

ibpsaNEWS

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Oct 2014

2013

2011

2006

2003

1996

1989

Have a look at the complete edition of all previous newsletters: 27 years of newsletter are now available on the IBPSA website, together with impressions from four previous News editors (1988- 2014)!

INTERVIEWS

with the Building Energy Research Group team at Loughborough University, UK, and with IBPSA Past President Larry Degelman

SOFTWARE NEWS

about IEA Annex 66, a model library for Modelica, new free tools for creating and editing weather files (Elements) and for calibrating EnergyPlus/DOE2.2 models (ExCalibBEM), daylighting simulation on the GPU (Accelerad), a Human Thermal Model, design tools from India, Mr Comfy, Design Builder, Ebest, IES, and Unmet Hours, a Q&A website for building energy modellers

GLOBAL COMMUNITY NEWS

from IBPSA affiliates in Australasia, England, France, Italy, Korea, Nordic countries, Scotland, Switzerland, and the USA

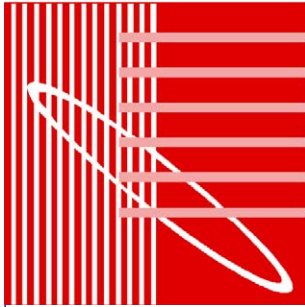
CALENDAR OF EVENTS

12 conferences and other events for your diary



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The International Building Performance Simulation Association exists to advance and promote the science of building performance simulation in order to improve the design, construction, operation and maintenance of new and existing buildings worldwide.

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President's message

Dear IBPSA colleagues and friends,

I have just returned from Aachen, Germany, where IBPSA held its Annual General Meeting (AGM) and the annual meeting of its Board of Directors (BoD). These meetings coincided with BauSIM, the biennial conference organized by IBPSA's German-speaking chapter, which afforded me the opportunity to attend my third IBPSA regional affiliate conference this year. It is so encouraging to witness the development of the regional affiliate conferences such as BauSim, eSim, BSO, etc. Their growth—indeed, some are approaching the scale of the international *Building Simulation* conferences of a decade and a half ago—speaks to the development and maturation of the BPS domain.

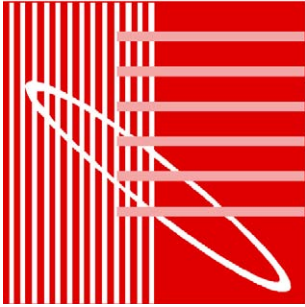
Some important decisions were taken at the Aachen AGM and BoD meetings that I would like to share with you. Firstly, prompted by a change in the laws governing not-for-profit corporations such as IBPSA, an extensive review of the association's governance structure was undertaken. The product of this exercise was a rewriting of the IBPSA's By-Laws, a document that specifies how IBPSA elects its BoD, how this BoD conducts its business, AGM requirements, etc.

Now that these new By-Laws have come into force following acceptance at the AGM, elections will be held to establish a new BoD. And once formed, this new BoD will select a new President to replace me. By the time you receive this newsletter, Veronica Soebarto, Chair of the Elections Committee, will have released the call for nominations for Directors. Please pay careful attention to her correspondence. In particular, each of IBPSA's 28 regional affiliates will have to nominate a Director for the board following the procedures outlined in the new By-Laws. This is an important departure from how things were done in the past.

Those of you who attended *Building Simulation 2011* in Sydney and/or *Building Simulation 2013* in Chambéry will have witnessed the induction of IBPSA *Fellows*, individuals who have attained distinction in the BPS field. (See the call for nominations for Fellows on page 41.) A decision was taken at the Aachen BoD meeting to establish the IBPSA *College of Fellows* to act as a "brain trust" for the association. The College of Fellows will be self-governed by the Fellows, and will be called upon to advise IBPSA, provide expert reviews, mentor younger members, etc.

The international *Building Simulation* conference series is an important product of IBPSA, so it will come as no surprise that the BoD spent considerable time discussing and planning the upcoming conferences in Hyderabad (2015) and San Francisco (2017) and discussed potential sites for the 2019 conference. Speaking of *Building Simulation 2015*, you should note the upcoming abstract submission deadline of November 15. Details on this conference can be found on pages 17 and 40.

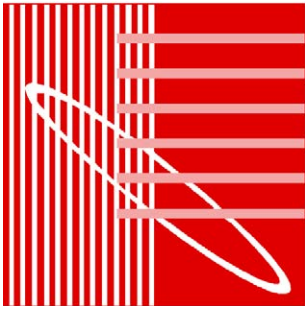
President's message



IBPSA's official journal—the Journal of Building Performance Simulation (JBPS)—is now in its seventh year of publication and continues to grow in quality, number of submissions and printed pages, and impact. More news on the JBPS can be found later in this newsletter.

Conferences and publications such as the JBPS are important contributions that IBPSA makes to advance the BPS domain. However, there is a need to do much more; gaps in professional development and training, model research, tool development, code sharing, and the creation and collation of supporting data must all be addressed to continue to advance the BPS domain. Obviously this cannot all happen quickly; priorities must be chosen. To help determine where IBPSA should focus its efforts, the IBPSA Board of Directors endorsed a “White Paper” at its Aachen meeting that lays out the requirements of high-integrity BPS. A list of priorities for IBPSA will be established in the future based upon this White Paper.

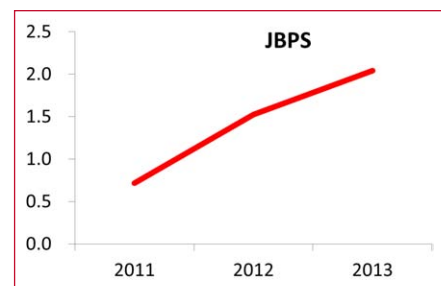
This brings me to the end of my last “President's message”. It has been a joy and an honour for me to serve IBPSA in this capacity and I look forward to the continuing development of the association and our domain under our collective efforts.



IBPSA publications enjoy wider visibility and greater impact

Malcolm Cook, Chair, IBPSA Publications Committee

The editors of IBPSA's *Journal of Building Performance Simulation* (JBPS) presented their annual report to the IBPSA Board in Aachen last month. Since its first publication in 2008 submissions to the journal have increased steadily, and in 2013 topped 160 with a projection for 2014 of over 180. 75% of the papers it receives are sent out for peer review (the remainder being rejected on the grounds of scope). All papers are reviewed by three reviewers and no paper in 2014 was accepted without further revision. The journal's impact factor, which provides a measure of the number of citations as a proportion of the number of papers published, has continued to increase since its inclusion in the Science Citation Index in 2012 and has now reached 2.043, surpassing many other journals with longer histories. The overarching scope of the journal covers research, technology and tool development, related to building performance modelling and simulation as well as their applications to design, operation and management of the built environment. To subscribe to the journal or submit papers, simply visit www.informaworld.com/jbps for further information.



Conference papers from all biennial *Building Simulation* conferences are now indexed in a number of databases including Scopus, EMBASE, Engineering Village and Reaxys. This has significantly increased the accessibility and citations of the conference papers. The full manuscripts for all biennial conference papers and many of the regional affiliate conferences can be found on IBPSA's home page, www.ibpsa.org ■

Projects and work at Loughborough University's Building Energy Research Group, UK

an interview with members of the group

IBPSA related research: Tell us more about your work!

We continue ibpsaNEWS's feature describing the work of research institutes, university faculties and other organizations that are actively involved with IBPSA related research. This is intended to provide more insight into organisations around the world and to answer questions that cannot be easily found on a website, to update you about news and openings, or to showcase potential collaboration opportunities.

In the October 2013 ibpsaNEWS we introduced the BS2013 conference hosts, the Université de Savoie – LOCIE, INES and CEA. In the last ibpsaNEWS (April 2014) two members of the Simulation Research Group at Lawrence Berkeley National Laboratory (LBNL), Michael Wetter and Phil Haves, shared their insights.

This time, we are focusing on the Building Energy Research Group (BERG) at Loughborough University in England.

Christina Hopfe (CJH), a faculty member at Loughborough, spoke to ten fellow members of the BERG group about their work, degree programmes and lab facilities: in alphabetical order, David Allinson, Richard Buswell, Malcolm Cook, Mahroo Eftekhari, Steven Firth, Kevin Lomas, Dennis Loveday, John Mardaljevic, Simon Taylor, and Jonathan Wright.

If you are interested in publishing an article describing the work of your faculty or research group, please contact Christina Hopfe (C.J.Hopfe@lboro.ac.uk).

Christina J Hopfe (CJH): Jonathan, you are Group Leader, could you please start by introducing BERG, and tell us how many people currently work in this group?

Jonathan Wright (JW): The Building Energy Research Group (BERG) at Loughborough University has been home to research and education in building science and services engineering since 1970. The early degree programmes in Building Services Engineering were at undergraduate level and from the start, had a strong element of thermal comfort, indoor air quality, and the need for the engineer to interact with the architect in order to achieve a low energy design. The group currently runs two MSc programmes in low energy building services engineering, and in low carbon design and modelling.

Research in the field of building performance simulation began at Loughborough in the 1980s with two complementary PhD research projects aimed at developing an input-output free modelling and optimization

platform that allowed any HVAC system configuration to be modelled and its design optimized. Since then, the group has grown to 11 academic staff, 9 at the level equivalent to associate or full Professor. The group is supported by 60 research assistants and PhD students, and has a current research portfolio totalling over £10m (US\$16.2m). In addition, the group is a Royal Academy of Engineering Centre of Excellence for Sustainable Building Design and hosts the UK's Centre for Doctoral Research in Energy Demand.

CJH: What main areas of research is BERG engaged in?

JW: The group's research is organised under two complementary themes. The first is "Performance Measurement and Building Physics" which includes the creation of large coherent datasets to enable better understanding of the socio technical aspects of energy use in dwellings. This is used to inform government policy by identifying those buildings that would benefit from refurbishment as well as providing a platform for future research initiatives. The group's building physics expertise is used to develop retrofit options for domestic buildings as well as for testing heating controls and building-integrated low and renewable energy technologies in any one of its four full-scale test houses.

"BERG has 11 academic staff ... supported by 60 research assistants and PhD students, and a research portfolio totalling over £10m"

The second area of research is "Modelling and Optimization" which experienced a step increase in activity in 2012 following the opening of the high performance computing facility (HPC Midlands) at Loughborough University. This has enabled the group to use Large Eddy Simulation (LES) air flow modelling in research projects involving time-dependent natural ventilation analysis and design of off-shore wind farms. Research into numerical optimization resulted in some of the first work to be published on multi-objective building design optimization. Current optimization research is focused on the integration of sensitivity and uncertainty quantification methods within the optimization, the decision-making process, as well as the application of the methods to identifying the trade-off between capital investment and energy use resulting from the refurbishment of domestic buildings on an urban scale. Work using climate-based daylight modelling techniques is now embedded in the guidelines for new schools in the UK. These techniques are now being used in photobiology-related studies to predict the non-visual effects of daylight on health, wellbeing and productivity. The group's research experience in modelling and optimization enabled them to host the first IBPSA regional conference to give equal emphasis to both modelling and optimization (the IBPSA-England conference on *Building Simulation and Optimization*). Our research is often undertaken in collaboration with other universities, both in the UK and overseas.

CJH: Could you provide an example of current research in the field of modelling and simulation? I have noticed that there is a great focus on advanced Airflow Modelling for Natural Ventilation?

Malcolm Cook (MC): Natural ventilation provides an opportunity for reducing running costs and improving indoor air quality in low energy buildings. Due to the small driving forces in natural ventilation relative to mechanical driven systems, some form of airflow modelling is often useful at the design stage. Over recent decades, this role is increasingly played by computer simulations, in particular, Computational Fluid Dynamics (CFD). To date, the most common mode of CFD has been based on the Reynolds Averaged Navier-Stokes (RANS) approach. An alternative, and potentially more accurate method, is Large Eddy Simulation (LES). However, due to its high computational requirements it has only recently been possible to carry out LES for analysing building ventilation flows.

BERG is utilising Loughborough's on-campus high performance computing facility to run these simulations with sufficient grid sizes and iterations. The LES model has been found to be successful in elucidating the

fluid dynamics of buoyant plumes in large naturally ventilated enclosures. Quantities such as interface height, plume merging height and ventilation flow rates have been found to agree well with theory. The overall aim of the group's work in this area is to provide guidelines for practitioners on how to use LES for modelling buoyancy driven flows in buildings, including the accuracy that can be expected and, indeed, whether LES is worth the high computational cost necessary.

CJH: I understand that there are a number of different postgraduate degrees (MSc and MRes) that students can subscribe for at Loughborough. What are the different programme titles and backgrounds and how much does simulation play a role?

MC: We have two MSc programmes, the Low Carbon Building and Design Modelling (LCBDM) and the Low Energy Building Services Engineering (LEBSE). LCBDM is divided broadly into four main areas as follows: (i) Fundamentals of energy use in buildings and renewable energy technology; (ii) Low carbon design and operation; (iii) Advanced computer simulation; and last but not least (iv) the research project. There is a strong focus on simulation in the LCBDM, eg we teach modules on advanced lighting and thermal simulation, and advanced airflow modelling.

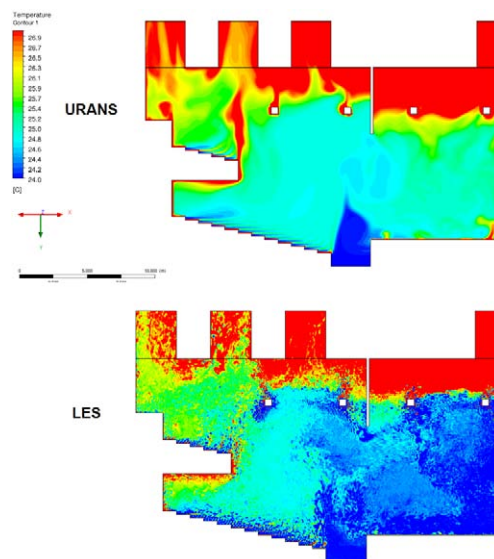
Mahroo Eftekhari (ME):LEBSE is focused on the development of skills in the design and operation of building services systems. With buildings accounting for over 40% of total carbon emissions, the course also includes modules on the design, control and thermal modelling of low energy buildings. The course is designed to meet the needs of both graduates from other disciplines who seek a career in building services engineering, and existing building services engineers who wish to develop their technical skills in the design and operation of building services systems and low carbon buildings.

MC: Both MSc courses have been accredited by the Chartered Institution of Building Services Engineers (CIBSE) and the Energy Institute (EI). They have a strong support from the industry and they offer placements and prizes.

ME: Organisations awarding prizes for the LEBSE include AECOM, Cundall, Energy Institute, Hays Construction & Property, and Pick Everard.

CJH: What about the London Loughborough (LoLo) centre for doctoral training? How is the MRes structured that students can do at the LoLo in Loughborough and how many openings are there per year?

Kevin Lomas: LoLo stands for London-Loughborough but could also represent the names of its founding directors, Professors Bob Lowe and myself. It is based at Loughborough University and University College London and draws on the expertise of academics at both institutions. Like all Centres for Doctoral Training (CDTs), it is designed to promote a cohort-based approach to doctoral study. It offers a 4-year programme consisting of an intensive 1-year MRes in energy demand followed by a 3-year PhD. The initial MRes means that specific expertise in building energy is not a requirement and allows us to accept talented students from a wide range of backgrounds. It is also available as a standalone option.



LES and RANS simulations of a large naturally ventilated auditorium

This LES had a mesh requirement of 57 million nodes and took 4 days to simulate 30 seconds of air flow. The RANS on the other hand converged to its steady state in only 5 hours and used 3 million cells

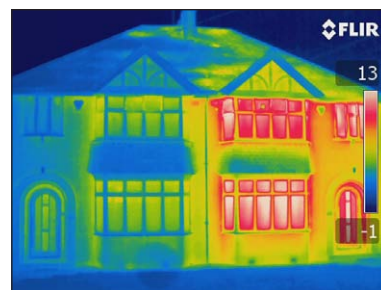
Simon Taylor: The MRes starts with a residential week on 'Energy demand in context', hosted by Loughborough and attended by students from both institutions. This establishes links between the students which continue through the four years and beyond. UCL hosts a colloquium in London in November that provides an opportunity for all PhD students to present on their PhD topic or, if they are in their first year, on their MRes dissertation. The event is popular with industry, government and academia who are able to see a wide range of energy research at a single session.

The annual summer event has been held at Clare Hall College in Cambridge for the last few years. Talks are given by energy experts, and students work in groups on a challenge. Recent examples have included making a video about U-values (resulting in the prize-winning 'When Alan met Sharon' www.youtube.com/watch?v=xro2FPaRf8) and making air flow measurements in various Cambridge University buildings.

The LoLo centre opened in 2009 with funding for 5 annual intakes of students, and funding for a further 5 intakes was recently secured. There are currently about 36 LoLo students at the two institutions, researching a wide range of energy topics. Research themes include technology and systems, energy epidemiology, urban scale energy demand, building performance and process, and unintended consequences.

CJH: What are current research projects that the BERG team is involved in? For example in terms of experimental work and the lab facilities, what sort of lab equipment does BERG have?

David Allinson: BERG carries out much of its experimental work measuring and monitoring real buildings and interacting with their occupants. To complement this work we operate 6 test houses and extensive laboratory facilities.



Ashby test house

The test houses cover a range of typical UK dwellings: detached timber framed c2000; semi-detached matched pair with brick cavity wall c1930; semi-detached single with brick cavity wall c1930; and semi-detached matched pair with solid wall c1910. Measurements in the test houses include air temperatures, heat flows, electricity and gas metering, surface temperatures, and solar irradiation. The group have developed synthetic occupancy, which introduces the heat gains, window opening, internal door opening, and water use of different type of occupants into the test houses, using home automation hardware.

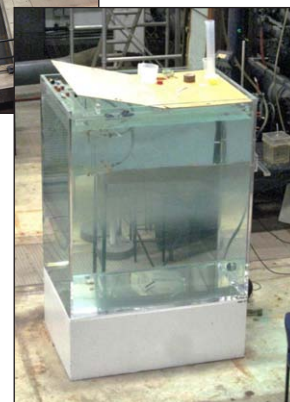
The laboratory facilities include a solar simulator, a salt bath modelling tank, a light modelling/measurement suite, combined solar thermal collector and heat pump storage systems, a thermal comfort chamber with thermal manikins, a central heating boiler rig, a thermal store, an experimental heat pump, and a pipework demonstrator rig. There is also a laboratory for the storage, demonstration and calibration of measurement equipment.



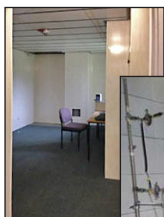
Solar simulator

Bulbs simulate the sun, solar thermal or PV panels can be mounted, and the frame can be tilted on a frame to simulate roof pitch

The laboratory has recently been adapted to provide experimental rigs for understanding pressure integrity, heat transfer rates, and corrosion problems in steel conveyancing tubes. Measurements commonly used include quantitative and qualitative thermal comfort; indoor environments (air temperature, relative humidity and CO₂); co-heating tests, heat flow and ventilation rates in HVAC systems; IR thermography; automatic meter readings (gas and electricity); U-values by heat flow metering; and occupant presence detection. New methods are being developed for determining the thermal performance of buildings while they are in use and for validating CFD, energy, light and HAM models.



Salt bath for visualising air flow in scale models



Environmental chamber (small picture) and manikin (larger picture) for assessing thermal comfort and environmental systems

These are used for thermal comfort studies; air and wall temperatures, humidity and other parameters can be varied

John Mardaljevic: BERG also has access to other state of the art facilities on campus, including advanced thermal comfort chambers and PV testing laboratories. Light measurement techniques include: illuminance logging, computer-tethered high dynamic range image capture and characterisation of the spectral composition of daylight/artificial light. Equipment rigs are tested in the BERG lab and deployed on site for monitoring periods lasting up to several months or longer. In one recent study, spectrometer measurements taken in the first UK building with production electrochromic (EC) glazing were used to validate a model for the zoning control of EC installations to maintain neutral daylight illumination in the space. This formed the basis of a Technical White Paper commissioned by SAGE Electrochromics Inc. (MN, USA).

CJH: When it comes to research funding from third parties, the Engineering and Physical Sciences Research Council (EPSRC) plays a substantial role in the UK. Could you please give me an example of current EPSRC funded projects that you are working on?

Richard Buswell (RB): The group is currently very strong in domestic energy demand reduction with three projects in the area, all in excess of £1.5m: LEEDR, DEFACITO and REFIT. LEEDR is coming to an end in

November this year after 4 years of exploring demand reduction in family homes and of interest to IBPSA will be access to the high resolution monitoring data, which will hopefully be available in Summer 2015. Supporting the numerical data is also a unique video archive developed by the project ethnographers, currently under construction, but will hopefully be on-line by the end of the year. More on LEEDR can be found at www.leedr-project.co.uk.

Steven Firth: REFIT is an ambitious, highly interdisciplinary research project with the long-term aim of creating a step-change in uptake rates of retrofit technology measures in UK homes. REFIT will study the Smart Home concept and its ability to provide personalised, valued, tailored and trustworthy information on building retrofit, energy efficiency and on-site renewable technology options for UK homes. A key question which this project will study is: how can the development and deployment of Smart Homes be used to help reduce household energy demand and consumer energy bills?

Dennis Loveday: DEFACTO (Digital Energy Feedback and Control Optimisation) is a 5 year, multidisciplinary, EPSRC funded research project that will explore the energy saving potential of different types of smart heating controls when used in different types of household. The piloting of the quantitative and qualitative measurement tools has already been completed and the project is now actively recruiting the 300 participant households. Ultimately the project will help us to understand how smart heating controls can be used to help reduce energy demand, which households are best suited to which controllers, and how we can use models to predict the energy demand and the reduction potential.

RB: Hothouse is a newly funded project that will commence beginning of December this year. More information will be available soon on the project website, www.hothouse-project.co.uk. This is still under development.

CJH: Thank you very much for participating in this very informative interview.

If you would like to know more about BERG and its work, visit www.lboro.ac.uk/departments/civil-building/research/built-environment/building-energy-demand.

Details of the LoLo centre, current openings and much more can be found at the centre's website www.lolo.ac.uk, along with details of how to apply. Up to 16 places (8 at each institution) are available annually. ■

Forthcoming events

Date(s)	Event	Web site
2014		
16-18 November 2014	ACEEE Intelligent Efficiency Conference San Francisco, California, USA	www.aceee.org/conferences/2014/ie
28-29 November 2014	ASim2014 Nagoya, Japan	www.ne.jp/asahi/ibpsa/japan/new
07-10 December 2014	ACEEE Behavior, Energy, and Climate Change Conference Washington DC, USA	www.aceee.org/conferences/2014/becc
10-12 December 2014	System Simulation in Buildings 2014 Liège, Belgium	www.ssb2014.ulg.ac.be
16-18 December 2014	PLEA 2014 Ahmedabad, India	www.plea2014.in
2015		
24-28 January 2015	ASHRAE 2015 Winter Conference Chicago, Illinois, USA	http://ashraem.confex.com/ashraem/w15/cfp.cgi
04-06 February 2015	2nd Building Simulation Applications Conference BSA2015 Bolzano, Italy	www.unibz.it/en/sciencetechnology/welcome/IBPSA.html
30 March - 01 April 2015	IEA Annex 66, 1st working phase meeting Berkeley, California, USA	www.annex66.org
14-17 June 2015	IBPC 2015: 6th International Conference on Building Physics for a Sustainable Environment Turin, Italy	www.ibpc2015.org
27 June - 01 July 2015	ASHRAE 2015 Annual Conference Atlanta, Georgia, USA	http://ashraem.confex.com/ashraem/s15/cfp.cgi
07-09 December 2015	BS2015 Hyderabad, India	www.bs2015.in
2016		
07-10 April 2016	9th Windsor Conference Windsor, UK	http://windsorconference.com

Note that the dates in this calendar may, but do not necessarily, include pre and/or post-conference workshop days

**10-12 December
2014**

Liège, Belgium

www.ssb2014.ulg.ac.be

**A full
conference flyer
is attached
to the back of
this edition of
*ibpsaNEWS***

SSB 2014: 9th International Conference on System Simulation in Buildings

The 9th International Conference on System Simulation in Buildings will be hosted by the Thermodynamics Laboratory at the University of Liège on 10-12 December 2014. The conference themes will be:

- Advances in modeling of building and HVAC components and systems
- Simulation assisted analysis and evaluation of building energy use
- Integration of buildings in smart energy grids
- Integration of renewable energy sources in buildings
- Near zero-energy buildings
- Impact of human behavior on building energy performance
- Advanced control of systems in buildings
- Modeling and simulation of innovative ventilation systems

For further information, see the conference website www.ssb2014.ulg.ac.be or email the conference secretary, Francois Randaxhe at ssb2014@ulg.ac.be . ■

**16-18 December
2014**

Ahmedabad, India

www.plea2014.in



PLEA 2014: 30th International Passive Low Energy Architecture Conference Sustainable habitat for developing societies: choosing the way forward

Goal and Theme of PLEA 2014

PLEA is an autonomous, non-profit, network of individuals sharing expertise in the arts, sciences, planning and design of the built environment. Founded in 1981, PLEA organises international conferences and workshops; expert group meetings and consultancies; scientific and technical publications; architectural competitions and exhibitions. The goal of the 30th International PLEA Conference (PLEA 2014) is to promote discussion and debate on the learning, opportunities and challenges in passive low energy architecture and design in a rapidly growing world. Within this conference, we will deliberate on the choices we have and the choices we need to make in order to move towards a more sustainable habitat, especially for developing societies and emerging economies.

The local theme of this international conference speaks to the urgent need to reduce energy use in new and existing buildings in cities that are witnessing rapid growth and urbanization. Energy consumption in the building sector is more than one-third of the national energy use in India, and with further growth in this sector, India faces a formidable challenge in reducing its dependence on fossil fuels, natural resources and energy supply infrastructure. Buildings and cities in other emerging economies face similar challenges.

Deliberations during PLEA 2014 will help us in deploying various aspects of architectural and design science to realise buildings, neighbourhoods and cities that have minimal

impact on natural resources whilst satisfying the comfort requirements and aspirations of a fast-developing society. Under this central theme, the conference will include a range of topics to understand the role of architectural practice, research and education towards addressing the issues of energy conservation, efficiency and management through design, construction and operational stages of buildings, neighbourhoods and cities.

Conference Timeline

The deadlines for submission of abstracts and papers has passed.

- Final Programme and Timetable: 14 November 2014
- Early Bird Registration ends: 01 December 2014

About CEPT University and CARBSE

Established in 1962, CEPT University is India's premiere institute for providing education and conducting research in the areas of designing, planning, constructing and managing human habitats. The Centre for Advanced Research in Building Science & Energy (CARBSE) at CEPT University aims to provide an impetus for research on energy efficiency in the built environment and energy resource management in general. Its objective is to conduct research in the fields of energy efficient building design, energy efficient construction processes, sustainable materials, and resource audit and management. The Centre has been awarded the status of a 'Regional Energy Efficiency Centre' on Building Energy Efficiency by the USAID ECO-III program and 'Centre of Excellence' by the Government of India's Ministry of New and Renewable Energy. CARBSE is supported by Gujarat Energy Development Agency, industry and various philanthropic organisations. CARBSE is also the Indian lead for research under the prestigious US-India Joint Centre for Building Energy Research and Development.

For further information visit www.plea2014.in or email info@plea2014.in . ■

**4-6 February
2015**

Bolzano, Italy
[www.unibz.it/en/
sciencetechnology/
welcome/IBPSA.html](http://www.unibz.it/en/sciencetechnology/welcome/IBPSA.html)

BSA2015: 2nd Building Simulation Applications Conference

IBPSA-Italy and the Free University of Bozen-Bolzano, Faculty of Science and Technology, are pleased to announce the second Building Simulation Applications Conference, which will take place in Bolzano on 4-6 February 2015.

On the evening of 4 February delegates will be introduced to a taste of the South Tyrol with a welcome aperitif. The conference will open on the morning of 5 February with an address by the president of IBPSA International, Professor Ian Beausoleil-Morrison (Carleton University), and a keynote speech by Professor Jan Hensen (TU Eindhoven). The technical sessions will proceed in parallel all day with a pause for lunch - a special session being dedicated to the contributions of graduate students - and the first day will close with a keynote address by Professor Ardeshir Mahdavi (TU Wien). An IBPSA-Italy members' meeting will precede the conference dinner.

The second day will start with a keynote by Professor Athanasios Tzempelikos (Purdue University) introducing the morning's technical sessions. After coffee, the final plenary session will be dedicated to best practice in the use of building simulation by professionals and design studios. Finally, the first IBPSA-Italy Awards will be presented for the best student papers and the best building simulation professional project.

The 1st Building Simulation Application Conference BSA2013 was held at the Free University of Bolzano on 30 January - 1 February 2013 with more than 70 delegates from many countries. It included 118 authors, 44 presentations and two keynote speeches. An electronic version of the proceedings can be downloaded free of charge from <http://bupress.unibz.it/en/building-simulation-applications-bsa-2013.html>.

For further details of BSA2015 and the call for papers, please see the flyer overleaf or visit the conference website www.unibz.it/en/sciencetechnology/welcome/IBPSA.html. The official conference language is English. ■

14-17 June 2015
Turin, Italy
www.ibpc2015.org

IBPC 2015: 6th International Conference on Building Physics for a Sustainable Environment

The International Building Physics Conference (IBPC) takes place every 3 years and is organized by the International Association of Building Physics (IABP). IBPC 2015 will take place in the lively city of Turin, hosted by Politecnico di Torino and co-organized by ATI Piemonte and the Politecnico di Torino's Department of Energy

IBPC 2015 will provide a forum for scientists, researchers and practitioners from all over the world to disseminate technical information, new ideas, and the latest developments, and to discuss future directions in the fields of building physics.

Topics will include energy efficient design and retrofit of buildings, indoor environment control for comfort and/or preservation, IAQ and ventilation, building and architectural acoustics, noise control, lighting, visual and acoustic comfort, building materials and components, the energy and economic sustainability of high performance buildings, and optimization and modelling techniques, as well as a broad range of building integrated RES (Renewable Energy Sources) and Zero Energy Buildings.

In addition to presentations of technical papers, IBPC 2015 will include expert keynote talks, workshops, special sessions for IEA and EU research projects, and doctoral student seminars.

Further information about the programme and the venue is available from the conference website, www.ibpc.org. ■

Organizing Committee (IBPSA-Italy)

Paolo Baggio University of Trento
 Marco Barattieri Free University of Bozen-Bolzano
 Francesca Cappelletti University IUAV of Venice
 Alfonso Capozzoli Polytechnic University of Torino
 Vincenzo Corrado Polytechnic University of Torino
 Enrico Fabrizio Polytechnic University of Torino
 Andrea Gasparella Free University of Bozen-Bolzano
 Norbert Klammersteiner Energytech G.m.b.H./S.r.l. - Bozen
 Marco Noro University of Padova
 Fabian Ochs Universität Innsbruck
 Francesco Patuzzi Free University of Bozen-Bolzano
 Paola Penna Free University of Bozen-Bolzano
 Giovanni Pernigotto University of Padova
 Alessandro Prada Free University of Bozen-Bolzano
 Piercarlo Romagnoni - University IUAV of Venice

IBPSA Italy

IBPSA-Italy is the Italian regional affiliate of the International Building Performance Simulation Association. It is a non-profit-making association which includes researchers, developers and practitioners acting on the topic of building performance simulation. IBPSA-Italy's principal mission is to promote and advance the practice of building performance simulation. IBPSA-Italy was founded in January 2011 and it now has more than 100 members including university professors, researchers, practitioners, software developers, and students.

BSA 2015: Conference Informations

The conference program, as well as the author instruction and the link for the upload of abstracts will be available on the web:

<http://www.unibz.it/en/sciencetechnology/events/bsa2015/default.html>
<http://www.ibpsa-italy.org/it/>

Call for papers

BSA Building
 Simulation
2015 Applications

2nd IBPSA-ITALY CONFERENCE
 BOZEN-BOLZANO 4-6.2.2015

Conference Contacts

bsa2015@unibz.it

Free University of Bozen-Bolzano
 Universitätsplatz - Piazza Università 5
 39100 Bozen - Bolzano
 Italy

<http://www.unibz.it/en/sciencetechnology/events/bsa2015/default.html>

unibz Freie Universität Bozen
 Libera Università di Bolzano
 Università Liedia de Bulsan



IBPSA Italy
 International Building Performance Simulation Association

Time and Location

From February 4th to 6th 2015 IBPSA-Italy organizes the 2nd Conference on Building Simulation Applications at the Free University of Bozen-Bolzano.

Topics

- 1 Building physics: envelope and system components**
 - Heat and mass transfer modeling in buildings
 - Building envelope system and facade, and innovative building materials
 - Air flow, natural ventilation and mixed mode cooling
 - Building control system

- 2 Integrated performance**

- Building acoustics
- Lighting and daylighting
- Indoor environmental modeling: visual and thermal comfort, indoor air quality
- Net zero energy building
- Retrofit/Refurbishment of existing buildings
- Renewable energy technologies, district heating and CHP generation

- 3 Methodologies, calculation, simulation tools and regulations**

- Model validation, sensitivity analysis and optimization techniques
- Building codes and regulations, simplified methods versus detailed simulation
- New simulation tools and improvements in existing simulation tools
- Integration, interoperability web-based techniques, software development, open sources initiatives
- Advances in teaching and education, eLearning

Target audience

- Public and private researchers in general sector of building simulation and energy modeling
- Public agencies, public utilities and policy makers
- Private firms: manufacturers, management companies, utilities, software houses
- Practitioners: building designers (architects, engineers, etc.)

Deadline for participants

Abstract submission: 19 September 2014

Abstract acceptance: 15 October 2014

Full paper due: 30 November 2014

Full paper acceptance: 15 December 2014

Early bird registration: 15 December 2015

Final submission: 7 January 2015

Best Paper

From excellent full papers selected by the BSA reviewers a top list will be formed by the Editor, Prof. Jan Hensen to be considered for publication in the "Journal of Building Performance Simulation" after appropriate editing.

PhD Student Session

A special Call for papers is addressed to PhD students who will discuss their works as first authors in a dedicated special session.

Designer and Professional Session

A special Call for papers is addressed to Designer and Professionals. In a dedicated session they will present building simulation best practices in design or service.

Opening Address and speeches

Prof. Ian Beausoleil Morrison- President of IBPSA Word - Opening Address

Department of Mechanical and Aerospace Engineering
 Carleton University, Ottawa, ON, Canada
 Co-Editor of the "Journal of Building Performance Simulation"

Prof. Jan Hensen - 1st Keynote

Head of unit Building Physics & Services, Built Environment Department
 Technische Universiteit Eindhoven, the Netherlands
 Co-Editor of the "Journal of Building Performance Simulation"

Prof. Ardeshtir Mahdavi - 2nd Keynote

Director of the Department of Building Physics and Building Ecology
 TU-Wien Austria
 Board member of IBPSA-Germany/Austria

Prof. Athanasios Tzempelikos - 3rd Keynote

School of Civil Engineering and School of Mechanical Engineering
 Purdue University, West Lafayette, IN, United States

Scientific Committee

Ian Beausoleil-Morrison Carleton University Canada
 Jan Hensen Technische Universiteit Eindhoven Netherlands
 Ardeshtir Mahdavi TU-Wien Austria
 Natale Arcuri University of Calabria
 Paolo Baggio University of Trento
 Vincenzo Corrado Polytechnic University of Turin
 Andrea Gasparella Free University of Bozen-Bolzano
 Livio Mazzarella Polytechnic University of Milan

**07-09 December
2015**

Hyderabad, India
www.bs2015.in

Building Simulation 2015: 14th IBPSA International Conference

The International Building Performance Simulation Association's 14th international conference will be held in Hyderabad, India. The International Institute of Information Technology – Hyderabad (IIITH) will act as secretariat for this conference. BS 2015 will bring together academics, researchers and professionals from a broad range of science and engineering disciplines with the aim of sharing the latest technology and innovations and spearheading the practical application of building simulation in developing nations.

India is the second-fastest growing economy in the world and its construction sector is the country's second-largest economic activity, so we expect this conference to attract a rich mix of local and international participants.

BS 2015 will feature a wide range of topics such as:

- Thermal simulation
- Thermal comfort
- Daylight simulation
- Simulation of natural ventilation
- Simulation for passive measures
- Building-integrated photovoltaic systems
- Simulation for Code compliance
- Urban Scale simulation

The conference programme will include both oral presentations with question-and-answer sessions and poster sessions. There will be workshops on the energy performance of buildings and other building-related aspects such as acoustics, fire and water both before and after the main conference.

Conference Venue

Hyderabad is the 6th most populous city in India, with a rich mix of academic institutes and industries. It has been rated as best city in Asia for meetings, incentives, conferences and exhibitions. The city is emerging as a global hub for Information Technology, and the industry's growth is driving both commercial and residential construction. Hyderabad also leads the green building movement in India, with the local presence of the Indian Green Building Council, and it has a rich heritage of UNESCO Asia-Pacific historical sites. It was rated the best heritage city in India in March 2012.

The conference will be held in a state-of-the-art convention center managed by the Accor hospitality group. This has space for 32 breakout sessions, and the keynote session hall can accommodate over 1000 delegates.

More details about the conference, and key dates, can be found in the Call for Papers on **page 40** and at www.bs2015.in. ■



Building Performance Simulation for Design and Operation

Jan L.M. Hensen and Roberto Lamberts

Effective building performance simulation can reduce the environmental impact of the built environment, improve indoor quality and productivity, and facilitate future innovation and technological progress in construction. It draws on many disciplines, including physics, mathematics, material science, biophysics and human behavioural, environmental and computational sciences. The discipline itself is continuously evolving and maturing, and improvements in model robustness and fidelity are constantly being made. This has sparked a new agenda focusing on the effectiveness of simulation in building life-cycle processes.

Building Performance Simulation for Design and Operation begins with an introduction to the concepts of performance indicators and targets, followed by a discussion on the role of building simulation in performance-based building design and operation. This sets the ground for in-depth discussion of performance prediction for energy demand, indoor environmental quality (including thermal, visual, indoor air quality and moisture phenomena), HVAC and renewable system performance, urban level modelling, building operational optimization and automation.

Produced in cooperation with the International Building Performance Simulation Association (IBPSA), and featuring contributions from fourteen internationally recognised experts in this field, this book provides a unique and comprehensive overview of building performance simulation for the complete building life-cycle from conception to demolition. It is primarily intended for advanced students in building services engineering, and in architectural, environmental or mechanical engineering; and will be useful for building and systems designers and operators.

Selected Table of Contents

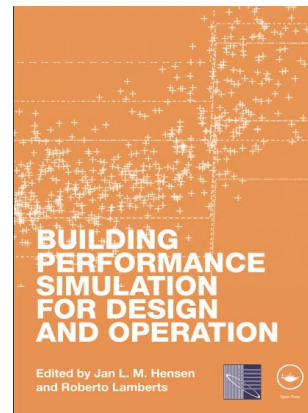
1. The Role of Simulation in Performance Based Building 2. Weather Data for Building Performance Simulation 3. People in Building Performance Simulation 4. Thermal Load and Energy Performance Prediction 5. Ventilation Performance Prediction 6. Indoor Thermal Quality Performance Prediction 7. Room Acoustics Performance Prediction 8. Daylight Performance Predictions 9. Moisture Phenomena in Whole Building Performance Prediction 10. HVAC Systems Performance Prediction 11. Micro-cogeneration System Performance Prediction 12. Building Simulation for Practical Operational Optimization 13. Building Simulation in Building Automation Systems 14. Integrated Resource Flow Modelling of the Urban Built Environment 15. Building Simulation for Policy Support 16. A View on Future Building System Modelling and Simulation

January 2011 | 536pp | Hb: 978-0-415-47414-6 | £65.00

About the Authors

Jan L. M. Hensen (Ph.D. & M.S., Eindhoven University of Technology) has his background in building physics and mechanical engineering. His professional interest is performance-based design in the interdisciplinary area of building physics, indoor environment and building systems. His teaching and research focuses on the development and application of computational building performance modelling and simulation for high performance.

Roberto Lamberts is a Professor in Construction at the Department of Civil Engineering of the Federal University of Santa Catarina, Brazil. He is also currently a board member of the IBPSA, Vice-President of the Brazilian Session and Counsellor of the Brazilian Council for Sustainable Buildings.



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The IBPSA newsletter- a little bit of history

Over the past year, IBPSA members have tried to collate all of the historic newsletters, dating from the beginning of the IBPSA newsletter, so that we can share previous editions with the wide IBPSA community. Please have a look at the website and enjoy the nostalgic editions of 1988-1993. The following archived newsletters have been posted recently on IBPSA's website:

Year of publication	Number of Volumes per year	On the website	Editor(s)	Format
1988	3	Vol 1 no 1,2,3	Michael Witte	NEW on the website
1989	1	Vol 2 no 1	Michael Witte	NEW on the website
1990	4	Vol 3 no 1,2,3,4	Michael Witte	NEW on the website
1991	3	Vol 4 no 1,2,3	Michael Witte	NEW on the website
1992	1	Vol 5 no 1	Michael Witte	NEW on the website
1993	2	Vol 6 no 1,2	Jeff Haberl, Dan Seth, Rik Van de Perre, Michael Witte	NEW on the website
1994	2	Vol 7 no 1,2	Jeff Haberl, Dan Seth, Joe Clarke, Michael Witte	NEW on the website

In order to bring the history of the *ibpsaNEWS* to life, three of the previous newsletter editors and editors-in-chief have kindly provided us with a brief overview of their experiences as the IBPSA newsletter editor. I would like to express my sincere thanks to Chip Barnaby, Dru Crawley, Larry Degelman, Jeffrey Spitler, and Mike Witte, and many others who have contributed to the success of the newsletter over the years, and for their assistance in digging out archived information.

Michael Witte (Newsletter Editor from 1988-1992)

Back in 1988, I was a PhD student at the University of Illinois at Urbana-Champaign (UIUC). I was working in the BLAST Support Office in the Department of Mechanical and Industrial Engineering with the late Dr. Curtis O. Pedersen. Curt always placed a high value on participation in professional societies, and several of us from UIUC were involved in founding IBPSA. At the time, I owned a state-of-the-art Apple Macintosh SE computer (http://en.wikipedia.org/wiki/Macintosh_SE) complete with a 9-inch monochrome display, 20MB hard drive, and Microsoft Word which offered true WYSIWYG editing (<http://en.wikipedia.org/wiki/WYSIWYG>). What more could you ask for?! With those tools at my disposal and help from Henry Amistadi to gather content, I volunteered to produce the newsletter. From the first issue in 1988 until 1992 I produced and mailed paper copies of the newsletter with printing and postage support from my employers at UIUC, the University of Michigan, Chamberlain GARD, and ElectroCom GARD (predecessors to my current employer GARD Analytics, Inc.). When Rik Van de Perre became the first IBPSA Executive Director, production of the newsletter moved to Belgium.

Marion Bartholomew (Newsletter Editor from 1996-date)

I became involved with the News through my husband, Dr David Bartholomew, who directed the UK's Passive Solar Energy research programme in the 1980s and came to know most of the people involved at that time in developing building energy models and using them in research and practice. In 1987 a group of them set up the Building Energy Performance Analysis Club (BEPAC) under the chairmanship at various times of, amongst others, David, (now Professor) Kevin Lomas and Professor Joe Clarke, later President of IBPSA. One of the tasks that David and I undertook for BEPAC was the production of a newsletter, initially in MS Word – which we had to press pretty much to the limit of its capabilities – and later Adobe's PageMaker DTP package, which allowed us to make it much more sophisticated and professional. BEPAC eventually declined as funding became tighter, but Joe Clarke kept the idea alive in the form of IBPSA-Scotland.

Joe had been impressed by the BEPAC newsletter and IBPSA asked us to take over production of IBPSA News when it was resurrected in 1996 after a year's absence. Initially we were responsible for finding content as well as designing and producing the newsletter, having it printed and mailing it out in big boxes to the affiliates at the time (USA, Australasia, Canada, France, Czech Republic, Greece). It was expensive to print and distribute, so when in 1999 it was judged that the World Wide Web had come into wide enough use the News became online only. This required a radical redesign, because the multi-column layout which works best in print publications is almost unreadable on-screen. By 2001 Larry Degelman had been officially designated as Newsletter Chairman and had taken over the arduous task of providing material for the News, whilst we concentrated on design, production and editing.

This arrangement persisted for some seven years until eventually Larry was awarded time off for good behaviour, becoming Chairman of IBPSA's new Public Relations Committee and handing on to Veronica Soebarto the task of finding material for the News, under the newly-created title of 'Editor-in-Chief'. And now I find myself editing my 32nd edition!

Veronica Soebarto (Newsletter Editor-in-Chief from 2009-2011)

Larry Degelman approached me to be the Editor-in-Chief around August 2008, I believe. Larry was the Chair of the then- Public Relations Committee as well as newsletter chairman at the time, and I had been a member of this PR Committee (as well as the IBPSA Australasia rep) for a few years before that.

A memorable moment was interviewing "important" people to be featured in the News, even though the interview was done in writing, most of the time. It's great to be able to "dig" into people's thoughts and share that valuable information or lesson to the rest of the world. The most memorable one was being able to not only communicate but also 'chat' a few times via emails with a former ASHRAE President, Lynn Bellenger. She even sent me messages through her mobile phone, which made me feel special. I was deeply sad when she passed away in 2011, one year after I interviewed her. I will always remember her not only as a great leader but more so as a truly great person.

Larry Degelman remembers his time as News editor in the interview on the following pages. ■

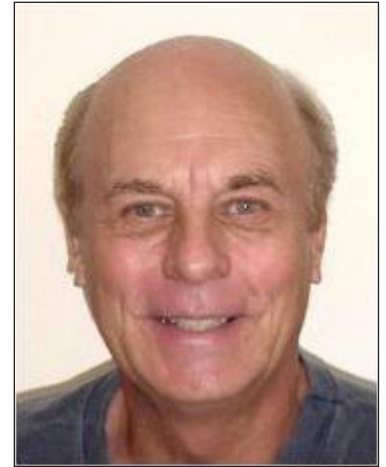
IBPSA past, present and future

an interview with Larry Degelman

Larry Degelman (LD) is Professor Emeritus of Architecture at Texas A&M University, College Station, Texas, USA. He holds an MSc in Computer Simulation in Building Design from Pennsylvania State University.

Larry is one of the key actors in the building performance simulation community in the US and worldwide, with an international standing of the highest level. He has been a member of IBPSA since 1987.

Larry has made a tremendous contribution towards the development of IBPSA into the organisation it is today. He has had an active role in the organisation since the early 1990s: Secretary and Board Member of IBPSA from 1994-1997, President of IBPSA from 1998-2000, Newsletter Chairman and Board member of IBPSA from 1999-2010.



He has taught architectural engineering at the University of Maryland and the Pennsylvania State University, and currently teaches ASHRAE 90.1 energy standard workshops to architects, engineers, building inspectors and code officials in Texas.

Christina Hopfe spoke to Larry about IBPSA, his previous role(s) at IBPSA and his vision of where IBPSA will be 15+ years from now.

Christina Hopfe (CJH): Dear Larry. First of all, thank you for your time. You are one of IBPSA's founding members, and previously the IBPSA president for many years. You have also been responsible for several volumes of the IBPSA newsletter, and were recently appointed as an IBPSA Fellow (at BS2013 in Chambéry, France). As one of IBPSA's longest standing members, could you please say something about the initial idea behind IBPSA and something about its early members?

Larry Degelman (LD): To be brief, the idea behind IBPSA is one word – “computers”. Not laptops, not desktops, even before that time – it was mainframes and the fascination over what powerful opportunities they offered the design community. Like many things, IBPSA could never have happened without computers. As far back as 1970, before the idea of an “IBPSA” was ever hatched, there was a conference that might be regarded as the seed that was planted from which the idea of building simulation grew. It was entitled, “Use of computers for environmental engineering related to buildings.” That conference, hosted in Gaithersburg, Maryland by the National Bureau of Standards (NBS), (now NIST) was spearheaded by Tamami Kusuda*, who would later become one of the founders of IBPSA. I suppose it could be argued that this was possibly the earliest idea for IBPSA, though it was not until 1985 that an officially named “Building Simulation Conference” took place. Even then,

**The April 2004 issue of ibpsaNEWS was dedicated to the memory of Tamami Kusuda.*

there was not actually an organization labelled as “IBPSA” – that happen circa 1987, and the first official IBPSA sponsored simulation conference didn’t happen until 1989 in Vancouver, Canada. I don’t really recall the names of the founding fathers and mothers of IBPSA, though I can think of a number of innovators that nurtured IBPSA along in her early days. Tamami Kusuda for certain was one of those, but others included Curt Pedersen, Ed Sowell, Marx Ayres, Dan Seth, Jeff Spitler, Michael Witte, Roger Pelletret, John Mitchell, Chip Barnaby, Robert Sonderegger, Carol Gardner, Fred Winkelmann, Linda Lawrie, Joe Clarke, Ron Judkoff, George Walton, Steve Selkowitz, Taghi Alereza, James Hirsch, Dan Nall, Dru Crawley, Jean LeBrun, Zulfikar Cumali, Bill Carroll, Bruce Birdsall, Per Sahlin, David Claridge, Sandy Klein, Jan Hensen, Philippe Geril, Terry Williamson, Doug Hittle, and Godfried Augenbroe and others for whom I’ll be embarrassed for forgetting. Even if these are not actual “founders” of IBPSA, they clearly represent leading forces that have moulded IBPSA into what it is today, and they all deserve a salute of thanks for setting the high standards of IBPSA in her early days.

Christina Hopfe (CJH): Popular topics at recent IBPSA conferences (for example at BS2013 in France) have included the influence of simulation on building design, validation and calibration. A lot of papers have been dedicated to energy (49%) and heat transfer (24%), with fewer on airflow modelling (14%) and (day)lighting (9%). What were the main “hot topics” in IBSPA’s early days, and do you see a shift occurring?

LD: By default, I guess we’ve found it easy to let our simulation interests gravitate into energy and heat flow. Lighting and daylighting have recently found a niche, but about 10 to 15 years ago, there were many within IBPSA who wanted to entice more “architectural topics” such as acoustics (sound distribution patterns and sound isolation), simulating fire spread, occupant emergency egress, normal occupant flow patterns, etc. That hasn’t happened yet. I guess what we need is more real architects (with computer skills) as members of IBPSA. There are definitely a number of them out there – we just haven’t attracted them to IBPSA.

“what we need is more real architects (with computer skills) as members of IBPSA”

CJH: The newsletter section on IBPSA’s website will be updated soon so that people can download all of the previous IBPSA newsletters from the website. Looking at the issue catalogue (and the previous article in this issue), it is clear that under your guidance the newsletter became a stable, reliable means for promoting IBPSA’s news. Initially, I understand, it was published at random intervals: there were years when there was no newsletter at all, and some years with up to four numbers per volume. Can you maybe tell us a little bit about the history of the IBPSA newsletter?

LD: My recollection of the history of this is a bit fuzzy, but the first Newsletters I recall (prior to 1990) were much like memos, stapled in the upper left corner, that gave summaries of recent meetings (usually twice a year) and announced upcoming meetings and activities. Sometimes they announced a new software that someone had developed. The first editor I recall was Mike Witte, but there may have been others around that time. The earliest IBPSA Newsletters were a bit ad-hoc, but yet served a vital purpose of keeping IBPSA in front of members (and non-members) in the sense of letting them know things were actually happening. In 1996, at a meeting at Ross Priory, Scotland, Marion Bartholomew was approved as editor of the Newsletter, and pursuant to that time, the “IBPSA News” took on a more polished look. In addition, the contents changed to include one or two actual technical pieces, much like the content in conference proceedings.

CJH: What impact do you think the newsletter has had on shaping IBPSA in general? Looking to the future; what could its potential impact be in terms of marketing and the dissemination of knowledge?

LD: I still view *ibpsaNEWS* as a vital instrument in doing what it has always done, keeping members on notice that IBPSA is alive and well. While the equally important BS Conference proceedings provide an educational role by supplying technical information, they are issued only once every two years. In that same period, there

are at least four issues of the *News* that provide the needed regularity if the membership is to stay in touch with pertinent events: that is, actual “news”. The *News* is great, and IBPSA might be well advised to consider adding a more frequent, shortened, version in more like memo style.

CJH: In the last edition, we had an interview with Mike Barker about the IBPSA LinkedIn groups and IBPSA’s role there. Before that (in the April 2013 issue) we had an article about Area 51, another way of exchanging knowledge and information within the IBPSA community. How do you stand towards these platforms and social media? Do you follow many IBPSA LinkedIn groups?

LD: I’m a member of LinkedIn IBPSA group and ASHRAE group, but don’t find either of them to be of great value to me. I’ve received much more relevant (and timely) information from the various list servers in which I’m a member, like ASHRAE’s TC’s and ASHRAE Standards. I find a lot of useful discussions there as well as recent releases and updates of issues relevant to me. Frankly, I’ve received LinkedIn notices of a topic that I was already notified of two days prior from the ASHRAE list servers. My comments may not apply to everyone, because I have not put enough effort into LinkedIn to make it of value to me.

CJH: Where do you want IBPSA to be in 15, 50, 100 years’ time?

LD: Within 15 years, I would like to see IBPSA have worldwide recognition as the guiding light for building simulation research, education, accreditation, and certification of software and developers. This includes effective information dissemination of simulation examples that practitioners may be encouraged to emulate. (I didn’t say simulate.) What I don’t want to see is for IBPSA to get top heavy with administrative bureaucratic matters that detract from its technical and educational effectiveness. In light of the enormous work done recently by IBPSA’s secretary, president and some committee members to bring the Association into conformance with legal corporate requirements, I see this as a potential worry.

What about 50 years? Here’s where I will probably be accused of being heretical or just short sighted. Yes, IBPSA’s impacts will have far-reaching influence, 50 years and beyond, but as a society with members around the world, I do not see this as necessary. As a society, I think IBPSA should become irrelevant and obsolete. Just as CFD, Lagrangian Transforms and Fibonacci search techniques will probably live forever, so will IBPSA’s simulation, calibration, and visualization techniques, but we won’t really need a society to continue to foster the use of these tools. It should be the norm that all building designs will get full massaging during the design process with the benefit of feedback from previous projects via yet to be developed simulations that should easily occur during the next 50 years. At the 50-year mark, I don’t see IBPSA as an essential ingredient in order to have successful adoption of simulation in everyday projects. I’m just not sure how many different simulation

“As a society, I think IBPSA should become irrelevant and obsolete.”

approaches would be necessary for IBPSA to keep developing. Advances in computer capabilities will go a long way in making it easier for IBPSA to adapt and improve its techniques/models over the next several decades. Fifty years is a long, long, time and as we know, travel agents, so necessary in the 1960’s, are no longer needed to arrange for an enjoyable trip; and we

no longer need encyclopedias, camera film, or paper maps as we did just one decade ago. And, so we will no longer need to be meeting and disseminating about “simulation”. As for 100 years, let’s not even start on that. Remember when computers and television weren’t even in the dictionary? I didn’t think so! Cheers!

CH: Finally, are we going to see you at BS2015 in India?

LD: I’m not certain about going to BS 2015, but it’s not out of the question. Just don’t know at this point! ■

Software news



IEA Annex 66 2nd Expert Meeting and 1st Annual Symposium on Occupant Behavior (OB-14)

After a highly successful 1st Expert Meeting in Hong Kong, IEA EBC Annex 66, a group of about 90 researchers from around the world who specialize in the technical aspects of occupant behavior in buildings, formally met again in August 2014 for a second time at the University of Nottingham, UK. The three day event began with OB-14, a symposium that allowed leading researchers to present their latest work, followed by a two-day meeting to discuss research progress and plans of the Annex.

The OB-14 Symposium included 14 oral presentations and about a dozen poster presentations on a variety of occupant behavior-related topics. Major categories of topics included occupant modelling approaches, comfort studies, occupant behavior implementation strategies, and case studies. Professor Henrik Madsen, a world-renowned expert in mathematical modelling of energy systems and buildings, provided a keynote speech, Crystal ball techniques: Illustrating the power of statistical modelling, to the audience in the beautiful Keighton Auditorium. The second annual Symposium on Occupant Behavior is tentatively planned to take place in Germany in the summer of 2015 in conjunction with the 4th Expert Meeting of Annex 66.



The University of Nottingham

Following OB-14, a large subset of the 90 Annex 66 researchers met for an intensive two-day meeting. The operating agents and subtask leaders presented the state-of-the-art research and major issues, including:

- Da Yan and Tianzhen Hong: status of Annex 66, timelines, and goals
- Andreas Wagner, Bing Dong, Liam O'Brien: Occupant and indoor environment monitoring and data collection methodologies; occupancy detection; laboratory versus field studies
- Darren Robinson and Henrik Madsen: Occupant modelling methods
- Ardeshir Mahdavi: Model verification methods and future needs for the field
- Tianzhen Hong: Approaches to integrating occupant behavior models into building performance simulation tools
- Khee Poh Lam: Applications of occupant behavior models in design and operation of buildings

Following the presentations, the five subtask committees met in break-out sessions. They discussed the current status of the field, challenges, and assigned research tasks. In several cases, Annex participants have arranged to work across subtasks to develop methodological documents. These include documentation and standards on data collection, modelling methodologies, and model verification.



Annex 66 members at Nottingham, August 2014

Other ongoing activities within Annex 66 include the development of an occupant behavior data repository and outreach and dissemination to the research and construction communities through workshops and conferences.

The 1st working phase meeting (3rd Expert Meeting) will be held at Lawrence Berkeley National Laboratory, Berkeley, California on 30 March - 1 April 2015.

Additional experts, particularly software developers from industry, are encouraged to participate in Annex 66 by contacting the operating agents, Da Yan (yanda@tsinghua.edu.cn) and Tianzhen Hong (thong@lbl.gov).

Annex 66 is part of the IEA's Energy on Buildings and Communities Programme. A detailed description of the Annex was included in the last issue of ibpsaNEWS, April 2014, together with a report on the 1st Expert Meeting. This report on the 2nd Expert Meeting is reproduced with permission from the Annex 66 newsletter. For more information about the Annex and its meetings visit the Annex's web site, www.annex66.org. ■

Mr.Comfy 0.21 released

Max C Doelling, architect

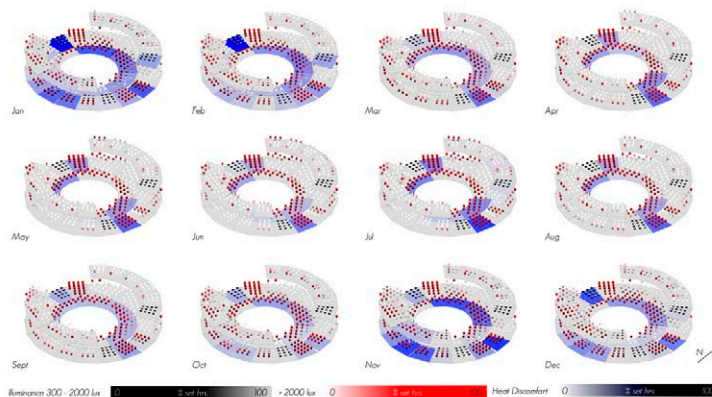


The latest version of Mr.Comfy, a building performance simulation output visualization tool, has been released in June 2014. Mr.Comfy is a Grasshopper3d component that reads EnergyPlus report variables from *.csv and *.eio files and displays them in Rhinoceros3d 5.0 viewports for custom spatial and temporal analysis.

Version 0.21 adds new experimental features that enable custom variables to be created from existing *.csv outputs. In combination with customizable conditional checks, this allows hourly report fields to be tied to variable ranges in existing reports, for example to show discomfort hours only when people are in a space by checking for zone people loads and filtering time ranges when this is not the case. User-created input expressions

in Python's flexible scripting syntax are supported, with no limit on the complexity of the input string; through the newly added single condition frequency check mode in the main Mr.Comfy Grasshopper component, spatial maps can be created of greater specificity than in previous versions, which supported existing variables only.

The rationale behind offering custom variable creation is that in performance-enabled and simulation-integrated architectural design, building science questions are often tied to an intricate interrogation of building behaviour design intent, e.g. as related to



aforementioned occupancy conditions. The graphic, left, demonstrates a monthly frequency of hours mapping of the experimental variable “multivariable heat discomfort”, which in the sample building (climate: Ft. Lauderdale, FL, USA. Köppen Aw tropical savanna) is charted for each zone and overlaid with daylight performance in two bands (frequency of illuminance 300-2000 lux + > 2000 lux). Discomfort is reported if any one of several comfort indices show discomfort and the individual zone is

occupied (if Fanger PMV ≥ 2 or Pierce TSENS ≥ 2 or Time Not Comfortable Summer Clothes ≥ 1 or Ksu TSV ≥ 2 and People Sensible Heat Gain > 0). By checking several indices in bulk, which may all exhibit individual sensitivities, a design-focused underestimation of possible discomfort can be avoided and the question of “when may discomfort occur?” explicitly tied to occupied times only- which in complex, multi-use designs may be difficult to do through manual report time selection only. A more detailed discussion is also given on the Mr.Comfy website <http://mrcomfy.org/?p=866> ; http://mrcomfy.org/?page_id=789 and in a recent online presentation for the IBPSA NYC chapter at <https://vimeo.com/101934351>.

A second new feature set of the updated release more explicitly decouples Daysim annual daylight simulation results display from the thermal component functionality, easing independent daylight data visualization setup by simply selecting a matching pair of *.ill and *.pts files. A new quick logarithmic value remapping function easily allows the evaluation of qualitative daylight distributions, which is among other functions now settable through predefined switches- no more additional Grasshopper components are needed in the pipeline.

In addition to new or revamped features, Mr.Comfy is now also equipped with additional quick converts, exhibits improved startup behavior, bug fixes and most importantly is given a huge performance boost in complex models by improving variable processing functions; the former performance penalty of having many variables in a report file no longer applies, which is especially important in relation to custom variable processing, as it needs a potentially large number of base outputs present. However, analysis performance is still affected by the number of zones in a model, which cannot easily be avoided. A full list of changes, Mr.Comfy download, known issues and release

notes are available on MrComfy.org at http://mrcomfy.org/?page_id=20 .

Mr.Comfy is distributed free of charge at <http://MrComfy.org>; if you use it in your work regularly, the author would love to hear about your impressions. If you would like to see work performed by your office or research group featured on Mr.Comfy.org, please get in touch with me, Max Doelling, and I will gladly share your results so that the community can learn from your experiences. ■

Modelica model library AixLib released

As part of its IEA EBC Annex 60 participation, the Institute for Energy Efficient Buildings and Indoor Climate at the E.ON Energy Research Center, RWTH Aachen University has released AixLib, a Modelica model-library with over 400 items that focuses on building performance simulations and is intended for both research and teaching. It is ready to use and supports a native way of becoming familiar with building performance simulation in Modelica.

Following the Annex 60 approach, AixLib is based on common base classes and extends the existing Annex 60 library. It is open-source and freely available under Modelica License 2.

AixLib facilitates dynamic simulation of thermal and hydraulic systems and particularly the development of control strategies for HVAC systems and the analysis of interactions in complex systems. The library encompasses basic components, models for HVAC systems, models for building physics at different levels of detail and example data sets for all models. It can be used at the component, building and city district level.

AixLib can be downloaded at <https://github.com/RWTH-EBC/AixLib>. The library has been developed in the simulation environment Dymola. Further planned developments include support of OpenModelica. We invite you to take part in this development and to raise issues using github.

For further information, email aixlib@eonerc.rwth-aachen.de . ■

DesignBuilder version 4 released

DesignBuilder Software has released version 4 of its whole building energy simulation program. This version adds a substantial set of new features and improvements oriented to the different but overlapping needs of architects and engineers.

DesignBuilder Packages for Architects help designers meet performance targets at the early design stages by providing accurate and reliable energy and daylighting performance data. The Architectural simulation packages allow architects to link with

BIM (Building Information Modeling) solutions, analyze solar shading, maximize the use of renewable technologies and test façade options in one comprehensive software program.

DesignBuilder Packages for Engineers provide an integrated set of tools to help the integration of mechanical systems within sustainable buildings design. Various design scenarios for HVAC systems and controls, facades, lighting, and renewable technologies can be evaluated with relative ease. Using drag and drop air and water components, HVAC systems can be constructed within DesignBuilder from scratch, and pre-defined HVAC templates, autosizing and zone grouping features make the software quick to use. The most commonly-used EnergyPlus HVAC system types are readily available including all ten ASHRAE 90.1 baseline HVAC systems.

New features available as modules in release version 4 include:

- ASHRAE 90.1 Appendix G compatibility: ASHRAE 90.1 for 2007 and 2010 including constructions, materials, glazing systems, activities, lighting and HVAC systems for both LEED certification and IRS tax credits.
- Optimization: helps identify design options with the very best combinations of cost, energy and comfort performance.
- Cost: calculate the economic impact of various building designs using construction cost, utility tariffs and life-cycle analysis.

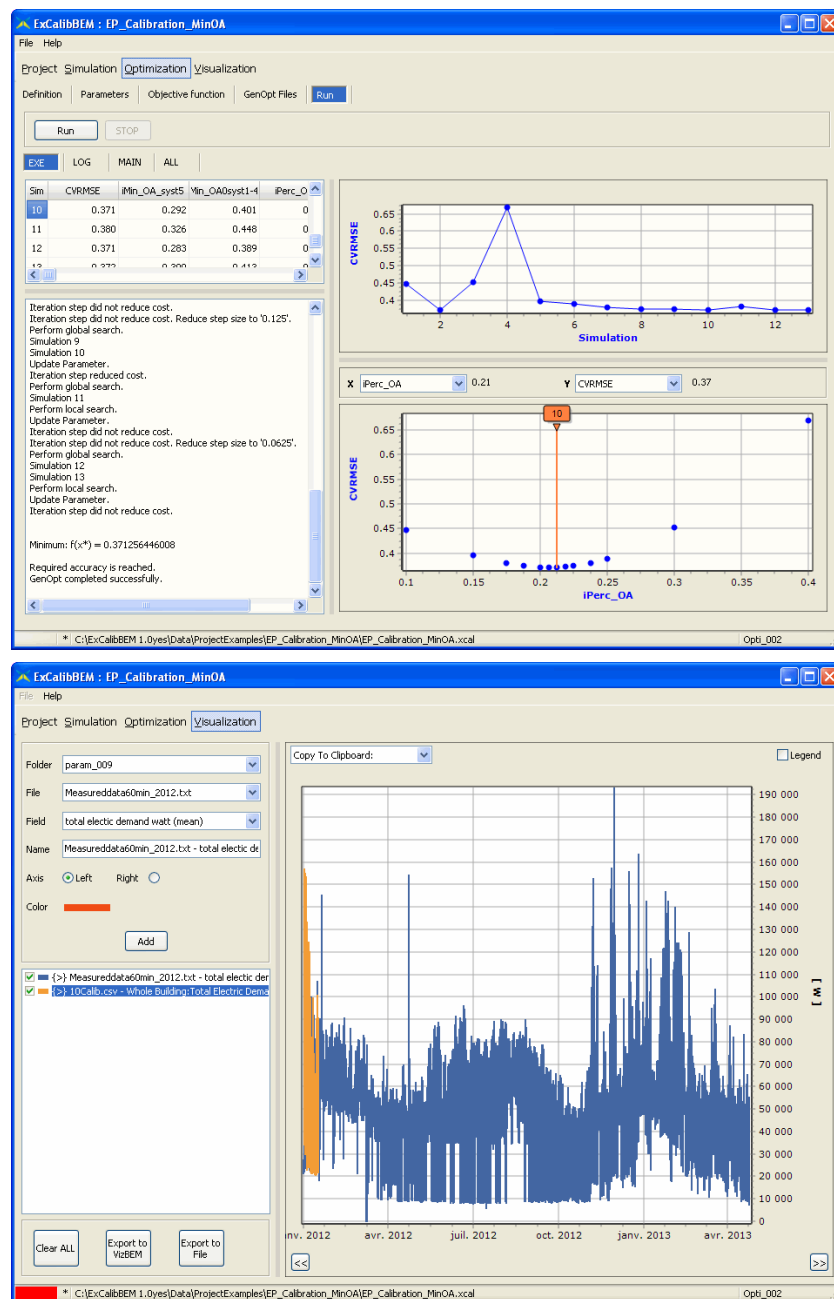
All DesignBuilder packages provide sensitivity analyses at the click of a button. High quality technical and rendered outputs help communicate findings to clients in a way they can easily understand. Key performance indicators such as energy consumption, carbon emissions, thermal comfort, daylight availability and cost can be provided throughout the design process in both naturally ventilated and air-conditioned buildings.

For more information, contact Christian Stalberg at DesignBuilder USA, tel +1 415-531-4610. ■



ExCalibBEM: a new free tool for calibrating EnergyPlus or DOE2.2 models

Hydro Quebec's Institut de Recherche has released the first version of ExCalibBEM, a free tool to help simulation experts calibrate EnergyPlus or DOE2.2 models. The software facilitates the implementation of parametric and optimization runs in order to achieve a better match between simulation results and measured data, especially on short time intervals (15 minutes). ExCalibBEM is a complete interface to GenOpt, a generic optimization program developed by LBNL laboratory, and has several interesting functionalities including the generation of an objective function for calibration purposes, the automatic creation of an input template file with the required indicators and the visualization of simulated and measured data.



ExCalibBEM has a bilingual interface (English and French) and is fully documented, with examples and a case study. There is a short video presentation about the tool at <https://www.youtube.com/watch?v=biab4V2hmWM&feature=youtu.be>.

For more information and download please visit https://www.simeb.ca/ExCalibBEM/index_en.php or contact Simon Sansregret at sansregret.simon@lte.ireq.ca. ■

A new comprehensive Human Thermal Model (HTM)

Pekka Tuomaala, VTT Technical Research Centre of Finland

There are several reasons why individual thermal response should be evaluated in more detail in models, most obviously that all human beings are more or less unique. They have different distributions and amounts of bone, muscle, fat, and skin, and these tissue types have different orders of magnitude in basal metabolic heat generation: 0.67 W/kg for reclining muscle vs 0.004 W/kg for fat tissue, for example.

To improve the representation of human beings, VTT has developed a new Human Thermal Model (HTM) to calculate human thermal sensation and comfort index values. HTM is divided into two main parts, and the first part focuses on estimating individual human body tissue temperatures as they vary in space and time. This is done by utilizing human anatomy and physiology models, and taking into account all relevant heat and mass transfer mechanisms between the human body and adjacent space. In the second part of the HTM, the calculated tissue temperatures are used to estimate quantitative thermal sensation and comfort index values according to the methodology developed by Zhang.

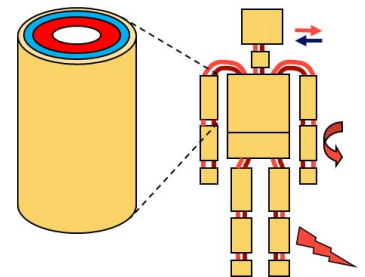


Fig 1: Anatomy model of the HTM: the human body is divided into 16 body parts, each further subdivided into tissue layers (bone, muscle, fat, and skin)

The HTM has been used to estimate the effects of individual characteristics on thermal sensation. **Figure 2** shows the effect of environmental temperature on the overall thermal sensation of 50 year old men with *different* levels of muscularity (1-high, 0.5-average, and 0-low, corresponding to overall fat percentages of 12%, 23%, and 34% respectively) but *equal* Body Mass Indexes of 25 kg/m², an activity level of 1.0 MET (seated and relaxed, generating 58 W/m²), and clothing insulation of 0.86 clo (light clothing). **Figure 3** shows the impact of environmental temperature on the overall thermal sensation of women with three different levels of fat percentage (13%, 30%, and 49%). and activity and clothing insulation identical to the men.

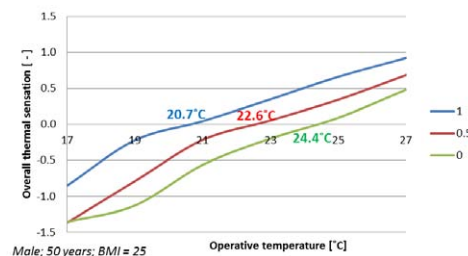


Fig 2: The impact of environmental temperature on the overall thermal sensation of men with different muscularity index values (1-high, 0.5-average, and 0-low).

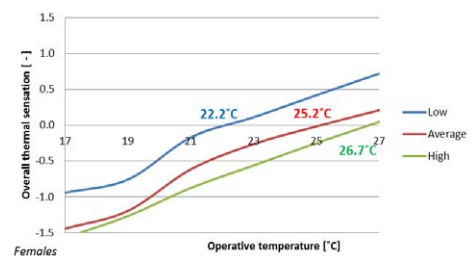


Fig 3: The impact of environmental temperature on the overall thermal sensation of women with high, average and low proportions of fat tissue.

The results presented in Figures 2 and 3 show clearly that there are differences between individuals and genders. When comparing thermo-neutral temperature levels — when the overall temperature sensation index value is equal to zero — for different individuals with identical activity and clothing insulation levels, there seems to be quite large distribution of desired temperature levels: about 6°C, according to Tuomaala.

For more information, contact Pekka Tuomaala at Pekka.Tuomaala@vtt.fi.

References

Holopainen R. 2012, *A human thermal model for improved thermal comfort*, Doctoral Dissertation. VTT Science, Dissertation 23, Espoo, Finland. (www.vtt.fi/inf/pdf/science/2012/S23.pdf)

Tuomaala P. Holopainen R. Piira K, *A comprehensive human thermal model for evaluating individual thermal sensation*, Building Simulation and Optimization 2014. UK, London, 23-24 June 2014.

Zhang H. 2003, *Human Thermal Sensation and Comfort in Transient and Non-Uniform Thermal Environments*, Doctoral Dissertation, University of California, Berkeley, USA. ■

EBEST 1.0.100 released

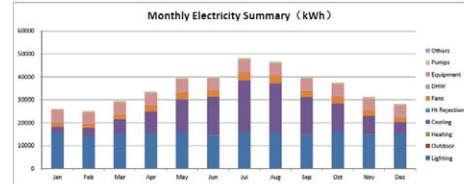
Global GreenLife Inc. has released a new version of its EverGreen Building Energy Simulation Tool (EBEST). This includes new features such as life cycle cost economic analysis, energy efficiency measures and option comparison.

The EverGreen Building Energy Simulation Tool (EBEST) is a building energy and economic analysis software program based on integrated sustainable building design principles. It has many functions: building load calculation and equipment selection; building annual energy use analyses; LEED energy performance assessment and documentation; carbon emissions and engineering economics analyses; and design alternative comparisons throughout design processes and entire building life-cycles, from planning, design, and construction to operations. It has calculation capabilities for building envelope, lighting, plumbing and HVAC, CCHP and renewable energy systems. It also accepts import of several building information models (BIM).

EBEST uses its own energy calculation engine, which is based on public domain algorithms and widely accepted industrial methods, such as ASHRAE toolkits for building load calculations, primary and secondary HVAC system energy calculations, and engineering references of DOE2, EnergyPlus and PV Watts. EBEST incorporates the best parts of these algorithms and methods to form a robust, flexible and creative energy and economic analysis engine. EBEST has completed engineering verification tests on both the building envelopes and HVAC systems per ASHRAE Standard 140.

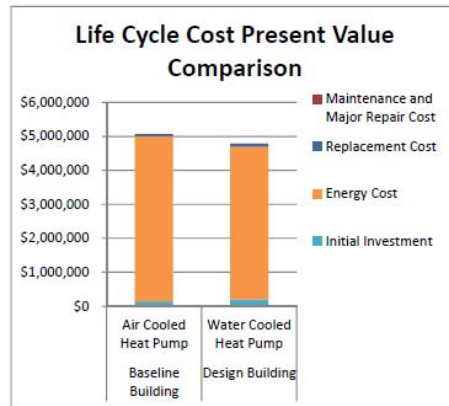
Not only is it user friendly but also can be used by a wide variety of users such as architects, lighting and mechanical engineers and energy analysts, in different project phases like planning, design, construction and operation.

Monthly Electricity Summary (kWh)												
Lighting	19998	19998	19998	19998	19998	19998	19998	19998	19998	19998	19998	19998
Outdoor	0	0	0	0	0	0	0	0	0	0	0	0
Refrigeration	0	0	0	0	0	0	0	0	0	0	0	0
Online	2083	2083	2083	2083	2083	2083	2083	2083	2083	2083	2083	2083
Mr. Project	0	0	0	0	0	0	0	0	0	0	0	0
Pump	1791	1791	1791	1791	1791	1791	1791	1791	1791	1791	1791	1791
Other	0	0	0	0	0	0	0	0	0	0	0	0
Equipment	5637	5637	5637	5637	5637	5637	5637	5637	5637	5637	5637	5637
Pump	316	316	316	316	316	316	316	316	316	316	316	316
Other	0	0	0	0	0	0	0	0	0	0	0	0
Total	26131	26131	26131	26131	26131	26131	26131	26131	26131	26131	26131	26131



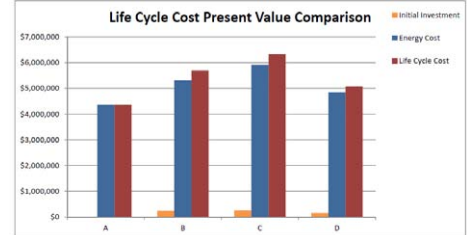
Life Cycle Cost Present Value Comparison

	Baseline Building	Design Building
Air Cooled Heat Pump		Water Cooled Heat Pump
Study Life, Year	25	25
Real Discount Rate, %	5	5
Initial Investment	\$150,000	\$200,000
Energy Cost	\$4,850,826	\$4,498,234
Replacement Cost	\$72,153	\$96,203
Maintenance and Major Repair Cost	\$0	\$0
Total Cost	\$5,072,979	\$4,794,437
Net Savings		\$278,541
Saving to Investment Ratio		4.8
Adjusted Internal Rate of Return, %		11.8
Discounted Payback Year		2.8

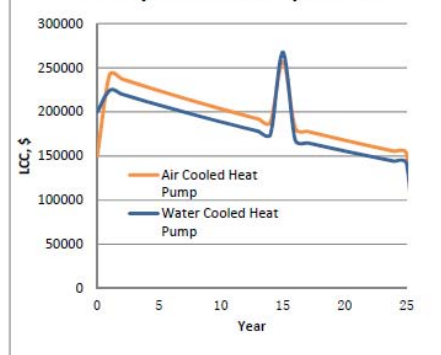


Life Cycle Cost Present Value Comparison

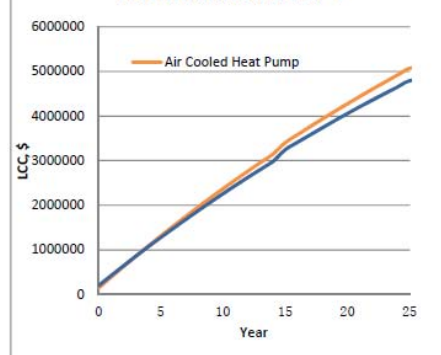
Alternatives	A	B	C	D
Initial Investment	\$148	\$210,000	\$260,000	\$180,000
Energy Cost	\$4,357,780	\$5,296,705	\$5,906,590	\$4,850,826
Life Cycle Cost	\$4,357,928	\$5,696,705	\$6,166,590	\$5,030,826



Yearly LCC PV Comparison



Accumulated LCC PV



For further information, visit www.henggreen.com. ■

Indian tools for building energy design

Whole-building energy performance simulation tools are of immense use in generating optimum design solutions, but they are not ideal for every stage of design and every situation. With increasing demand for energy efficiency designers need to carry out a variety of other, typically simpler, analyses. A number of useful tools are already available for this, but there is still space for others in contexts such as early-stage design.

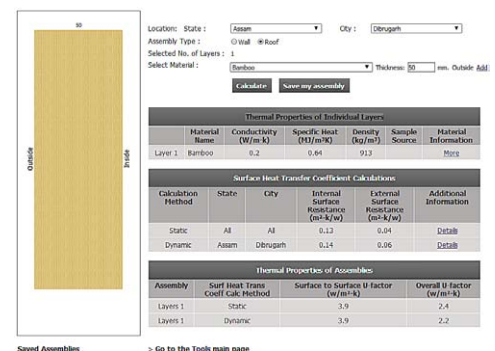
Online U Value calculator and comfort and weather analysis tool

The Center for Advanced Research in Building Science and Energy (CARBSE) at CEPT University has developed an online U Value calculator, a thermal comfort tool based on an adaptive thermal comfort model, and a multi-city weather comparison tool, all intended to provide simple analyses at an early stage of building design. Tools like these are helpful in the context of India, which is experiencing huge growth in construction. To make them as easy as possible to use, CARBSE's new tools have been designed specifically for use in Indian conditions in the first place. They are all available online at www.carbse.org/resource/tools.

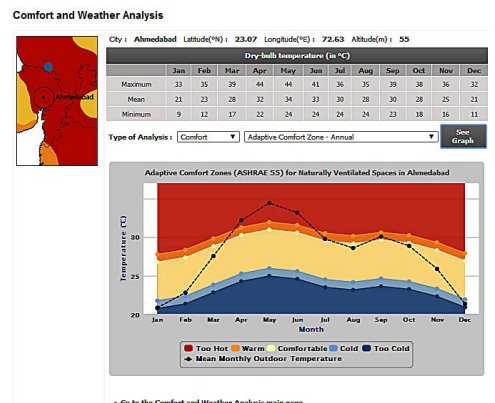
The U Value calculator tool is intended to make it easier for designers to select building materials, both for code compliance and as a basis for subsequent analyses on whole buildings using more sophisticated tools. The tool provides a library of generic construction materials which users can combine into wall assemblies, and then calculates their U factor. All the materials in the library have been selected by CARBSE to ensure they meet applicable standards. Further work is underway to develop a more general database of materials widely used in India.

The comfort and weather analysis tool allows designers to analyse thermal comfort using weather data for selected Indian cities and ASHRAE 55 adaptive thermal comfort bands. The tool calculates the number of hours when conditions are within the comfort zone for any particular month and generates yearly comfort zone distribution charts, both daytime and 24x7. It also produces weather charts showing temperature and humidity distributions on the same basis. Together, these give designers a sound basis for thermal comfort analysis. A variation on this tool generates graphs which compare two cities.

The development of these tools is being supported by the Indian Ministry of New and Renewable Energy and the Shakti Sustainable Energy Foundation, New Delhi.



U Value calculator

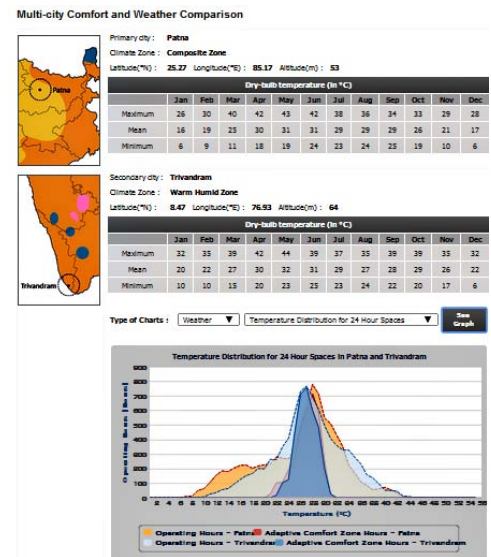


Comfort and weather analysis tool

Roof albedo assessment tool

In hot, sunny countries like India increasing the roof albedo can usefully reduce heat ingress through the roof, and so reduce HVAC energy consumption in air-conditioned buildings and increase thermal comfort in naturally ventilated buildings. Many building designers are aware of this, but lack tools to quantify the effect.

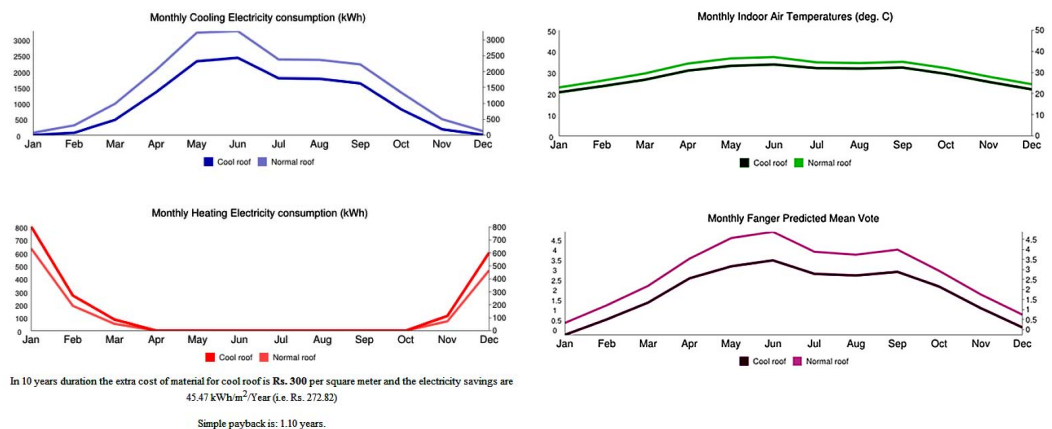
To help assess the benefits of high albedo roofs under varying conditions, the Hyderabad International Institute of Information Technology has developed a simple calculator to calculate their effect on energy use and comfort in Indian cities. This can be accessed at <http://coolroof.cbs.iiit.ac.in>.



The tool simulates identical buildings with light and dark roofs, and calculates the difference in HVAC energy use and comfort, and the payback on the extra cost of using cool roofs. This is particularly useful in India, where unconditioned spaces are common, especially in the residential sector. The calculator can also assess measures such as radiant barriers and under-deck roof insulation, and run a parametric comparison between the effects of insulation thickness and roof albedo to find the thickness of roof insulation which gives the highest Internal Rate of Return. Four kinds of building can be assessed: offices, institutions, retail and residential, all assumed to have a square plan and flat roof.

Multi-city comfort and weather analysis tool

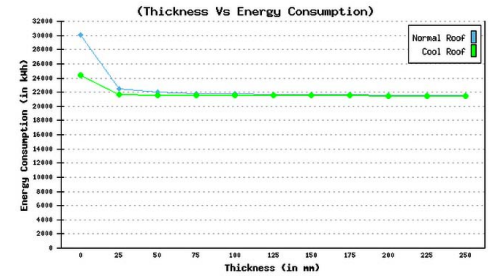
Results from the tool are displayed in both graphs and tables comparing light and dark roofs. In air conditioned buildings, they are expressed in terms of energy savings and monthly heating and cooling energy consumption, and in naturally ventilated buildings they are shown as monthly mean air temperature.



Results from the roof albedo assessment tool for air conditioned buildings (left) and naturally ventilated buildings (right)

The tool has been developed in Apache/2.2.16 (UNIX), and webpages use Ajax technologies.

Development of the first version of the calculator, launched in 2010, was supported by The Climate Works Foundation. The second was supported by the US DOE, and the latest current upgrade (to v3) has been supported by the US-India Joint Centre for Building Energy Research and Development. ■



Parametric run output

IES VE2014 Feature Pack 1 available now — and other IES news



IES VE2014 new features

New California Building Regulations Title 24 compliance tool

IESVE is the first commercial software to be officially approved for commercial building compliance with the new California Building Regulations, Title 24.

Our software provides an alternative calculation method for demonstrating performance compliance with the non-residential provisions of the 2013 Building Energy Efficiency Standards, California Code of Regulations, Title 24, Part 6, and associated administrative regulations in part 1, Chapter 10 (Standards). Plus, there is a new tabular editing feature for use with HVAC zones. More information is available at <http://iesve-news.co.uk/WN3-2MXKV-AP0R5T-167CRV-1/c.aspx>.

VistaPro Custom Variables

Users can now define post-processed variables using one or more existing VistaPro variables. Functionality can be defined using arithmetic operators, functions, constants and much more. Custom variable definitions such as comfort, aggregation, correlations, metrics, ratios, instantaneous efficiencies, psychrometrics, signal/control values and so on can be re-used on any VE project.

Design Options

The new design option feature complements the VE master template's abilities in bulk data copying & rapid automatic seeding of data into a project by providing a way to make specific and targeted changes to specified data in a project. Design options can contain one or more sequential actions (modify set-point, replace construction, add retrofit insulation to poor constructions, reduce high loads, change efficiency, add a renewable etc) so that you can build up complex options (add insulation + lower infiltration + new boiler details) that can be used immediately or saved and used on any VE project.

VE-Navigator for LEED® 2009 (2012 rev)

- Upload ASHRAE 90.1 2007 energy results directly to LEED Online form for credit EA prerequisite 2: Minimum Energy Reduction

- 2 new credits:
 - SS Credit 4.3: Alternative Transportation - Low-emitting and fuel-efficient vehicles
 - SS Credit 2: Development Density and Community Connectivity (Option 2 only)

French Energy Efficiency Standard Réglementation Thermique - RT 2012

New navigator for the RT 2012 export

Full details of this and all the other new features and enhancements will be in our Release Notes, available shortly.

Close the performance gap for World Green Building Week

The latest in our series of Faculty Events is on *Closing the Performance Gap*, showing delegates how our sophisticated Virtual Environment technology can help their building projects deliver on design expectations and close the gap between predicted and real performance. The event has travelled across key UK cities and the final event took place in London on Wednesday 24 September, the same week as World Green Building Week.

With this in mind we decided to join the World Green Building Week agenda for our final event which was the biggest and best-attended of the series. Closing the performance gap is a challenge for all green building professionals, but with the right BIM applications, knowledge and skills, our experts were able to show delegates how to get the best out of the VE to close that gap.

Green Building Week provides a forum for professionals from all over the world to get together, network and share best sustainability practices. The theme this year was 'Step Up and Green Up', encouraging professionals to demonstrate their commitment to sustainability and showcase the impact they are having within the industry.

Construction Computing Awards 'The Hammers' Finalists

IES is a finalist for Construction Computing Magazine's 'The Hammers' awards. Now in their 9th year, the Construction Computing Awards showcase the best new technology, tools and solutions for the effective design, construction, maintenance and modification of commercial buildings, residential and social housing and civil engineering projects of all sizes.

IES has been put forward for the use of its ApacheHVAC tool on the John Lewis, York project which you can read all about via the IES website. Judging is now underway and winners will be announced on 20 November 2014. ■



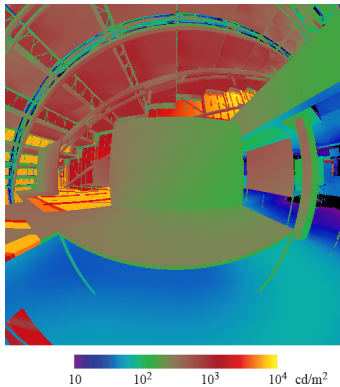
Accelerad: daylighting simulation on the GPU

Accelerad is a free suite of programs for lighting and daylighting analysis and visualization which has been developed at MIT's Sustainable Design Lab. Its public beta release coincided with this year's ASHRAE/IBPSA Building Simulation Conference.

Accelerad uses physically-based backward ray tracing algorithms based on those from Lawrence Berkeley National Laboratory's popular Radiance software suite by Greg Ward. These algorithms are implemented using OptiX™, a ray tracing engine from NVIDIA built for the graphics processor unit (GPU). Implementation details are described in two papers by Nathaniel Jones and Christoph Reinhart, *Physically based global illumination calculation using graphics hardware* and *Irradiance caching for global illumination calculation on graphics hardware*, presented this year at eSim and the ASHRAE/IBPSA Building Simulation Conference, respectively. Both papers show a speed improvement of roughly twenty times over Radiance.



The release of Accelerad was announced by Nathaniel Jones at the ASHRAE/IBPSA Building Simulation Conference in Atlanta



A scene rendered in false color with Accelerad

The logic behind Accelerad is based on Moore's Law, the observation that the density of transistors on new integrated circuit chips doubles approximately every eighteen months. Until a decade ago, this density increase was accompanied by an increase in clock speeds, meaning that new computers tended to run single-threaded programs faster than older computers. However, in the last decade it has become more economical for chip designers to increase the number of cores on processors rather than increase processor speeds. This means that new generations of simulation engines must use parallelism if they are still to reap the benefits of Moore's Law.

Today's high-end GPUs offer the benefit of thousands of cores, making them ideal for simulation engines that perform computation in parallel. In Accelerad, computations of each primary ray are performed simultaneously on separate GPU threads. The acceleration factor scales with the number of available GPUs and is expected to increase on new generations of hardware.

In order to allow for smooth adoption among Radiance users and software developers, Accelerad is designed to fit into Radiance workflows. It maintains compatibility with Radiance scene and output file formats and can be called using Radiance command-line arguments. In its current stage of development, a subset of Radiance commands and material modifiers are supported with an emphasis on those that are commonly used, but this set is expected to grow as development of Accelerad continues.

For more information and access to Accelerad, visit <http://mit.edu/sustainabledesignlab/projects/Accelerad> or contact Nathaniel Jones at nljones@mit.edu. ■



Elements: a free tool for creating and editing weather files

Elements is a free, open-source, cross-platform software tool for Windows and Mac that allows a user to create and edit custom weather files for building energy modeling.

The goal of the project is to develop a comprehensive, integrated application suitable for handling all of the common tasks associated with weather files. Major features include capabilities to:

- Read and write common weather file formats (.epw, .bin)
- View and edit weather data
- Create custom weather files
- Graphically visualize weather data

Elements was developed by Big Ladder Software with the generous funding and collaboration of Rocky Mountain Institute.

For more information and to download visit <http://bigladdersoftware.com/projects/elements>. ■

Unmet Hours: a question-and-answer website for building energy modelers

...What's Your Question?

IBPSA-USA and Big Ladder Software are pleased to announce a new, free online community resource called Unmet Hours — a question-and-answer website for building energy modelers.

What is a question-and-answer website? It's a new type of resource that has emerged from the programming world as an alternative to mailing lists or forums. But it's super simple. You ask a question. Other modelers answer it. The best answer gets voted to the top. Or search on your topic and you might just find that your question has already been asked and answered. And it's always good to give back to the community (while showing off your expertise and earning good "karma") by helping other modelers with their questions.

Unmet Hours is a resource for the building energy modeling community, built by the community. We are counting on your support and participation to make it successful. We hope to see you soon! Visit us at <http://unmethours.com>.

Background

The idea for Unmet Hours began as the Area 51: Stack Exchange proposal presented in the April 2013 *ibpsaNEWS*. Although the proposal garnered significant interest and enthusiasm from the modeling community, it was unable to meet the rather

burdensome requirements to become part of the Stack Exchange network of Q&A websites.

An Independent Q&A Site

Despite the challenges and eventual demise of the Area 51 proposal, the effort to deliver a Q&A website for building energy modeling persevered. Big Ladder Software, in collaboration with IBPSA-USA, developed Unmet Hours on an open-source platform, enabling the complete freedom to build the best site to suit the needs of the community. Free from the tedious proposal process, Unmet Hours is now a live and active resource available to anyone with questions about building energy modeling.

Unmet Hours is a resource for the building energy modeling community, built by the community. We are counting on your support and participation to continue its success. ■

Unmet Hours

www.bs2015.in



IBPSA
BUILDING
SIMULATION
CONFERENCE
2015
HYDERABAD
DECEMBER 7 - 9, 2015

**14th INTERNATIONAL
CONFERENCE OF THE
International
Building
Performance
Simulation
Association**

Dec 7 - 9, 2015
Hyderabad, India

Key Dates

Abstract Submission Opens
September 10, 2014

Abstract Submission Closes
November 15, 2014

Abstract Acceptance Notification
January 31, 2015

Submission of Full Length
Papers Closes
April 15, 2015

Notification of Provisional
Acceptance/Rejection of Full Papers
June 15, 2015

Submission of Final Papers
July 01, 2015

Notification of Final Acceptance of
Papers
September 01, 2015

Conference Dates
December 7 - 9, 2015

Call for Papers

The overall objective of **Building Simulation 2015** is to advance the practice in diverse disciplines of building energy analysis and performance simulation. Paper abstracts are invited across a variety of fields, including the following streams:

- Building physics
- Indoor air quality and thermal comfort
- Modelling for passive buildings
- Net zero buildings
- Solar energy utilization
- Simulation and real performance
- Advanced building simulation
- HVAC equipment
- New software development
- Climate and microclimate
- Optimization
- CFD and air flow in buildings
- Building information modelling
- Simulation for commissioning, control and monitoring
- Energy storage
- Validation, calibration and uncertainty
- Teaching modelling and simulation
- Simulation in fault detection and diagnostics
- Human aspects in simulation

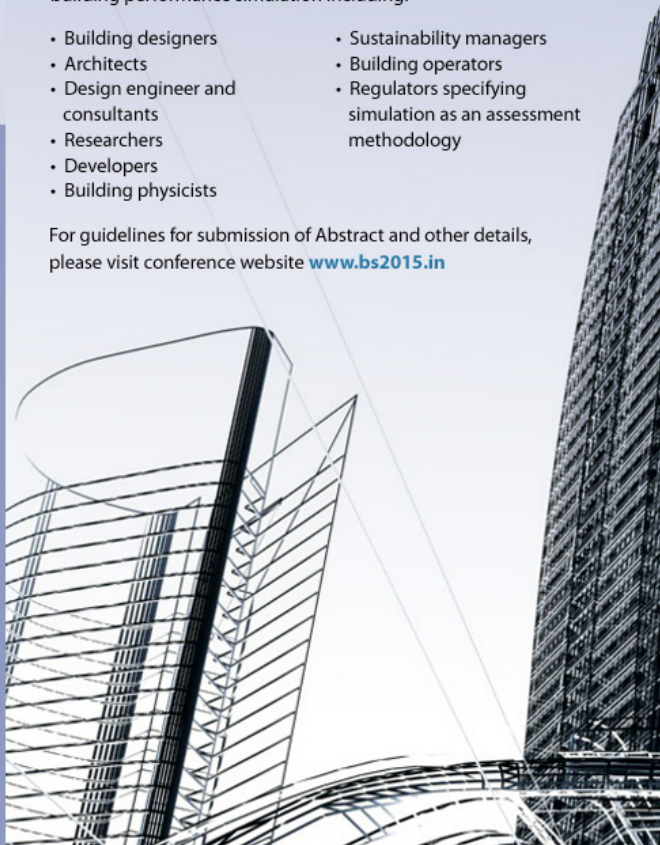
All submissions will be peer reviewed and acceptance would be based on their quality and relevance to the conference topics.

Who Should Attend

The conference is for anyone working in or learning about the field of building performance simulation including:

- Building designers
- Architects
- Design engineer and consultants
- Researchers
- Developers
- Building physicists
- Sustainability managers
- Building operators
- Regulators specifying simulation as an assessment methodology

For guidelines for submission of Abstract and other details, please visit conference website www.bs2015.in



IBPSA announcements

Call for nominations for Fellows of IBPSA

The Board of Directors of IBPSA is seeking nominations for the 2015 Class of Fellows. The IBPSA membership grade of Fellow recognizes individuals who are:

“A member who has attained distinction in the field of building performance simulation, or in the allied arts or sciences, or in teaching of major courses in said arts and sciences, or who by way of research, simulation code development, original work, or application of building simulation on projects of a significant scope, has made substantial contribution to said arts and sciences, and has been active in the field for at least ten (10) years”.

The IBPSA Board of Directors elects new Fellows on a two-year cycle, culminating with recognition at the biennial Building Simulation conferences. Nominations may be made by IBPSA members other than the nominee. The application package will include details of the nominee’s qualifications, a CV, supporting letters, and other relevant materials. The details of the nominee’s qualifications shall include summaries of accomplishments in one or more of the following categories: industrial leadership, research, simulation code development, application of building simulation on projects of significant scope, educational leadership, and significant technical contributions to the allied arts and sciences. The application form and instructions are available on the web at:

- www.ibpsa.org/downloads/fellow_nomination_application.pdf
- www.ibpsa.org/downloads/fellow_application_instructions.pdf

Nominations must be submitted via email to the Chair of the Awards and Fellows Committee, Pieter de Wilde, at pieter.dewilde@plymouth.ac.uk. The deadline for nominations is 31 January 2015.

We would like as many nominations as possible, so please contact Pieter de Wilde to discuss a possible nomination if required. ■

Student Travel Awards – supporting students to attend BS2015

Travel to IBPSA Conferences can be an expensive business — especially for students. In order to assist as many students as possible to participate in BS 2015 in Hyderabad, India, IBPSA will grant a number of travel awards of up to US\$1000 to students presenting papers. The number of places is limited to a maximum of 5 grants and as a result is highly competitive.

The selection committee bases its decisions upon the following selection criteria:

- need for financial assistance, evidenced in a letter of recommendation from the student’s supervisor/ advisor of studies (must be on university letterhead);

- overall quality of the paper;
- relevance of contribution to the field of and/or furthering the effective application of building simulation.

To be eligible, the student must be:

- enrolled in a graduate programme related to building simulation at the time of the conference; AND
- the thesis project must be directly related to building simulation.

Applications **MUST** be supported by a letter of recommendation from the student's supervisor/ advisor / director of studies.

Applications for the award must be made by 15 April 2015 (same date as the deadline for full paper submission) via e-mail to pieter.dewilde@plymouth.ac.uk. The subject heading of the e-mail should be "Student Travel Award" followed by the name of the student.

The e-mail application must include the following:

- The student's name;
- The name of the programme, department, faculty, and university;
- The title of the PhD or Master's research;
- The name of the student's supervisor(s)/ advisor(s);
- The faculty recommendation letter on university letterhead in PDF format.

The selection committee will base its decision upon a review of the letters of support and the final manuscripts. Therefore, to be eligible the student **MUST** submit the paper by the full paper deadline of 15 April 2015.

IBPSA would like as many nominations as possible, so please contact the chair of the Awards and Fellows Committee, Pieter de Wilde, via pieter.dewilde@plymouth.ac.uk to discuss a possible nomination if required.

Payment will be made either to the academic department before the conference or directly to the student at the conference. ■

Call for nominations for IBPSA Awards

The Board of Directors of IBPSA is seeking nominations for Awards to be presented at Building Simulation 2015, in Hyderabad, India (7-9 December 2015).

IBPSA makes three awards for outstanding work in the building performance simulation field. These awards are made on a biennial basis at each Building Simulation Conference, providing there is a qualified candidate. In order to allow the awardees time to plan to attend, it is time to consider nominations for the up-coming conference in 2015. The three categories awarded are:

(1) IBPSA Distinguished Achievement Award

This award, formerly named the IBPSA Award for Distinguished Service to Building Simulation, recognizes an

individual who has a distinguished record of contributions to the field of building performance simulation, over a long period. The award consists of a certificate and US\$500 and is awarded biennially.

(2) IBPSA Outstanding Young Contributor Award

This award recognizes an individual at the beginning of their career who has demonstrated potential for significant contributions to the field of building performance simulation. The award consists of a certificate and US\$500 and is awarded biennially.

(3) IBPSA Innovative Application Award

This award, formerly named the IBPSA Award for Distinguished Practice, recognizes an individual, group or firm, who has made a significant contribution to the effective application and/or advancement of building performance simulation in practice. The award may be given for a unique or noteworthy use of simulation in practice; development of simulation software or supporting software that has had a significant impact on industry practice; or other contribution that has advanced building performance simulation in practice. The award consists of a certificate and US\$500 and is awarded biennially.

Nominations for awards **MUST** be made by an independent third party.

Nominations for the **IBPSA Distinguished Achievement Award** should include a brief CV which gives the history of involvement with building performance simulation, publications etc., and a summary of the nominee's specific contribution to the field of building performance simulation — eg in the development/contribution to development of building performance simulation tools or in furthering knowledge in the field of application of building performance simulation, etc.

Nominations for the **IBPSA Outstanding Young Contributor Award** should include a brief CV, which gives a summary of the individual's contributions to the field of building performance simulation, their publications etc, and an assessment of the potential for future contributions arising from the individual.

Nominations for the **IBPSA Innovative Application Award** should be accompanied by a summary of the individual's, group's or firm's contributions to the field of building performance simulation in practice and an assessment of the significance of these contributions.

Nominations must be submitted **via email** to the Chair of the Awards and Fellows Committee, Pieter de Wilde, at pieter.dewilde@plymouth.ac.uk. The deadline for nominations is 14 March 2015.

We would like as many nominations as possible, so please contact Pieter de Wilde to discuss a possible nomination if required. ■

News from IBPSA affiliates

IBPSA affiliates are asked to submit a report to the IBPSA Board each year to keep Board members informed about their activities and membership. These are too detailed to include in ibpsaNEWS, so affiliates have been asked to make their latest annual report available through their web sites, and this section includes only selected, recent news. Other news from affiliates may be available from their websites; the URLs for these are available on the IBPSA Central web site at www.ibpsa.org/?page_id=29.

IBPSA-Australasia

IBPSA Australasia held its Annual General meeting in July and elected Paul Bannister as President, Nicki Parker as Vice President, Quentin Jackson as Secretary and Kazi Hossain as Treasurer. Thanks are extended to the long-time efforts and contributions of outgoing board members PC Thomas and Veronica Soebarto.

After what has been a fairly quiet year, plans have been extended for an increased level of activity this year with possible activities including professional forums in Sydney and Melbourne and the development of the possibility of a joint building science research/industry conference in collaboration with other industry organisations and societies. Activities devoted towards the improvement of links between the practising simulation community and the university sector were also discussed and will be the subject of further development this year. ■

IBPSA-England

Building Simulation & Optimization 2014 (BSO14)

IBPSA-England's second conference, Building Simulation and Optimization 2014 (BSO14), was attended by 178 delegates from 26 countries across the world. BSO14 had four broad themes:

- new performance models and simulation methods
- procedures for optimizing design and operation
- real-world case studies and
- visualisation in the built environment.

The BSO14 organisers were supported by the large and reputable international scientific committee which contributed significantly to the robustness of the peer review process; many of papers submitted were reviewed by 3 or 4 reviewers. Of the 102 accepted, about 35% were concerned with optimization, 30% were about new simulation methods and models, 25% focussed on case studies, and 10% were specifically on visualisation in case studies.



Symposium on Greenhouse Energy Simulation

A one-day symposium held in the Engineering Department at Cambridge University on 19 September 2014 brought together researchers from academia and industry, design engineers, and owners/managers of climate controlled greenhouses to discuss the design and simulation of greenhouse technologies for plant cultivation.

Greenhouse simulation differs from traditional energy simulation of buildings in the inclusion of transpiration heat flow — the flux of water through the surface of a leaf which allows the plants to maintain optimum water content. Indeed, transpiration is even more important than radiation and convection in maintaining plants' 'comfort'.

The symposium featured recent work in this area, including a new project at Cambridge University on the integration of greenhouse simulators with energy simulation models of traditional buildings. The morning session focused on technology, with talks on urban greenhouse energy simulators and a data-based mechanistic approach to modelling closed-environment growing systems given respectively by Rebecca Ward of Cambridge University and James Taylor of Lancaster University, followed by a question and discussion session. In the afternoon, Gozde Unkaya from Exergy and Meredith Davey and Rudi Duncan-Bosu from Atelier 10 spoke about lessons from recent projects: the use of zero-impact innovative technology in forest plant production, and garden design. The symposium closed with a tea and networking session.

The event was sponsored by the Energy Efficient Cities Initiative, and free to attend. ■



IBPSA-France

IBPSA-France biennial conference

IBPSA-France held its biennial national scientific conference on 20-21 May 2014, hosted in the northern city of Arras by the University of Artois Laboratory of Civil Engineering and Geo-Environment. Almost a hundred delegates attended from France, Algeria, Belgium and Slovakia, and sixty peer-reviewed papers were presented. The main topic was the relationship between models and experimental results, with other papers on the usual building simulation problems and experimental studies. More information about the conference is available at <http://conference2014.ibpsa.fr>.

IBPSA-France also organised a one-day meeting to coincide with the opening of Solar Decathlon at Versailles on 30 June 2014. Alongside the official competition, the four French projects were invited for an exclusive IBPSA-France competition where Casa Fenix won the first prize for Emergency Natural Impact eXtreme. This project was a collaboration between two university teams, one Chilean, from the Universidad Técnica Federico Santa María (UTFSM) in Valparaíso, and the other French, from the Institute Universitaire de Technologie (IUT) at the Université de La Rochelle. For more details about the Solar Decathlon please visit the project website www.solardecathlon2014.fr/en/page/infosPratique.

The competition was followed in the afternoon by a workshop on design optimisation. Four presentations — by Louis Stephan on TRNSys, Philippe Alamy on ArchiWizard, Thierry Salomon on Comfie and Bruno Peuportier on optimisation in the COMEPOS project (an industry project on detached housing) — illustrated contemporary French practice on the use of simulation in building design. ■

IBPSA-Italy

BSA 2015: 2nd Building Simulation Applications Conference

IBPSA-Italy and the Free University of Bozen-Bolzano, Faculty of Science and Technology, are pleased to announce the 2nd Building Simulation Applications Conference, which will take place in Bozen-Bolzano (South Tyrol, Italy) on 4th-6th February 2015. The official language will be English.



After a welcome session on the evening of 4 February, the conference will start on the morning of 5 February with an address by the president of IBPSA, Ian Beausoleil-Morrison of Carleton University, Canada, and a keynote address by Jan Hensen of TU Eindhoven, the Netherlands. The first day will finish with another keynote by Ardeshir Mahdavi of TU Wien, Austria, and the conference dinner.

On the second day Athanasios Tzempelikos of Purdue University, USA will open the technical sessions with a keynote address. The final plenary session will focus on best practice in the use of building simulation by professionals and design studios. The conference will conclude with the presentation of the first set of IBPSA-Italy Awards for best student papers and best use of building simulation in a professional project.

For further details see the flyer on [page 16](#) or visit the conference website www.unibz.it/en/sciencetechnology/welcome/IBPSA.html.

The date for submission of abstracts has passed. Other key dates are:

Full paper due: 30 November 2014
Full paper acceptance: 15 December 2014
Final submission: 07 January 2015 ■

IBPSA-Korea

Kwang-Woo Kim, President IBPSA-Korea

KIAEBS/ IBPSA-Korea symposium

On 21 March 2014, IBPSA-Korea co-hosted a symposium on green remodeling of existing buildings, in collaboration with the Korean Institute of Architectural Sustainable Environment and Building Systems (KIAEBS). The symposium included five keynote speeches and a panel discussion. The keynotes addressed Korean government policies on green buildings, several case studies of building simulation for remodeling design alternatives and performance assessment of existing buildings.

Prof. Kwang-Woo Kim (President of IBPSA-Korea) was elected President of Architectural Institute of Korea (AIK). He will serve a two-year term from 2014–2016. AIK, founded in 1945, is an architectural institute with a membership of over 21,000 architects, engineers, researchers, professors, students and government officers and has been recognized as the leading organization among the architectural societies in Korea. ■



IBPSA-Nordic

BuildSim-Nordic 2014

IBPSA-Nordic held its annual technical event BuildSim-Nordic 2014 on 25 and 26 September at Aalto University in Espoo, Finland. The programme included 23 presentations from the four countries represented in IBPSA-Nordic: Denmark, Finland, Norway and Sweden. Details of the conference programme are available at www.ibpsa-nordic.org/conf3/index.php.

IBPSA-Nordic held its annual general meeting and board meeting during the event.

Practical use of simulation tools for calculating energy and indoor environment in buildings

IBPSA-Nordic and the Norwegian HVAC Association (NORVAC) will host their second joint seminar dedicated to building simulation at the Norwegian HVAC Fair 2014 (VVS Dagene 2014) on Wednesday 22 October. This will promote simulation as a valuable tool in making buildings more energy efficient and environmentally friendly, and aim to stimulate wider use of simulation tools in practical construction projects. Further information about the event is available at www.anpdm.com/newsletterweb/43425C42754740504475404B59/464B5E477043465E417045425943?noTracking=true.

The first IBPSA-Nordic/NORVAC joint seminar at VVS Dagene 2012 had the same title and attracted more than 80 participants. The new seminar has an updated content and hopes to follow the success of the previous one. ■

IBPSA-Scotland

Fifteen simulation practitioners attended a meeting at the University of Strathclyde in Glasgow on 29 August 2014 with the objective of re-energising IBPSA-Scotland, mapping out its future role and growing its membership. IBPSA-Scotland was set up to represent all of those engaged in building simulation in Scotland throughout industry and academia, and it has always had a very strong focus on supporting the use of simulation in practice through knowledge exchange.

A working group was formed to develop a vision statement and also to initiate activity through regular quarterly meetings tied to a themed event hosted by an IBPSA-Scotland member institution. The group is headed by Nick Kelly of the University of Strathclyde along with representatives from Heriot Watt University, Napier University, Glasgow Caledonian University and BRE Ltd. The group also includes a student representative to encourage those new to building simulation to engage in IBPSA activities.

Topics for future events proposed by meeting attendees include the energy performance of building retrofits, buildings in smart grids, effective monitoring of energy performance, moisture and health, and simulation in code compliance. It was recognised that to be sustainable and grow the membership, events will need to appeal to as wide an audience as possible, extending beyond simulation practitioners to the beneficiaries of simulation. There was also interest in hosting a one-day conference in 2015/16.

The attendees also identified opportunities for the future development of IBPSA-Scotland through working with the new Construction Scotland Innovation Centre (CSIC) in energy-ICT and engaging in the extension of BIM into more technical domains.

Finally, there was strong desire expressed for IBPSA-Scotland to continue to act as an enabler for knowledge transfer between researchers and professionals and to promote greater cohesion and collaboration amongst the academic community in Scotland. ■

IBPSA-Switzerland

Achim Geissler & Christian Struck

IBPSA-CH has organised a number of well-attended activities over the past year and has two more scheduled for autumn 2014.

2nd IBPSA-CH Seminar

The highlight to date has been the IBPSA-CH event on 24 June at ETH in Zürich. This combined the 2nd IBPSA-CH Seminar with the 2014 General Assembly, and was supported by 3-Plan Haustechnik AG. Attendance was very good, with 24 members present. The seminar began with a presentation by 3-Plan Haustechnik. This was followed by a keynote by Christoph Gmür of the Zürich Office of Waste, Water, Energy and Air on the subject of *Code Compliance Checks with Building Simulation: The authority's perspective*.



During the General Assembly IBPSA-CH's three active Workgroups presented their progress and further plans:

Workgroup 1: Performance Simulation - Best Practice

This workgroup promotes the uptake of simulation in design practice by providing information and guidelines on how to communicate simulation input and output data in order to enhance the transparency and reproducibility of the model data and facilitate plausibility checks on the results. Current efforts are dedicated to producing a framework for the documentation of dynamic thermal simulation studies. The centerpiece will be a "Documentation Matrix" addressing purpose, scope, level of detail, precision/accuracy, sensitivity and robustness. The group aims to meet every 6-8 weeks.



Rapt attention to the keynote at the 2nd IBPSA-CH Seminar at the ETH in Zürich

Workgroup 2: Simulation Based Energy Code Compliance Certification

Workgroup 2 aims to make dynamic thermal simulation admissible in code compliance calculations. The group's approach is twofold: first, engage officials in constructive discussions about requirements and obstacles and second, provide feedback on code revisions from the perspective of simulation experts. The group has already coordinated the feedback to code revisions for SIA 180, SIA 382/1 SIA MB 2048. The inclusion of the feedback into the revised versions of the Swiss building codes clearly indicates the significance of the subject as well as the need for IBPSA-CH members to act more forcefully as expert professionals.

Workgroup 3: Performance monitoring

Workgroup 3 was set up to combat the Swiss AEC industry's lack of confidence in simulation tools and simulation results, which appears to stem largely from the gap frequently observed between simulated and measured building performance. The group aims to document the severity of the issue in Switzerland and to identify unresolved issues which need to be addressed. The approach chosen was to produce a paper for the Status-Seminar 2014 which explains the state of the art, presents case studies, and notes issues still to be addressed.

Although the activities of the groups stimulated discussion on the subject within the communities it is not expected that change will happen overnight; it will need continuous pressure from IBPSA-CH expert professionals. To focus future activities, the board is currently concentrating on drafting a role statement for IBPSA-CH within Swiss academia and AEC industry.

18th Status-Seminar

In addition to providing contributions from IBPSA-CH members, IBPSA-CH supported the organization of the 18th Status-Seminar, held on 4-5 September, with a session focused on building simulation. This provided the opportunity to present and discuss contributions about the implications of next generation CEN-EPBD regulations, adaptive fenestration systems, BIM in design practice, and robust building performance.

Future events

Clayton Miller will host a "Python for Building Simulation" workshop on 30 October at ETH Zürich. This will be an evening event and focuses on using Python for pre- and post-processing as well as automation of simulation work. ■

IBPSA-USA

The interest in forming local chapters of IBPSA-USA continues to grow, with nine chapters already formally approved and at least four groups in serious planning.

In April 2014 the IBPSA-USA board set up a chapter policy allowing local groups to organize themselves in one of two ways. The first option takes less effort; the group forms as a committee of IBPSA-USA. Under the second option the local group forms an independent non-profit organization and signs an affiliation agreement with IBPSA-USA. That second option allows the group more independence in management and fundraising. It is expected that as chapters grow they will transition from committees to independent organizations.

Many of the chapter leaders took the opportunity to meet and share ideas at the ASHRAE / IBPSA-USA Building Simulation Conference in September:



ASHRAE / IBPSA-USA Building Simulation Conference

IBPSA-USA held its 2014 national conference (SimBuild) jointly with ASHRAE in Atlanta, Georgia on 10-12 September 2014. More than 280 attended. Presentations included informal talks and 64 peer-reviewed papers selected out of 224 abstracts. A series of Market Reality sessions allowed 10 software vendors to outline how their products assisted users with efficient workflow and supported net zero design, and run vendor demos and training workshops. Conference papers will be available shortly via both the www.ibpsa.org and www.ibpsa.us web sites.

Praveen Sehrawat and Karen Kensek from University of Southern California received the Best Paper Award for their paper *Urban Energy Modeling: GIS as an Alternative to BIM*. The IBPSA-USA Award for Achievement in Building Simulation was given to Dr Douglas C. Hittle, while Dr Holly Samuelson received the IBPSA-USA Outstanding Young Contributor Award.

Tutorial on Python Scripting for Energy Modellers

During the IBPSA/ASHRAE conference Clayton Miller, a PhD student from the Institute of Technology in Architecture at ETH Zürich in Switzerland, led a half-day tutorial on *Python Scripting for Energy Modellers*.

This covered the basics of input file manipulation and output file post-processing using various Python libraries such as eppy, a library specifically for EnergyPlus IDF file processing, and Pandas, a library for time-series data manipulation. The workshop utilized the IPython notebook format which allowed participants to see how to use Python on their own machines. Each notebook contains small snippets of code that are intermingled with explanatory text, creating a tutorial-style format conducive to learning. These notebooks are now being shared freely online for public use and they can be found at www.pythonpoweredbuilding.com.



Conference Chair Dennis Knight opens the conference

New IBPSA-USA President Joe Deringer



Opening keynote speaker Dru Crawley on BIM to Sim

Presidential chat: Tom Phoenix of ASHRAE and Shanta Tucker of IBPSA-USA



Scientific Chair Carrie Brown with Best Paper awardee Praveen Sehrawat

Software vendors under the watchful eye of Chip Barnaby at the Market Reality session panel he organized



Symposium on Building Energy Uncertainty and Risk Analysis

On 9 September 2014, the High Performance Building Lab of the School of Architecture at Georgia Tech University hosted a symposium to showcase the latest advances and discuss future challenges of building energy analysis under uncertainty.

The Georgia Tech research team presented the outcomes of the NSF-EFRI research conducted between 2010 and 2014, and two panels consisting of software system developers and commercial stakeholders discussed the role of uncertainties in energy performance assessments and their ramifications for design decision making, standardization, investor confidence, and energy auditing practices.

The presentations and afterthoughts of the symposium will be posted on www.uqbem.gatech.edu. For more information, contact Godfried Augenbroe, fried@gatech.edu.

Houston Chapter

IBPSA-USA, Houston Chapter broke its long lull of inactivity in May this year, combining our chapter meeting with the monthly meetings at AIA's Building Enclosure Council.

Kapil Upadhyaya, Colley Hodges & Alfonso Hernandez gave a presentation on *Three Little Buildings: The Story of Envelope Performance*. Through analysis of three case studies designed by Kirksey Architecture, the speakers explored lifecycle costs and energy performance implications of various envelope-related energy efficiency strategies. The analysis focused on the results of an iterative energy modeling process, which identified useful metrics that are not typically a part of building and facade design. ■

University news and job opportunities

This new section of ibpsaNEWS reports new jobs, courses, notable lectures, and theses on topics of particular interest to IBPSA members. If you know of any other learning and teaching news that you believe would interest the IBPSA community please send an email to C.J.Hopfe@lboro.ac.uk.

Two openings at the Department of Engineering, University of Cambridge, UK.

Two positions are open for Research Assistant/Associate in the Department of Engineering at Cambridge, to work on Energy Management of Non-Domestic Buildings. The post holder will be located in the Department of Engineering in Trumpington Street.

The key responsibilities and duties are to:

- investigate and develop new approaches to uncertainty analysis for energy management of buildings, research and test relevant methods
- demonstrate their success by identifying, compiling, analysing data from existing buildings and from industry experts
- write high quality journal articles and reports
- show independence in the management of research, including coordination with academic and industry collaborators.

Successful candidates will work with a team of researchers from Engineering, Architecture, and the Judge Business School. This is a multi-disciplinary project, involving the use of existing building data, statistical analysis (uncertainty quantification in particular), and energy simulation models to understand and improve energy management of non-domestic buildings. The research team is led by Ruchi Choudhary (Engineering) and includes Sebastian Macmillan (Interdisciplinary Design for the Built Environment, IDBE), Koen Steemers & Yeonsook Heo (Architecture), and Michael Pollitt (Judge Business School).

Applications are invited from candidates who have obtained or are close to obtaining a PhD in Engineering, Computer Science, Statistics, or relevant discipline. It is necessary that the candidates have high quality skills in quantitative analysis and in computation, as well as very good communication and writing skills. Candidates must demonstrate research experience relevant to at least two of the following topics: uncertainty analysis, computation (eg. high performance computing), or energy simulation of buildings. Relevant industry experience on energy management of buildings will be beneficial to the project.

Please use the following links (as applicable) to apply:

www.jobs.cam.ac.uk/job/4912/
www.jobs.cam.ac.uk/job/4910/

For questions contact Dr. Ruchi Choudhary (rc488@cam.ac.uk) or Dr. Yeonsook Heo (yh305@cam.ac.uk) ■

Assistant Professor post in Building Information Modelling Related Research at Carleton University, Ottawa, Canada

Carleton University in Ottawa, Canada invites applications from qualified candidates for a preliminary (tenure-track) appointment in Building Information Modelling (BIM) Related Research at the rank of Assistant Professor.

The successful candidate will have an established research record in the innovative and critical application of Building Information Modelling (BIM) for the design, construction and life cycle management of the built environment. Areas include integrated design, integrated project delivery (IPD), building science, building simulation, project management, and life cycle assessment. The successful candidate will be cross-appointed between the Department of Civil and Environmental Engineering and the Azrieli School of Architecture and Urbanism.

Please refer to the following website for further details: <http://carleton.ca/cee/job-opportunities/assistant-professor/>. ■

Masters degree thesis: Dynamic Façade Systems- a viable way to decrease the energy demand?

Sinziana Rasca's Master degree research in Energy-efficient and Environmental Building Design at Lund University, Sweden aimed to characterise the system properties needed for dynamic façade elements applicable in different types (office and residential) and sizes (380 m² and 6000 m² gross surface) of building, in specific climates (Miami, Chicago, Essen, Beijing), in order to attain the best possible energy efficiency compared to passive houses. The façade elements considered include both opaque surfaces of the external envelope (with variable U-value) and transparent elements (with variable g-value).

The results show that dynamic façades have a greater proportional effect on energy use in temperate continental climates, but produce greater absolute savings per square meter in climates with a higher cooling need, such as Mediterranean ones. When natural ventilation is employed for cooling, savings from dynamic façades vary between 9% and 69% in offices and between 9% and 32% in residential buildings in the cases studied.

Results also show that varying the U-value of opaque elements has less effect in residential buildings than in offices, and is unlikely to be economic in residences. When designing buildings with variable g-value it is very important to take into account location, use, size, envelope properties and window-to-wall ratios when choosing a shading device.

More information about the research is available at www.ebd.lth.se/fileadmin/energi_byggnadsdesign/Master_Programme/Sinziana_web.pdf. ■

IBPSA affiliates

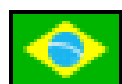
URLs for IBPSA affiliates' websites and email addresses for their contact persons are available on the IBPSA Central web site at http://www.ibpsa.org/?page_id=29.



IBPSA-Argentina
contact: Halimi Sulaiman



IBPSA-Australasia
contact: Paul Bannister



IBPSA-Brazil
contact: Fernando Simon Westphal



IBPSA-Canada
contact: Lukas Swan



IBPSA-Chile
contact: José Guerra Ramirez



IBPSA-China
contact: Da Yan



IBPSA-Czech Republic
contact: Martin Bartak



IBPSA-Danube
contact: Marija Todorović



IBPSA-Egypt
contact: Mohammad Fahmy



IBPSA-England
contact: Malcolm Cook



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For additional information about IBPSA, please visit the Association's web site at www.ibpsa.org. For information on joining, contact your nearest regional affiliate.

IBPSA's mailing list has been consolidated into another listserver known as BLDG-SIM, which is a mailing list for users of building energy simulation programs worldwide, including weather data and other software support resources. To **subscribe** to BLDG-SIM, to unsubscribe or to change your subscriber details, use the online forms at <http://lists.onebuilding.org/listinfo.cgi/bldg-sim-onebuilding.org>.

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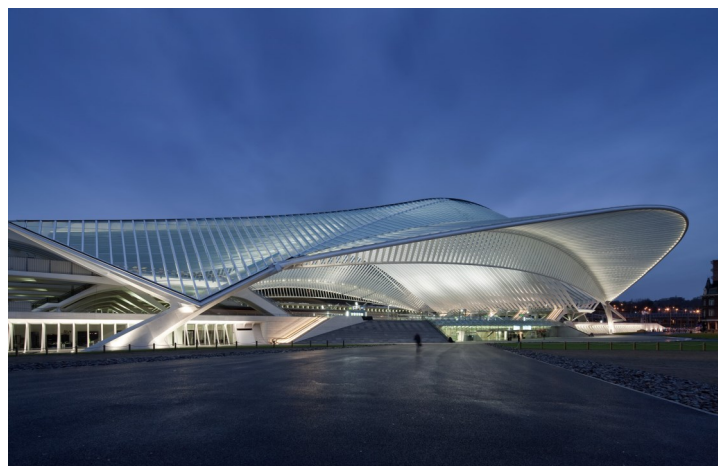
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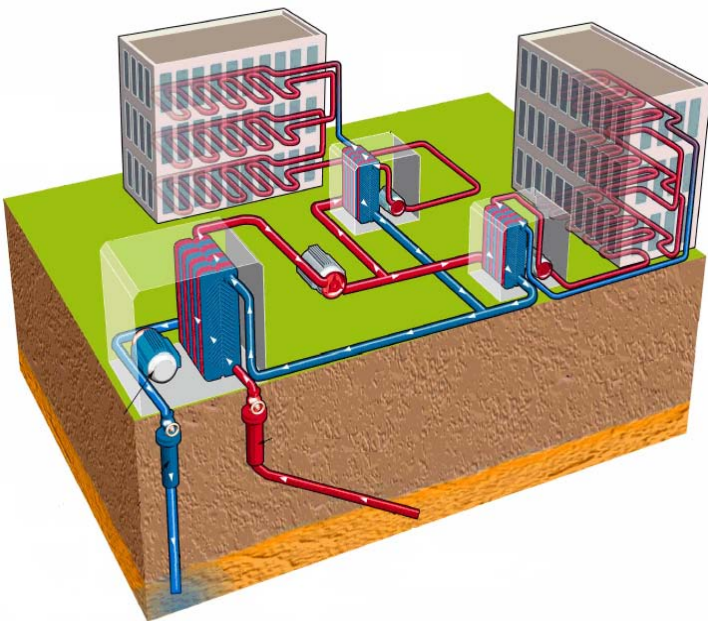
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10-12 December

Liège, Belgium

9th International Conference on System Simulation in Buildings

Thermodynamics Laboratory
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Scope of the Conference

Since 1982, SSB conference is an opportunity for researchers and specialists in Building and HVAC systems simulation to present high quality papers and attend sessions and discussions on last developments and progresses in this challenging and evolving sector.

Once again, the conference will be organized in very close cooperation with the International Energy Agency (IEA, « Energy in Buildings and Communities » programme) and with the Federation of European Heating, Ventilation and Air-conditioning Associations (RHEVA).

Conference Venue

The conference will be held in the city center of Liège.

Registration fees

Before October 30, 2014

• Authors	450€
• Participants	550€
• Students	275€

After October 30, 2014

• Authors	550€
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Submissions & Registration

Registration, abstract and paper submissions can be done on the conference website:

www.ssb2014.ulg.ac.be

Proceedings

The proceedings will be published (book and CD) after the conference. A selection of papers will be published in « Building Simulation : An International Journal ».

Conference Topics

- Advances in modeling of building and HVAC components and systems
- Simulation assisted analysis and evaluation of building energy use
- Integration of buildings in smart energy grids
- Integration of renewable energy sources in buildings
- Near zero-energy buildings
- Impact of human behavior on building energy performance
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Calendar

Deadline for abstract submission	31 March 2014
Abstract acceptance notification and instructions to authors	15 May 2014
Manuscripts submission deadline	31 July 2014
Notification to presenting authors of acceptance or rejection of manuscripts	31 August 2014
Deadline for conference early registration	30 October 2014
Pre-proceedings sent to registered participants	12 November 2014
Conference	10-12 Dec. 2014