lifelong operation*

Chair – Andrew Saville – Armville

18.1 Wim Zeiler (for Werner Vink – BAM Techniek)
Re-commissioning the HVAC of an office building: systematic performance evaluation according L.E.A.

18.2 Terry Kech – Calfordseaden
The effectiveness of training and commissioning processes in delivering new mass low carbon social housing

18.3 David Stevens – CIBSE Facilities Management Group
The importance of Soft Landings, facilities management integration and operational training in closing the performance gap

18.4 Nada Milivojevic – Coventry University
Evaluating learning management mechanisms and requirements for achieving BIM competencies: an in-depth study of ACE practitioners

Continued on page 6 ➤
### Session 19 – Room C

**Improving building performance**

Chair – Thomas Chan – President HKIE

19.1 Ruth Shilton – RWDI
Simulation of urban solar reflections and their impact on building performance

19.2 Steven Attrill – RWDI
Mitigating stack effect and wind impacts in tall buildings to ensure occupant comfort and smooth building operation

19.3 Shen Wei – University College London (UCL)
Occupant adaptive behaviour: an effective method towards energy efficient buildings

19.4 Bobo Mingsum Ng – Northumbria University
Refurbishment options to decarbonise a 1960s public office building by 2050s

### Session 20 – Room A

**Symposium sponsor address**

Chair – Mike Smith – BSRIA

12:35 Symposium sponsor address

Rinnai UK

12:45 Compendiary presentations 2

### Session 21 – Room A

Chair – Mike Smith – BSRIA

21.1 Nick Conlan – Apex Acoustics
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### 14:10 Parallel sessions

### Session 22 – Room A

**Total life cycle building assessment**

Chair – Dejan Mumovic – University College London (UCL)

22.1 Esfand Burman – University College London (UCL)
Total energy and environmental performance of low carbon buildings: a cross sectoral study

22.2 Sung Min Hong – University College London (UCL)
Analysing trends of energy use of offices and schools using Display Energy Certificates

22.3 Sophia Flucker – Operational Intelligence Ltd
Using a life cycle approach to improve data centre sustainability

### Session 23 – Room B

**Creating healthy environments**

Chair – Richard Harris – Healthcare Group

23.1 Garold ‘Gary’ Hamilton – WSP
Are you ready to operate? Designing operating rooms to meet new technological advancements

23.2 Adrien Cooper – Whittington Hospital NHS Trust
Water safety in healthcare

23.3 Andrew Lyon – Environment Agency
Rethinking odour control in waste management facilities

### 15:25 Single session

### Session 24 – Room A

**Moving cities towards the 22nd century**

Chair – Peter Wong – CIBSE President

24.1 Mike Page – University of Hertfordshire
Greentown: a detailed feasible study for a future low-carbon town

24.2 Julie Futcher – Glasgow Caledonian University
Overcoming obstacles to high density resilient cities

### 16:05 Conference close, prize presentation and drinks reception in break area

Chaired by Hywel Davies, CIBSE Technical Director

### 17:00 Day two close
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It is easy to forget a lifetime of personal achievement. Experience is invaluable and should never be underestimated.

Martin Trentham MCIBSE IEng, Interserve Engineering Services.

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Having gained a BEng degree, I needed to demonstrate technical ability to Masters Level to gain CEng registration. There were two options open to me, either return to university full or part-time to complete a Masters or undertake a Technical Report. I decided to pursue the Technical Report Route.

James Outram, MCIBSE CEng, Hoare Lea.

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