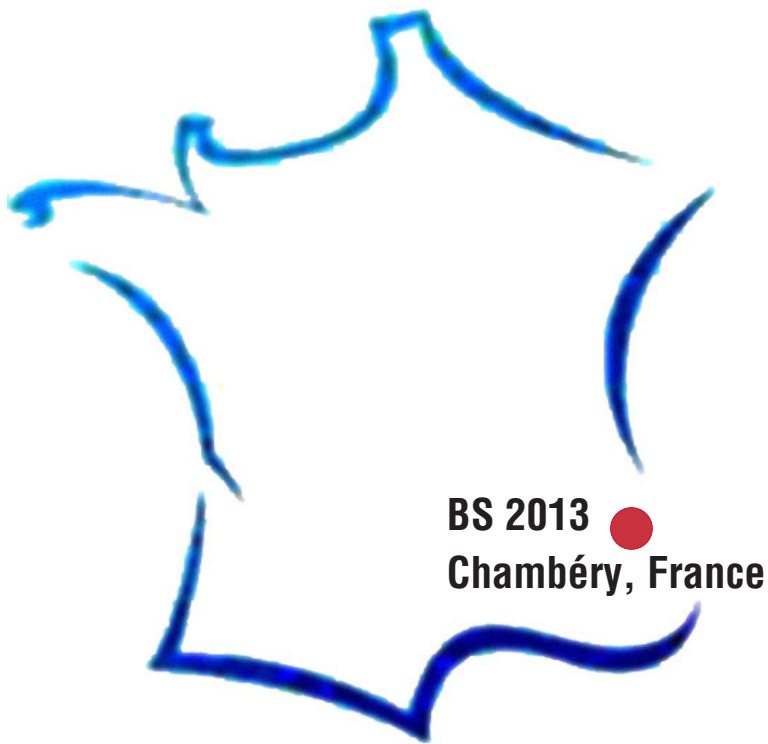


*ibpsa*NEWS

volume 23 number 1 www.ibpsa.org

Apr 2013



GLOBAL COMMUNITY NEWS

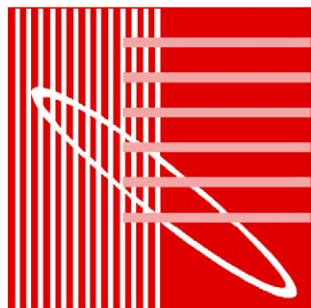
from IBPSA affiliates in Australasia, Chile, China, Egypt, Germany, Italy, Korea, the Netherlands, the Nordic countries, Switzerland and the USA — and 13 events for your diary from around the world

FEATURE

on Area 51: Stack Exchange - a proposal for a supplement to the BLDG-SIM list

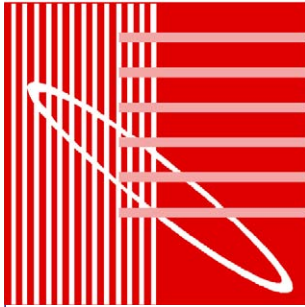
INTERVIEW

with Hugo Hens of the University of Leuven, Belgium, continuing the discussion about the limitations of Heat, Air and Moisture (HAM) modelling and problems encountered in practice



Contents

President's message	3
BS 2013 France update	4
Book announcement	6
Area 51: Stack Exchange - proposal for a supplement to the BLDG-SIM list	7
Forthcoming events	14
Calendar	14
SimAUD 2013: 4th Symposium on Simulation for Architecture & Urban Design	15
CLIMA 2013: 11th REHVA World Congress	16
BS Cairo 2013: IBPSA-Egypt conference on Building Simulation	17
Building Simulation 2013: IBPSA World Congress	18
8th Energy Forum on Solar Building Skins	19
eSim 2014	20
BSO14: Building Simulation & Optimization 2014	20
Heat, Air & Moisture modelling: part 2 of an overview from Hugo Hens	22
Software news	34
IEA ECBCS Annex 60 Planning Meeting	34
AECOSim Energy Simulator	35
EQUA releases a new version of IDA Indoor Climate and Energy	38
IES VE 2012 Feature Pack 2 and other IES news	39
News from IBPSA affiliates	41
IBPSA-Australasia and IBPSA-Chile	41
IBPSA-China and IBPSA-Egypt	42
IBPSA-Germany and IBPSA-Italy	43
IBPSA-Korea	44
IBPSA-Netherlands and IBPSA-Nordic	45
IBPSA-Switzerland	46
IBPSA-USA	47
About IBPSA	49
Affiliates	49
Committee chairs & contacts	50
JBPS Call for Papers	51



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.

President

Ian Beausoleil-Morrison
Carleton University, Canada
ibeausol@mae.carleton.ca

Vice-President

Charles Barnaby
Wrightsoft Corporation, USA
cbarnaby@wrightsoft.com

Secretary

Lori McElroy
Architecture & Design Scotland, UK
lori@sust.org

Treasurer

Michael Wetter
Lawrence Berkeley National Laboratory, USA
MWetter@lbl.gov

Director-at-Large

Drury Crawley
Bentley Systems, Inc., USA
Dru.Crawley@bentley.com

Director-at-Large

Michel Bernier
Ecole Polytechnique de Montreal, Canada
michel.bernier@polymtl.ca

Director-at-Large

Jonathan Wright
Loughborough University, UK
j.a.wright@lboro.ac.uk

Director-at-Large

Christoph van Treeck
Fraunhofer-Institute for Building Physics, Germany
treeck@ibp.fraunhofer.de

Immediate Past President

Jan Hensen
Eindhoven University of Technology, Netherlands
j.hensen@tue.nl

President's message

Dear IBPSA colleagues and friends,

At the time of writing, the *Building Simulation 2013* Scientific Committee is hard at work reviewing the more than 500 papers that have been submitted for consideration for the conference. That's about 4 000 pages that document the latest progress in the BPS field and which must be carefully examined to ensure a conference of the highest quality. Reviewing that much material in such a short space of time is a momentous undertaking, so please eagerly lend a hand to do your bit if and when review requests come your way from Jean-Jacques Roux and Monika Woloszyn, chairs of the Scientific Committee.

Etienne Wurtz, the conference chair, and his entire committee are also hard at work organizing the venue, logistics, keynote speeches, accommodations, social programmes, and taking care of the countless details that make an event of this scale a success. I encourage everyone that researches and practices in the BPS domain to make every effort possible to attend this 13th international conference of IBPSA in Chambéry, France. You will find it rewarding on professional, cultural, and personal dimensions.

I am pleased to report that nominations have been accepted for 16 new IBPSA Fellows. Each of these individuals has made significant contributions to our field and has attained distinction through education, research, practice, and/or simulation tool development. These new Fellows will be honoured at the conference in France.

IBPSA is a large and growing organization, and one that functions exclusively through volunteer efforts. At the IBPSA-World level there are committees tasked with conferences, publications, awards, website, communications, etc. (The full list of committees and their chairs is given in this newsletter.) In order to better serve IBPSA's growing and geographically expanding membership, it would be advantageous to attract new members to these committees to help conduct IBPSA's affairs and to nurture the organization. I encourage you to give this some thought and to contact me with your queries and expressions of interest.

The annual meeting of IBPSA's board of directors will be held on August 29 in Aix-les-Bains, immediately following the conference. This date and time have been chosen to facilitate participation by as many members of the organization as possible. Although the voting board is limited to the elected members (listed in this newsletter) and the representatives of each of the 27 affiliates (also listed in this newsletter), this annual meeting is open to the entire IBPSA membership. And remember, if you are a member of an IBPSA affiliate (e.g. IBPSA-China, IBPSA-France) then you are a member of IBPSA, and you are invited and encouraged to attend the annual meeting. So, if you are coming to the conference then give some thought to extending your stay by one day to attend and participate in the annual meeting of IBPSA's board to learn more about how your society is governed.

À bientôt en France.

BS 2013 update

The next Building Simulation conference is fast approaching and we are excited to see you all in France in August!

A huge number of abstracts has been received and 839 accepted. Paper submission is closed; we are now finishing the peer review process with more than 300 reviewers all over the world. **Figure 1** shows the abstract distribution by paper theme. With this large variety of papers, we hope to be able to satisfy the curiosity of researchers from every field of building simulation research!

During the conference, we will have six parallel sessions divided into:

- Oral presentations with 10 minutes of presentation and 5 minutes of questions
- Poster presentations with 2 minutes of oral presentation and later discussion next to the poster.

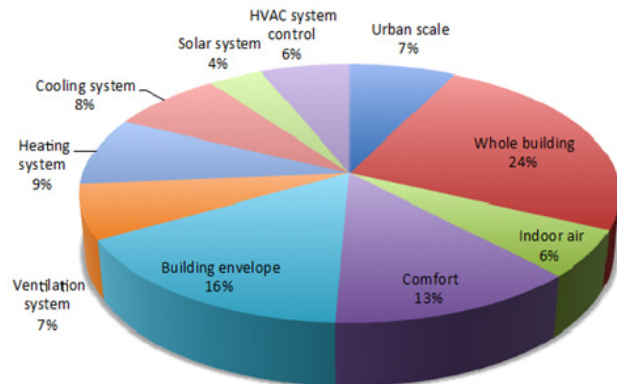


Fig 1: Distribution of themes in received abstracts

The first version of the program is already available on the conference website and below:

<div> <div> BUILDING SIMULATION 2013 CHAMBERY, FRANCE AUGUST 25-28 </div> <div> </div> </div> <div> BUILDING SIMULATION FOR A SUSTAINABLE WORLD </div>				
INITIAL PROGRAM				
	Sunday	Monday	Tuesday	Wednesday
09:00		Keynote from Pr F. ALLARD : Simulation perspectives at European scale	Keynote from D. Greenberg From Mickey Mouse to building simulation	Oral Parallel Session
10:30		Oral Parallel Session	Poster Parallel Session	Poster Parallel Session
12:00		Lunch	Lunch	Lunch
13:30		Oral Parallel Session	Oral Parallel Session	Oral Parallel Session
15:00		Poster Parallel Session	Oral Parallel Session	Oral Parallel Session
16:30		Oral Parallel Session	Oral Parallel Session	Closure Keynote From H. Bloem Evaluating and modelling near- Zero Energy Buildings : Are we ready for 2018?
19:00	Warm French Welcome from 3pm at Aix-Les-Bains	Chambery city tour + Regional Dinner	Gala Dinner Casino Aix-Les-Bains	Cocktail at INES French Solar National Institute

During the conference three keynote presentations are planned:

- Prof Francis ALLARD: Simulation perspectives at European scale
- Donald GREENBERG: From Mickey Mouse to building simulation
- Hans BLOEM: Evaluation and modeling near zero energy buildings: Are we ready for 2018?

More details are available on www.bs2013.fr.

Venue

The BS2013 conference will provide a good opportunity to discover the Department of Savoie with the magic city of Aix les Bains and the site of Technolac where the conference will take place. Right next to the biggest lake in France (Lac du Bourget), the conference venue brings together nature and science with alpine scenery next to the scientific campus of Technolac.



Before and during the conference there will be several programs for accompanying persons; these will provide an opportunity to get closer to the French culture with French wine and cheese tasting during the welcome party and a gala dinner at the Casino of Aix les Bains. Do not leave your swimsuit at home if you want to take a break in the evening after an effervescent scientific program during the day. The lake is just 1 km away from the conference venue!

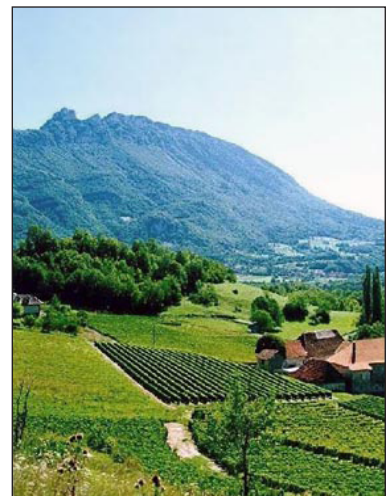


The conference committee consists of:

- Dr Etienne WURTZ, Conference Chair and IBPSA France President
- Dr Jean-Jacques ROUX, Scientific Committee Chair
- Dr. Monika WOLOSZYN Scientific Committee Vice chair
- Pascal GANTET, Conference Manager

They are all working very hard to make this a great conference. For more details, visit the conference website www.bs2013.fr. We hope that you will take part of this exciting event.

We are looking forward to seeing you in France!



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

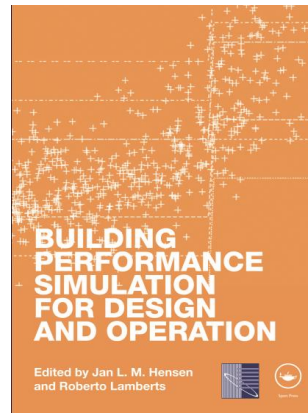
1. The Role of Simulation in Performance Based Building 2. Weather Data for Building Performance Simulation 3. People in Building Performance Simulation 4. Thermal Load and Energy Performance Prediction 5. Ventilation Performance Prediction 6. Indoor Thermal Quality Performance Prediction 7. Room Acoustics 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.



Visit our website for more information and online ordering:
www.routledge.com

 **Routledge**
Taylor & Francis Group

Area 51: Stack Exchange

a proposal to supplement the BLDG-SIM list

14 years ago, on 4 March 1999 at 08:26:46, Jason Glazer, the initiator of the BLDG-SIM mailing list, (see <http://onebuilding.org>) posted that “about 60 people have subscribed so far to the BLDG-SIM mailing list since my announcement yesterday.”

Less than 5 hours later, this number had increased by 50%, with Jason posting “About 90 people are on the mailing list currently.” The mailing list membership has grown ever since and currently has 2421 subscribers.

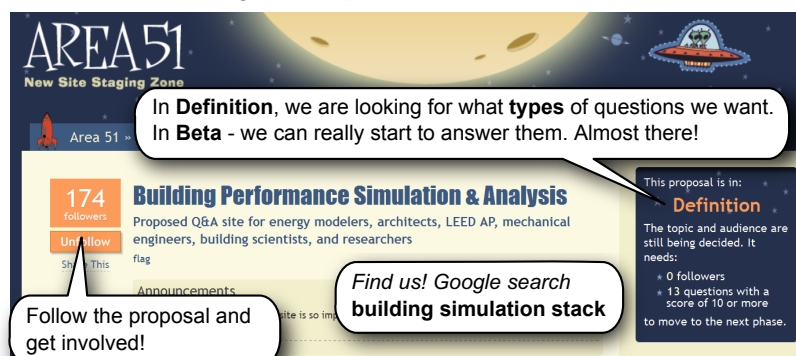
The BLDG-SIM list is for consultants, academics, researchers, etc. indeed anyone with an interest in building simulation. It is a platform for people to engage with actively to exchange information; to ask and answer questions, or obtain input for research studies; or to passively participate by observing the plethora of information that is exchanged with people all over the world on problems related to building simulation. Apart from the Bldg-sim sub mailing groups, i.e. software specific groups such as TRNSYS, ESP-r, Energy Plus, Visual DOE, Energy-10, the mailing list also hosts all IBPSA-related notices that have been moved to it.

IBPSA recommends that members are subscribed on this list in order to ensure that they receive important future IBPSA news related to simulation announcements and discussions (including the announcements of IBPSA News releases). The mailing list has the following ambition:

“Since the users of building energy simulation programs are spread across the world, this mailing list is an attempt to foster the development of a community of those users. Experienced and inexperienced users of building energy simulation programs are welcome and are expected to share their questions and insights about these programs.”

Last year, three people proposed a new platform that could further improve the exchange of IBPSA-related news and information in the future. This platform, Stack Exchange, could provide a valuable, structured library of information for the IBPSA community, shaped by its own members.

In the following interview the three creators Clayton Miller (CM), Neal Krus (NK), and Marcus Jones (MJ) present an overview of their new platform. Christina Hopfe (CJH) spoke with the three to find out more about the Stack Exchange concept and how it will help IBPSA.



CJH: Please tell IBPSA readership, what is your relationship to IBPSA?

CM: I have been involved with IBPSA since I attended my first ASHRAE Winter Meeting IBPSA dinner in 2008. Since then I have been able to attend the Simbuild 2010 conference in New York City and the BS2011 conference

in Sydney, Australia. It was in Sydney at the IBPSA Harbor Cruise party that I really knew what a cool, tight-knit group of members we have in IBPSA! Since then I have helped co-found the the IBPSA Singapore Chapter in 2012 where I am still involved as the webmaster. In Oct. 2012, I moved to Switzerland where I started my PhD at the Institute of Technology in Architecture (ITA) at ETH Zürich. I am a current paying student member of the IBPSA-USA Chapter and will be soon attending the IBPSA-Switzerland 8th General Assembly to become involved. I will attend the BS2013 conference in France where Marcus Jones and I are planning a workshop on using Python in Energy Modeling (www.pythonpoweredbuilding.com).

MJ: I had first contact with IBPSA in Canada where I completed my Master's degree 2008, and have been a member ever since. After travelling to several conferences in Europe, I always came away inspired by the new ideas presented and the community, and this was a factor in my decision to pursue a career in energy consulting and research.

NK: In 2008, I attended the IBPSA-USA SimBuild conference in Berkeley, CA to give a demo of NREL's BEopt (Building Energy Optimization) tool. Ever since that conference I have made an effort to attend the bi-annual meetings in conjunction with the winter and summer ASHRAE conferences as well as presenting at SimBuild 2010 in New York, NY, and SimBuild 2012 in Madison, WI. I am excited to see the progress the IBPSA organization has made over the past five years, and hope to be able to contribute to its success in the future.

CJH: How did this idea of the Stack Exchange proposal come up? For example, did you first think that the bldg-sim list is not sufficient anymore and went looking for alternatives; or did you come across Stack Exchange and think that is what we will need for IBPSA?

CM: I have always been a big fan of the bldg-sim list. For 13 years it has been the voice of the building simulation community by providing a narrative of debates, introductions, releases and, of course, Q&A.

In the last 4 years I have been really diving into the world of programming - Python, JavaScript, web technologies, etc - and stackoverflow.com has been the main tool I use to climb the learning curve. My passion for the site comes from all the positive experiences in which Stackoverflow helped me take those first steps in each technology. It's not uncommon for my browser to have 20-30 open Stackoverflow tabs when I'm coding. When I came across Neal's proposal on StackExchange.com last December, I instantly foresaw the massive benefits that this could have for the building simulation community. I spent the whole next weekend contacting everyone I could think of to share this excitement and a core team of us have been on a mission ever since.



Clayton Miller (CM)



Marcus Jones (MJ)



Neal Kruis (NK)

It's hard for people unfamiliar with this type of site to see the advantages as we do but we're confident the community will respond well once we're able to get the site to the Beta Phase. Bldg-sim is still undoubtedly and will be the best source of industry announcements and discussions - we only want to specialize the objective Q&A parts on a platform designed for such a thing.

MJ: As a researcher in building simulation, I am subscribed to at least 10 mailing lists including BLDG-SIM TRNSYS, EnergyPlus, ESP-r, Daysim, etc. - and I see this list growing as tools split into "developers only" lists, or create online forums for their own particular plugin. So the first advantage is in the consolidation of some of this information so new users who may not know the lists can easily find information and so I don't have to maintain 10 subscriptions.

The second advantage is the longevity of information, I can't count how many times the "How do I create absorption chiller performance data?" question appears on the TRNSYS list, but it's obvious that people are asking questions over and over again. Sure, the lists are archived, but new users aren't familiar with that. With Stack Exchange, popular questions get voted up, and since the question has its own page, search engine indexing is strengthened. Answers float to the top of the interwebs.

The final advantage is that everyone has a voice on the Stack model. This is a form of crowdsourcing. Whenever large groups of people get together for a common purpose, great things are bound to happen!

NK: Like many people these days, when I have a problem or a question that needs answering, I type my question into Google and usually I'm able to find an answer within the top five search results. The more I found myself learning computer languages, I would find that all of the questions I typed in Google would point me to the site: stackoverflow.com.

Stack Overflow presented a new paradigm of how questions are answered, focusing more on connecting users with the best available answers than simply a venue for asking questions. This was something that I realized was missing from the current mailing lists like bldg-sim where it is easy to ask questions, but the answers were often buried deep within the archives of previous messages. Wouldn't it save people a lot of time and digging around if, as they typed in their question, they were pointed to answers that already exist? and once they saw those answers, they were ranked in order of most helpful to least helpful?

The Stack Overflow platform does exactly that. It provides an incentive structure for the community to build its knowledge base making it easier for people to learn new tools and find answers when they get stuck.

CJH: In 5 key words, what is the advantage and why should everyone get an account?

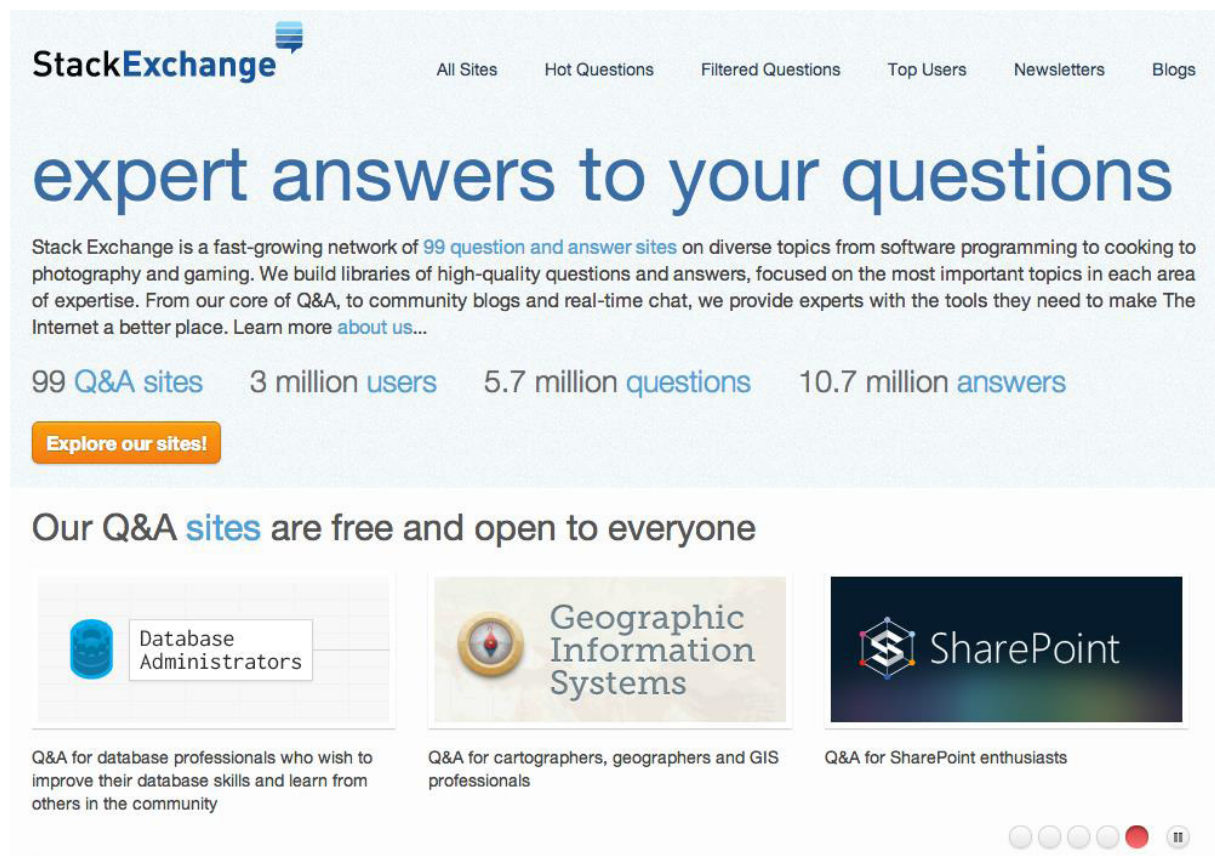
CM: Stack Exchange is quality-controlled, community-driven, and Fun!

MJ: Try, and you will like!

NK: Time-saving, Community-built, Expert-vetted, Easy-to-use, Modern Interface

Announcing the Building Simulation Stackexchange.com Proposal

by Clayton Miller, Neal Kruis, and Marcus Jones



Imagine for a second back when you started your career in building performance simulation. Were your first energy models easy? Did you ever feel like quitting or passing off the responsibility to someone else when your error file seemed unconquerable? If you're reading this newsletter, chances are you stuck with it and eventually came to value and take a strong interest in the building simulation community. We would also guess that you had a mentor or guide who helped you get 'unstuck' in many of these situations. Many of us can relate to these feelings and can remember the relief when finally we were able to solve our issue and live to see another day.

With the advent of the internet came a slew of productivity and learning tools to help climb learning curves, get "unstuck", and solve problems: forums, training videos, issue tracking systems and the ubiquitous Frequently Asked Questions, or FAQ's, as we all know them. The building simulation domain is not unique in this way. Many other communities face the reality of learning curves, getting 'stuck', and the joy that comes with solving problems.

In 2008, the concept of FAQ's was improved upon with Stackoverflow.com, a platform which developed the right balance of a clear, usable interface and strong community-building gamification incentives to change the way programmers learned their trade. Within many parts of IT, the platform has become the go-to source for solving problems, optimizing code, and basically relieving headaches, especially for newbies. The site now serves close to 3 million visits per day and allows users to post their objective questions which often get instant

answers from experts - sometimes even the ones who created the languages and libraries they're working with - and often within minutes of asking them.

Why would these experts take time out of their busy days to do this? Part of it might be karma. Some people are simply willing to improve their domain and spread their knowledge in ways that improve the world; actually paying them for it may even reduce their incentive. This is the main driver behind the wildly successful Wikipedia.org. Another reason is advanced reputation point incentives that Stackoverflow.com uses to develop leaders within the community; programmers now often use Stackoverflow reputation on their resumé as a sign of competence.

Expert Q&A for Building Simulation

The screenshot shows the 'Area 51' website interface. At the top, it says 'AREA 51 New Site Staging Zone'. Below this, there's a navigation bar with 'Area 51' and a rocket icon. The main content area features a proposal titled 'Building Performance Simulation & Analysis' with 174 followers. Callouts provide context: one explains the goal is to find question types for the 'Beta' phase; another encourages following the proposal; a third directs users to search for the 'building simulation stack'; and a fourth details the proposal's current status as a 'Definition' with 0 followers and 13 questions.

AREA 51
New Site Staging Zone

Area 51 »

174 followers
Unfollow
Share This
flag

Building Performance Simulation & Analysis
Proposed Q&A site for energy modelers, architects, LEED AP, mechanical engineers, building scientists, and researchers

Announcements

Follow the proposal and get involved!

Find us! Google search building simulation stack

This proposal is in:
Definition
The topic and audience are still being decided. It needs:
* 0 followers
* 13 questions with a score of 10 or more to move to the next phase.

Stackoverflow.com has since morphed into the Stackexchange.com network. There are now 100 sites on the network ranging from robotics and chemistry to home brewing and LEGO building blocks. Each site is free, community-driven, and all content is licensed under Creative Commons (Attribution-ShareAlike 3.0).

There is a staging platform known as “Area 51” where new proposal sites are incubated and need to pass a series of benchmarks in order to become full Q&A sites. In October 2012, a proposal was started by Neal Kruis and has since gained the support of over 170 followers who have left over 400 votes on the feasibility and domain relevance of 80+ ‘example’ questions.

The site is gaining the attention of organizations like the Rocky Mountain Institute and the U.S. Department of Energy. Dr. Amir Roth, the Technical Development Manager of Building Energy Modeling Tools, U.S. Department of Energy has thrown full support behind the project:

“This [site stackexchange proposal] will be a great resource for the community in terms of channeling the great knowledge and experience of individual members. The combination of this and IBPSA’s BEMbook will really help folks climb the learning curve of EnergyPlus and other tools.

With the help of Stack Overflow I was able to learn how to program in Python. It would be great to offer the

same kind of support for energy modelers. I can really see this taking off and I want to help it to do so!”

Dr. Ellen Franconi, Senior Consultant at the Rocky Mountain Institute and member of the IBPSA-USA Education committee is also positive about the proposal:

“The sophisticated platform for information exchange offered through the Building Simulation Stackexchange.com proposal has the potential to support the ongoing documentation of best practices through crowd sourcing. The best methods float to the top of the exchange - making them easily identified and shared. In addition, knowledgeable contributors are recognized and rewarded.

I hope the modeling community embraces this new form of support. It can really help the industry to help itself.”

We believe that the proposal site will be very beneficial to IBPSA member as a means of community-building and information dissemination and will assist in current IBPSA educational efforts such as the BEMbook and other types of online information.

Working our way towards a Public Beta

Just as Stackexchange site builds quality control into the way questions and answers are created - they also build checks and balances into the process of becoming a new topic site within the platform. In order to become a fully-fledged Stack Exchange site, there are three steps that we need to go through:

- 1 **Definition:** this is the phase that the proposal is in at the time of this writing. The goal of this phase is to define the scope of the site. It is important that this scope is not too vague (“Science”) or too specific (“Solar Radiation”). In order to make it to the next phase the site needs to have 60 followers (which we passed long ago) and 40 example questions with 10 up-votes or more. These example questions are left by the early followers of the site and are meant to define what common or interesting questions are in the domain.
- 2 **Commitment:** The commitment phase is designed to weed out the people who are not serious about the topic. It will help Stack Exchange gauge whether the site will be successful based on the quality and quantity of the people who choose to commit. People who commit will be asked to be active on the site during the Beta phase in order to follow-through on their commitment. The percentage of committers who meet their obligation will reflect how serious the community is about the site.
- 3 **Beta:** The beta phase is where the real Q&A actually begins! It is first characterized by a temporary, closed beta in which only committers can participate. If the statistics are favorable then the site will make it to the Public Beta phase and be open to all. After that, it’s only a matter of time to gain the support, usage, and quality statistics needed to bring the site into the fully-fledged Stack Exchange network.

What can IBPSA members do to help?

- Visit the proposal website: <http://area51.stackexchange.com/proposals/45232/building-energy-modeling>
- VOTE! - The number one contribution that followers can make now is to up-vote the example questions. The site only needs 40 questions with 10 or more votes to pass on to the next phase, so please consider

voting for good questions that do not yet have 10 votes. This assistance not only allows the site to move on but emphasizes what the community thinks is important. Each follower is allowed 5 up-votes so please use all of them. If all 170+ followers would simply use their votes we would have over 850 total votes - many more than the 400 we need to move to the next phase. Please refer to the graphic below which outlines the where and how of voting on the proposal site.

- Be prepared to commit - The next phase focuses on enabling people to commit to use the site. This means that they plan to post and answer questions once the site goes into Beta.



- Promote - The more experts this site has, the more value it has for the community. Please spread the word to other building industry professionals who may be interested in joining and contributing.

If it seems like we are passionate about this Stack Exchange proposal, it's because we're users of other sites within the platform. We will bet that talking to any programmer whose professional life has been drastically improved will be equally excited to share this passion with you. We hope that IBPSA members will see the value in this effort and help us get to Beta!

Forthcoming events

Date(s)	Event	Information
2013		
07-10 April 2013	SimAUD 2013: 4th annual Symposium on Simulation for Architecture and Urban Design San Diego, California, USA	www.simaud.org/2013
16-19 June 2013	CLIMA 2013: REHVA World Congress Prague, Czech Republic	www.clima2013.org
22-26 June 2013	ASHRAE Annual Conference Denver, Colorado, USA	www.ashrae.org
23-24 June 2013	Building Simulation Cairo Cairo, Egypt	
25-30 August 2013	Building Simulation 2013 Chambery, France	www.bs2013.fr
04-06 September 2013	CISBAT 2013: Clean Technology for Smart Cities and Buildings Lausanne, Switzerland	http://cisbat.epfl.ch
09-11 September 2013	Central European Symposium on Building Physics Vienna, Austria	www.cesbp2013.org
22-27 September 2013	Greensys 2013: New Technologies for Environment Control, Energy-saving & Crop Production in Greenhouse and Plant Factory Jeju, South Korea	http://www.ishs.org/news/?p=1608
05-06 November 2013	8th Energy Forum Conference on Solar Building Skins Bressanone, Italy	www.energy-forum.com
2014		
18-22 January 2014	ASHRAE 2014 Winter Conference New York, USA	www.ashrae.org
07-10 May 2014	eSim Ottawa, Canada	(not yet available)
10-11 June 2014	Building Simulation and Optimization 2014 London, UK	www.bso14.org
28 June -02 July 2014	ASHRAE Annual Conference Seattle, Washington, USA	www.ashrae.org

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

07-10 April 2013
San Diego, California,
USA
www.simaud.org/2013

SimAUD 2013: 4th annual Symposium on Simulation for Architecture and Urban Design



Liam O'Brien, Conference Chair
Azam Khan, Conference Co-chair

We are pleased to welcome you to the **4th annual Symposium on Simulation for Architecture and Urban Design (SimAUD)**. This venue provides a fantastic opportunity for bringing together the brightest researchers and designers in the fields of architecture, building science, design, computer-aided design and simulation, and urban design. With the advent of high-performance computers and advanced design and simulation tools, we have the tools to predict how buildings and whole neighborhoods will perform long before they're built. SimAUD contributes to the growing knowledge pool that will allow society to reduce the environmental and economic impact of the built environment, through simulation and modeling.

In past years, attendees have included researchers in simulation, architecture, urban design and planning, visualization; engineers, architects, software developers, managers, educators, business professionals.

Past SimAUD symposia have attracted exceptionally high-quality submissions (papers, notes, works in progress, datasets, and videos) on a diverse range of topics. We encourage you to take advantage of the free downloads of previous years' proceedings. **We invite you to submit and present an original submission for SimAUD 2013 in San Diego, California, USA (April 7-10, 2013).** All submissions are peer-reviewed and if accepted, will be published in the ACM Digital Library. Please observe the submissions types and deadlines on the Symposium website (www.simaud.org/2013). SimAUD is run collaboratively with ACM/SIGSIM and is sponsored by The Society for Modeling and Simulation International. ■

16-19 June 2013
Prague, Czech
Republic
www.clima2013.org



CLIMA 2013: 11th REHVA World Congress and 8th International Conference on IAQVEC

The theme of this year's CLIMA 2013 is **Energy efficient, smart and healthy buildings**. Topics will include:

- Energy Efficient Heating, Cooling and Ventilation of Buildings
- Renewable and High-Efficient Energy Sources
- Advanced Heating, Cooling, Ventilation and Air- Conditioning Systems for Buildings
- Energy Efficient Domestic Hot Water Supply Systems
- Sanitary Systems
- Advanced Technologies for Building Acoustics
- Artificial and Day Lighting
- Technologies for Intelligent Buildings
- Quality of Indoor Environment
- Building Certification Schemes
- Integrated Building Design
- Commissioning and Facility Management
- HVAC Best Practice Examples
- Directive on Energy Performance of Buildings Implementation
- Zero Energy Buildings
- HVAC in Historic Buildings
- Fire Safety of Buildings

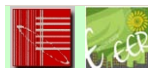
The deadline for submission of abstracts is **30 June 2012**.

Further information about the conference, registration and the venue (Prague Congress Centre, near the city centre with a panoramic view of Prague Castle) is available on the CLIMA 2013 website, www.clima2013.org. ■

23-24 June 2013
Cairo, Egypt

BS Cairo 2013: IBPSA-Egypt conference on Building Simulation

Towards Sustainable & Green Life



BS CAIRO

Conference of the Egyptian Affiliate of International Building Performance Simulation Association in Cairo, 23-24 June 2013

In Egypt, dreams about sustainable, green and high standards of built environment that reflects quality of life have faced many obstacles among them is the limited knowledge and awareness of the importance of designing on these bases. Therefore, EEER has worked since established to support spreading these concepts and outlines them also as it represents IBPSA affiliate in Egypt. You are then invited to publish in the Building Simulation Cairo Conference, BSCairo2013 Towards Sustainable & Green Life organized in co-operation with the Arabian Group for Development, AGD within the proceeding of InterBuild2013 at Cairo International Conference Centre 21-25 June. BSCairo2013 is the first conference in Egypt to gather such themes that covers our dreams for specialized venue.

Conference themes:

- 1- Energy in buildings.
- 2- Indoor environmental quality.
- 3- Climate change and architecture.
- 4- Sustainable development.
- 5- Renewable energy.
- 6- Green architecture.
- 7- Environmental design education.

Conference Board:

Reviewers of the conference are internationally recognized and famous experts;

- 1- Professor *Morad Abdel-Kader*
- 2- Professor *Ahmad Abdin*
- 3- Professor *Essam Khalil*
- 4- Professor *Adel Yaseen*
- 5- Professor *Ayman Hassan*
- 6- Professor *George Basilli*
- 7- Professor *Stephen Sharples*
- 8- Professor *Marialena Nikouloupolo*



Above is the Best picture gallery; bestpicturegallery.com - Pyramids of Giza, Egypt, by Christopher Chan.

Abstracts deadline; Thursday 24th of January 2013.

Full paper deadline; Thursday 18th of April 2013.

Note for acceptance; Thursday 16th of May 2013.

Organizing committee members also includes:

- 1- Dr. *Mohammad Fahmy*.
- 2- Dr. *Amr Gira*.
- 3- Dr. *Asmaa Hassan*.
- 4- Dr. *Marwa Da'biah*.
- 5- Eng. *Akmal Nadeem*.
- 6- Mr. *Mohammad Farouk*.
- 7- Eng. *Moataz Zidan*.
- 8- Eng. *Hala Nabil*.

Registration fees:

Egyptian publishers, 500LE.

Foreign publishers, 500\$.

Non student Egyptian Attendee, 100LE

Non student Foreign Attendee, 100\$.

CD for Conference papers, 50LE.

Contacts & Registration:

Secretary; md.fahmy@live.com

Registration; info@agd-exhibitions.net

More details will be available soon.

To know more about EEER;

<http://eeer-society.wikispaces.com/Introduction>

To join EEER email list; <http://eeepurl.com/i yEW6>

25-30 August 2013
Chambery, France
www.bs2013.fr

Building Simulation 2013: IBPSA World Congress

IBPSA France has the pleasure of welcoming the next IBPSA World congress to Chambery, in the French Alps, from 25-28 August 2013. The program and other information is provided on page 4 of this edition of *ibpsaNEWS*.

Venue

The conference, organised jointly by the French National Solar Energy Institute (INES) and the National Institute of Applied Science of Lyon (INSA), will be held at the Savoie Technolac on the western edge of the Alps, where France, Switzerland and Italy meet. Savoie is one of the most outstanding natural settings in Europe, and the Savoie Technolac is less than an hour's drive from Mont Blanc and the cities of Lyon, Grenoble and Geneva. It is half way between Chambéry, the third largest city in the Alps, and the spa town of Aix-les-Bains.

Themes

The conference themes will be:

- How simulation can influence the design process
- The limitations of simulation in practice, and how these can be addressed
- Case studies of the use of simulation in practice, and the lessons learned
- Interoperability and co-simulation
- Simulation validation, calibration and testing
- Comparing simulation and real world outcomes
- Simulation to support commissioning, controls and monitoring
- Applications of simulation in regulatory processes
- Advances in building physics
- Human aspects of indoor environment: comfort and behavior
- Building services
- Solar building simulation
- Energy capture and operation
- New work in simulation development
- The building as an energy node.

Fees, registration and other information

Details of fees, registration, travel, accommodation, the student modelling competition and other aspects of the conference are available from the conference website, www.bs2013.fr. ■



An event organized by :



IBPSA



ines

INSTITUT NATIONAL
DE L'ÉNERGIE SOLAIRE

With the support of :



UNIVERSITÉ
SAVOIE



CEA



INSA



CNRS



SAVOIE
TECHNOLAC



SAVOIE
CONSEIL
GÉNÉRAL



Rhône-Alpes

05-06 November 2013

Bressanone, Italy

www.energy-forum.com



8th Energy Forum on Solar Building Skins

The Free University of Bolzano, in collaboration with the University of Trento and with the support of IBPSA-Italy, is organizing a special session on building performance simulation at the 8th Energy Forum Conference in November 2013. Details of the whole conference are available on the conference web site at www.energy-forum.com.

The theme of the special session is **Building performance simulation for assessment, management and renovation of existing buildings**. It will focus on:

- the use of simulation calibration techniques to improve the diagnosis capability of existing buildings performance
- the use of simulation for multi-objective technical and economic optimization of different envelope renovation measures
- integration of simulation and control techniques for improving the energy efficiency of existing buildings

A dedicated **call for papers** for this session is now open for the submission of abstracts (in English) with an extended deadline of **15 April 2013**.

Proposals should include:

- The header: “Special Session on Building Performance Simulation – Free University of Bolzano”
- Paper title
- Author’s and co-authors’ name, job title and organization; please underline the name of the speaker
- Phone number, email address and postal address of the corresponding author
- Abstract of 400 words
- 4 keywords

Proposals should be sent to proposals@energy-forum.com with *Special Session on Building Performance Simulation – Free University of Bolzano* in the subject line of the e-mail.

All proposals will be peer-reviewed by the scientific committee. Applicants will be notified by 25 April regarding the status of their submission with detailed instructions for preparing their final papers and suggestions for accommodation in Bressanone.

Registration and payment of the reduced registration fee of 380 EUR (for authors) are due by 30 April.

Full papers must be received by 15 June and will be included in the conference documentation available in a printed version at the congress. Those papers not admitted for presentation in plenary session will be considered for poster presentation. Poster presenters will present their projects with a two-minute talk in the plenary session. ■

07-10 May 2014
Ottawa, Canada

eSim 2014

The 8th biennial eSim will be hosted by Carleton University in Ottawa on 08 and 09 May 2014, with workshops in the preceding and following days. The conference will consist of two days of paper presentations, theory and software workshops, a technical tour, and a banquet.

In keeping with the theme “Removing barriers to application of building performance simulation in design practice”, members of the building and urban design community will be invited to an evening showcase of simulation excellence.

Carleton University is in the Nation’s capital city, and is scenically surrounded by the Rideau River, and the Rideau Canal, a UNESCO World Heritage Site. The Rideau Canal is also the largest skating rink in the world. However, typical May weather sees highs of 20°C, so hikes along the Canal and in the nearby parks systems would be more seasonal! As a capital city, Ottawa is a city of 1.2-million diverse residents, world-class museums, and direct flights to most Canadian cities and European and American hubs. It is also a short train ride away from Montreal, Toronto, and Quebec City.

A call for papers will be announced in the summer. In the meantime, please direct questions to eSim 2014 Chair, Liam O’Brien at liam_obrien@carleton.ca. ■

10-11 June 2014
London, UK
www.bso14.org

Building Simulation and Optimization 2014: 2nd IBPSA-England conference

Welcome to Building Simulation and Optimization 2014! This is IBPSA-England’s second national conference, organised in association with the Chartered Institution of Building Services Engineers (CIBSE), and hosted by University College London (UCL).

BSO14 provides a forum for the exchange of knowledge on the development and application of building performance simulation to the optimum design and operation of buildings. It has four broad themes:

- New performance models and simulation methods
- Procedures for optimizing design and operation
- Real-world case studies
- Visualisation in built environment

The conference will be held at UCL, London’s global university. UCL was established in 1826 to open up education in England for the first time to students of any race, class or religion. It was also the first university to welcome female students on equal terms with men. Today UCL attracts students from 150 countries and has active exchange and research links with more than 280



overseas universities. League tables compiled using varying methodologies rank UCL as the 4th (QS World Rankings, 2012), 17th (Times Higher World Ranking, 2012) and 21st (Shanghai Jiao Tong University, 2012) best university in the world.

The conference will be of interest to both academics and building design professionals. Where possible, conference papers will be presented in single sessions to enable participants to benefit from the attendance of all conference sessions. Keynote presentations will be given by leading academics and building designers.

The first call for papers will be announced in late April 2013. More information about the conference can be found at www.bso14.org (in preparation).

Organising Committee: Dejan Mumovic (UCL), Malcolm Cook (Loughborough University), Ljiljana Marjanovic-Halburd (UCL), Catalina Spataru (UCL) and Liora Malki-Epshtein (UCL). ■



Heat, Air and Moisture modelling: an overview from Hugo Hens

In the last IBPSA News (November 2012, Volume 22 Number 2), we published an interview with Hugo Hens and part 1 of his paper *Actual limits of HAM-modelling looking at problems encountered in practice: A short history of Heat, Air and Moisture modelling*. Here we publish part 2.

Hugo Hens is professor emeritus at the University of Leuven (KU Leuven)/ Belgium and (co)-author of 7 books on building engineering in Dutch, 4 in English, 68 articles in international journals, 51 articles in national journals, 167 papers in international conference proceedings, seminar

proceedings and permanent education readers along with 189 papers in national conference and symposium proceedings. In addition he has first-hand experience involving some 500 practice cases.



As mentioned at the time, our November article was the first part of a two part publication. In this edition, we present the second part, *Examples showing modelling limitations*, summarizing different case studies that Hugo put together for the benefit of IBPSA News readers.

Just to recap briefly, the paper reflects 42 years of activity in modelling, experimental work and building practice. The four cases in the paper were chosen out of the some 500 possible cases that Hugo has been involved in during his career as a HAM software developer and hygrothermal consultant. These buildings range from breweries, textile factories, storehouses, apartment buildings, office buildings, natatoriums, hotels, the Haram al Sharif in Jerusalem through to private dwellings.

The case studies that Hugo discusses in this edition faced various problems including visible moisture damage, comfort problems and problems related to high energy bills. Hugo's practical insights will be thought-provoking for anyone with an interest in heat, air and moisture simulation.

Actual limits of HAM-modelling looking at problems encountered in practice

Part 2: Examples showing modelling limitations

Hugo L. S. C. Hens, PhD, Prof. Em.

Laboratory of Building Physics, Department of Civil Engineering, K.U.Leuven
Kasteelpark Arenberg, 40, B-3001 Leuven / Sint Jansbergsesteenweg, 79, B-3001 Leuven
e-mail: hugo.hens@bwk.kuleuven.be

Models have a real value for practitioners when they allow prediction of the hygrothermal response of buildings, help designers and component manufacturers in choosing climate-adapted, moisture-tolerant envelope and building fabric solutions, and assist in explaining and curing problems and any resultant damage. This paper evaluates the reality of the last of these ambitions by discussing four practical case studies.

Office building

The building, constructed at the end of the 1990s, has 4 storeys at the northeast-facing front side and 5 storeys at the southwest-facing rear side. The construction consists of a concrete skeleton with precast wide slab flooring and a central core containing the staircase, the restrooms, and the lifts. In the facades, aluminium windows alternate with cavity wall strips having a facing brick veneer, a cavity filled with 7.5 cm glass fibre boards and an inside leaf in precast concrete. The windows are mounted planar with the veneer (figure 7).

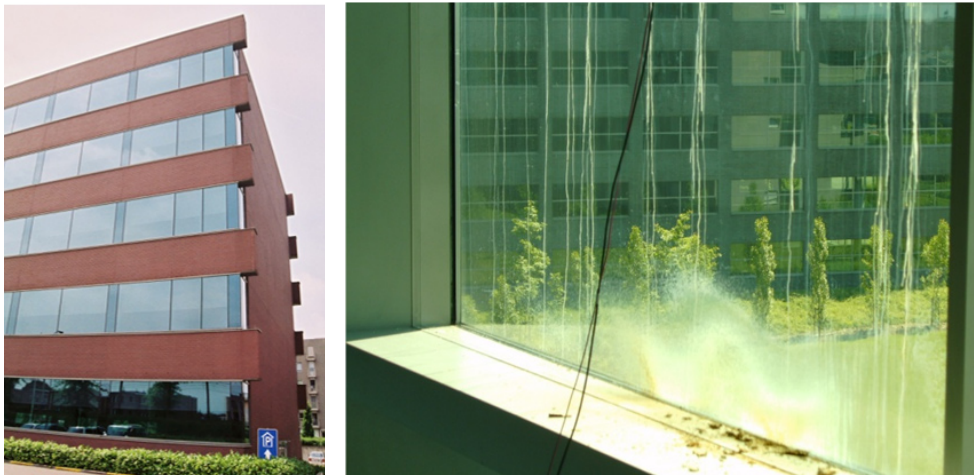


Figure 7: The building, lime deposit on the glazing

Problems

Whenever there is sunny weather after a rain spell, water drips down along the windows on to the inside sills below on the rear side's highest floor. The lime it contains soils both the inside glass surface and the sills (figure 7). Soiling has reached a level such that no company is now prepared to rent the floor.

Analysis

To start with, a steady state CFD/droplet tracing simulation showed the highest floor at the rear side was hit the most by wind-driven rain (figure 8, next page). Most rain in fact comes from the southwest in North-Western Europe.

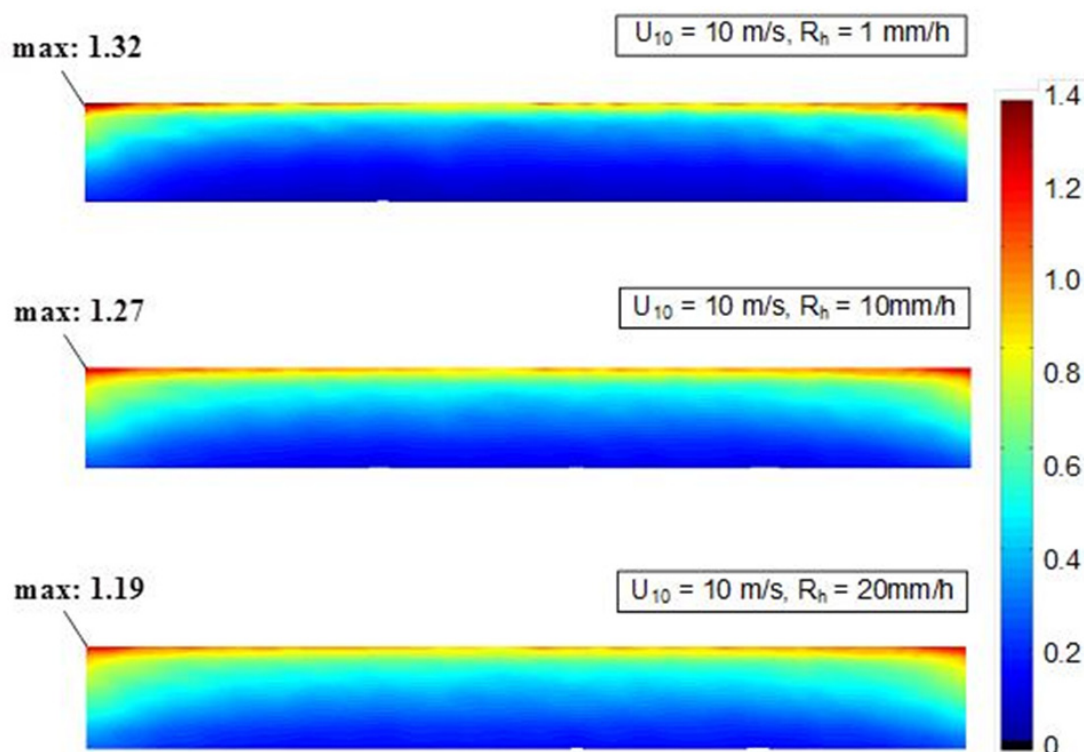


Figure 8: Results of a CFD-droplet tracing wind-driven rain calculation

As the facing brick is capillary active, the veneer fulfilled its role as rain buffer. However, southwest is also the sunny side, activating solar-driven vapour flow that way. The result is moisture deposit against the cavity side of the precast concrete inside leaf. One could expect the concrete will first show an increase in hygroscopic moisture content and then absorb the condensate. But dripping? Even if a water film forms, the cavity tray, which was present, should drain the liquid back to the outside.

A detailed check however showed the tray was not glued against the inside leaf. At the same time the precast concrete was so well compacted, it hardly showed any capillary activity, so droplet formation was instantaneous. As the windows are planar with the veneer, the run-off plane coincident with the inside leaf's cavity side sits behind the windows.

Could all that be predicted with the actual marketed heat, air, moisture tools? No. Solar driven vapour flow, yes, but the calculations will conclude the concrete should buffer the deposit according to the properties listed in material catalogues. Moreover, the tray details, which caused dripping but which neither the designer nor the contractor expected to be problematic, cannot be modelled.

Solution

Three possibilities were proposed: (1) tear down the upper part of the veneer, remove the insulation, glue the cavity tray against the inside leaf, remount the insulation, rebuild the veneer, repair the windows, (2) render the building facade with a water repellent stucco, repair the windows, (3) treat the veneer with a water repellent product, repair the windows. Although (1) is the most durable and less risky choice, the principal finally has chosen (3) as it was by far the cheapest solution.

University building

The building houses a variety of spaces: underground parking, lecture theatres, library, smaller seminar rooms, and individual office rooms. For that reason, the design team proposed a building volume narrowing from basement to top. The lecture theatres were situated just above the parking. The next floor housed the library, while the seminar rooms and offices filled the higher floors. The result was a building with oblique façade walls (figure 9). These were constructed as cavity walls with facing brick veneer, partially PUR-filled cavity, and a reinforced concrete inside leaf with facing brick finish.

Problems

The main complaints were the appearance of large moisture spots on the inside facing brick finish and severe rain penetration along the windowsills (figure 9).

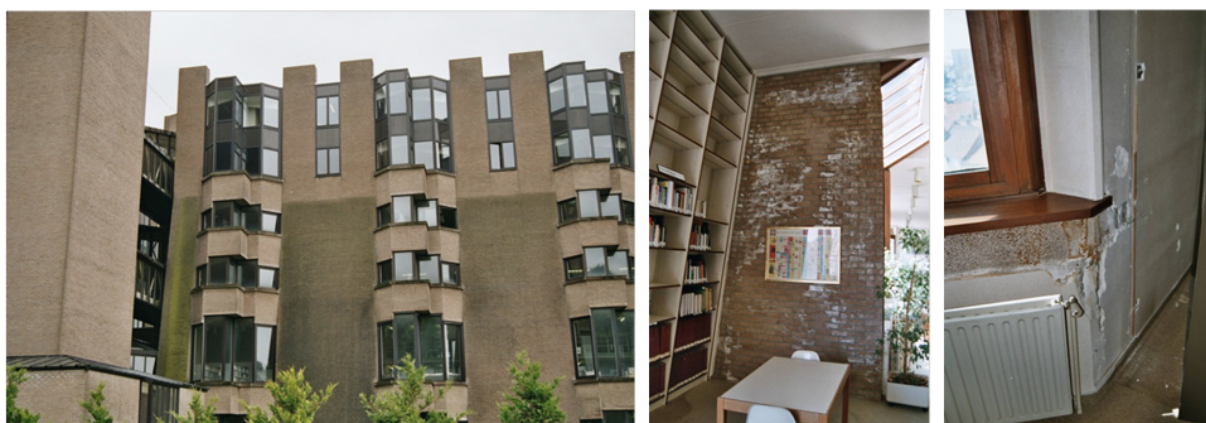


Figure 9: The building, rain wetting inside, rain penetration along window sills

Analysis

First, the steady state wind driven rain pattern along the building envelope for the main wind direction, in this case southwest, was calculated. This confirmed the heaviness of rain exposure. Run-off was analysed on site, showing that the oblique facades' strips functioned as active drainage planes with a concentration of run-off at their sides (figure 10, next page). As the veneer had received a water repellent treatment a couple of years before, run-off mainly loaded the cracks between bricks and mortar, causing leakage to the cavity. There, the seeping water dripped on the insulation, ran off, seeped across the joints between the insulation boards and wetted the concrete inside leaf, where shrinkage cracks directed the water to the inside brick finish. Rain penetration under the windows was caused by a lack of upward sill folds (figure 10). All these issues are beyond the prediction capability of any marketed heat, air, moisture tool as the location of joints and shrinkage cracks is unknown, run-off distribution is not calculable, and no tool considers gravity induced seepage.

Solution

In a first trial, a storey-wise regressing veneer replaced one of the oblique veneers. That was not successful as the view was awful and the solution induced thermal bridging, lifting the whole wall thermal transmittance of the facade wall from $0.49 \text{ W}/(\text{m}^2\cdot\text{K})$ up to $0.64 \text{ W}/(\text{m}^2\cdot\text{K})$. Cavity trays at the bottom of each veneer step were also omitted, leaving room for further leakage. The alternative was tearing down the oblique brick veneers and replacing them by water-tight zinc siding mounted on timber joists, with insulation filling the bays in between successive joists. That would also solve the problem caused by the missing sill folds. However, that solution proved to be expensive. Consequently, the university department using the building finally left.

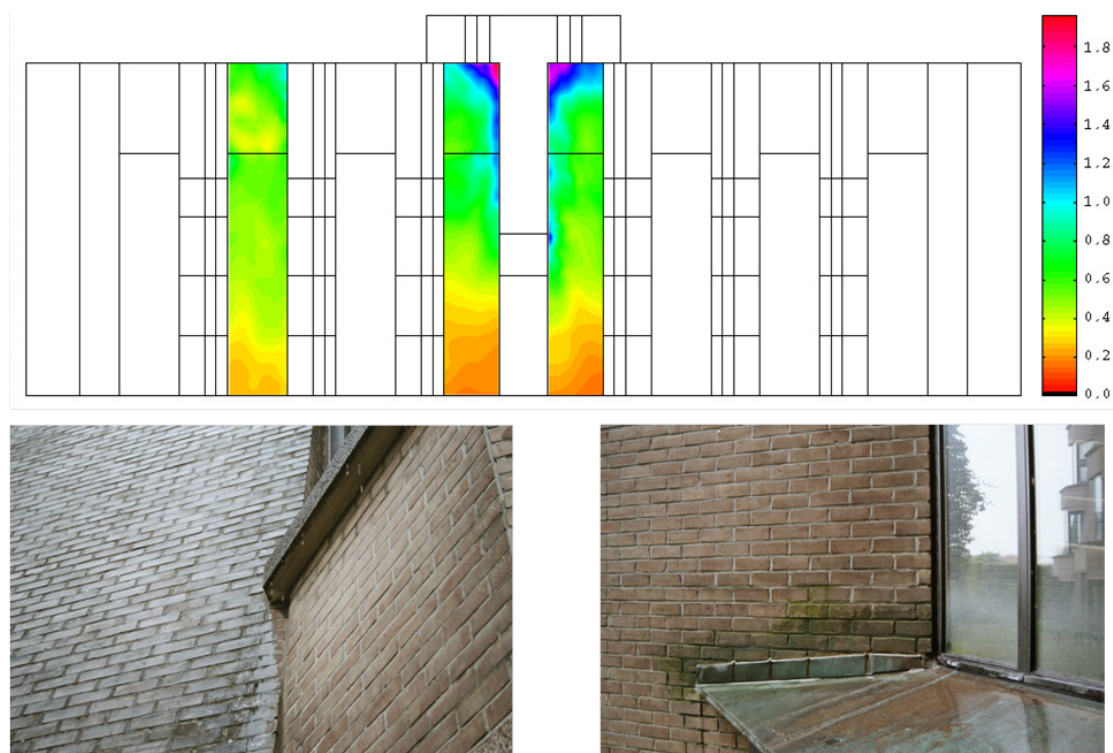


Figure 10: Catch ratio, run-off concentration and lacking sill steps in the University building

Detached house

The house consisted of two two-storey-high spaces, each covered by a curved aluminium roof, with a glazed atrium in between the two. The roof assembly consisted top-down of overlapping corrugated aluminium sheets fixed on joists that ran parallel to the gutters above the front and rear facades, glass fibre bats mounted between the joists with a polyethylene air and vapour retarder below, and a ceiling formed by perforated curved metal sheets (figure 11).



Figure 11: The house, ceilings consisting of perforated steel, traces of run-off on the pelmet board

Problems

In the two-storey-high living room, the inhabitants complained of water running out of the roof perimeter and down the inside surface of the facade walls during cold weather (figure 11).

Analysis

At first sight, the roof was correctly constructed, as an effective air and vapour retarder was included at the inside of the thermal insulation. Calculation with a one-dimensional model confirmed this. However, a tracer test releasing gas in the living room and measuring its concentration both there and in the roof showed that the concentration build up in the roof hardly lagged behind that in the living room. The so-called air and vapour retarder was apparently extremely air permeable. We therefore opened the roof and saw that the insulation was badly installed, while the air and vapour retarder had unsealed overlaps and unsealed joints along the roof's perimeter (figure 12). So, what happened was clear. In winter, the thermal stack forced the inside air to pass the perforated metal ceiling and unsealed overlaps and joints in the air and vapour retarder and moisture to condense against the back side of the aluminium cover. As air exfiltration and linked interstitial condensation show hardly any inertia, the amounts of condensate deposited increase rapidly during cold weather. Night-time under-cooling allows the condensate to freeze, followed by thawing the next day. Once there is enough water adhering to the aluminium cover, that causes dripping and run-off.

Was commercial modelling software offering any help in analyzing the case? No. First, most packages do not include air transport, and secondly, even if they do, the way this is done is too simple to simulate such a complex three-dimensional case with gravity activating run-off.



Figure 12: Opening the roof

Solution

The roof was rebuilt with a plywood deck fixed on the existing joists, a 4 mm thick polymer bitumen layer glued all over the plywood deck and the top of the outer walls as air and vapour barrier; battens were then screwed into the joists through the self-healing polymer bitumen, insulation with the same thickness as the

battens filling the bays between the battens, and the whole covered with a vapour-permeable underlay, after which the curved corrugated aluminium cover was fixed on laths nailed across the underlay in the battens.

Villa

The villa reflected a traditional construction: load-bearing masonry, an envelope consisting of a filled cavity wall, double glazed timber windows, and a tiled insulated roof. Floor heating was applied. The garden and the terrace both sloped to the house (figure 13).



Figure 13: The villa with garden and terrace sloping to it

Problem

The in- and outside masonry walls suffered from rising damp (figure 14)



Figure 14: Rising damp in the inside walls

Analysis

At first sight, all walls had a waterproof layer at floor level. Some digging along an outer sidewall also showed ground water to be absent. Previous experience, however, showed that gardens and terraces sloping towards a building could drain rainwater straight to the outer cavity walls, where it may humidify the screed if the waterproof layer and cavity tray in these walls sit above the concrete floor deck. That was the case here. Penetration and water spread over the deck to the inside walls was facilitated due to the thermal insulation present below the floor-heating plane. Also, a capillary screed is very active in spreading water, as horizontal suction never stops! Once the water reaches the partition walls, it will slowly humidify the fast bricks below the waterproof layer there. As that layer is often short-circuited by the gypsum plaster, the plaster will also pick up dampness.

In addition to this rain-related problem, there was a second source of water ingress. The drain of the washing machine, which was concreted in the screed, leaked. Evidence of this came from an analysis of the salt efflorescence found on nearby partition walls. These mainly consisted of sodium and sulphates, with sodium sulphate being used as a corrosion inhibitor in washing powder.

Existing heat, air, moisture software tools were of no help in analyzing the case.

Solution

Two measures were taken. A foundation deep drain coupled to the street sewerage was installed all around the villa. Simultaneously the substandard foundation walls were water-tightened up to cavity tray level. The washing machine drain was repaired.

Conclusion

Modelling of heat, air, moisture transport in building enclosures is a scientific exercise. All models, however, start from assumptions and include simplifications that overlook reality, causing restrictions in usability. Because of this, even the most advanced commercial tools currently available cannot handle many of the heat, air, moisture related problems encountered in practice. Modelled geometry is always an approximation to reality, missing unplanned but perhaps linked air layers, air voids, cracks, and leaks, often overlooking important transport phenomena that way. Material properties are a difficult and tricky subject. Contact conditions induce severe uncertainties. Boundary conditions are much more complex than modelled as each part of an enclosure reacts to the local weather situation, whilst being affected internally by the indoor environmental response of the whole building. Gravity and pressure heads create phenomena that are too random to be predictable. Moreover, last but not least, the consequences for indoor air quality, health, and durability are still only partially portrayed as likely phenomena.

So, does heat, air and moisture modelling help in predicting the real hygrothermal response of building assemblies, does it help in quantifying moisture tolerance and in solving real world problems? Yes and no. Yes, as models help in building up an understanding and aid in refining knowledge. No, because the tools of today are not able to predict most of the problems caused by air ingress, run-off, weeping, and others. For these reasons, heat, air, moisture research should in future combine the following three approaches: upgraded simulation, well planned testing from material through assembly to the building and building environment level, and involvement in solving problems arising in real buildings. This will keep people busy in heat, air, moisture work for decades to come!

References

- Anon, 2006, *Beton gevelstenen (Concrete facing blocks)*, Reports 2006-3 (1) to 2006-3 (6), Laboratory of Building Physics, K.U.Leuven (in Dutch)
- Adan O., 1994, *On the Fungal Defacement of Interior Finishes*, PhD-Thesis, TU-Eindhoven
- ASHRAE, 1993, 1997, 2001, 2005, *Handbook of Fundamentals*, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta
- ASHRAE, 2009, *Handbook of Fundamentals*, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta
- Arfvidsson J. (1998), *Moisture Transport in Porous Media, Modelling Based on Kirchoff Potentials*, report TVBH-1010, Lund University
- Blocken B., 2004, *Wind-driven Rain on Buildings: Measurements, Numerical Modelling and Applications*, PhD-Thesis, K.U.Leuven
- Brocken H., 1998, *Moisture Transport in Brick Masonry: the Grey Area between Bricks*, PhD-Thesis, TU-Eindhoven
- Burch D. M., J. Chi (1997), *Moist*, a PC program for Predicting Heat and Moisture Transfer in Building Envelopes, release 3.0, NIST Special Publication 917
- Carmeliet J., 1992, *Duurzaamheid van weefselgewapende pleisters voor buitenisolatie (Durability of Fabric-Reinforced Plasters for Outside Insulation)*, PhD-Thesis K.U.Leuven (in Dutch)
- Couper R. R., 1974, *Factors affecting the production of surface run-off from wind-driven rain*, Proceedings of the second international symposium on moisture problems in buildings, paper 1.1.1
- Cunningham M.J., 1990, *Modelling of Moisture Transfer in Structures, I a description of a finite-difference nodal model*, Building and Environment 25, p. 55-61
- Cunningham M.J., 1994, *Modelling of Moisture Transfer in Structures, III A comparison between the Numerical Model SMAHT and Field Data*, Building and Environment, 29, p. 191-196
- Cunningham M.J., M.R. Bassett, D. McQuade and M. Beckett, 1994, *A field Study of the Moisture Performance of Roofs of Occupied Newly Constructed Timber Framed Houses*, Building and Environment 29, p. 173-190
- Defraeye T, Blocken B., Carmeliet J., 2011, *An Adjusted Wall Temperature Function for Turbulent Forced Convective Heat Transfer for Bluff Bodies in Atmospheric Boundary Layer*, Building and Environment 46, 2130-2141
- De Freitas V.P., V. Abrantes and P. Crausse, 1996, *Moisture Migration in Building Walls, Analysis of the Interface Phenomena*, Building and Environment 31, p. 99-108
- Descamps F., 1997, *Continuum and Discrete Modelling of Isothermal Water and Air Transport in Porous Media*, PhD-Thesis, K.U.Leuven
- Duforestel T., 1992, *Bases métrologiques et modèles pour la simulation du comportement hygrothermique des composants et ouvrages du bâtiment*, Thèse de Doctorat, Ecole Nationale des Ponts et des Chaussées, Paris (in French)
- Glaser H., 1959, *Grafisches verfahren zur Untersuchung von Diffusionvorgänge*, Kältetechnik, 10, p. 345-349 (in German)
- Geving S., 1997, *Moisture Design of Building Constructions: Hygrothermal Analysis Using Simulation Models*, PhD-Thesis, NTNU Trondheim
- Grunewald j., 1997, *Konvektiver und diffusiver Stoff- und Energietransport in kapillarporöser Baustoffen*, Dissertation TU-Dresden, Fakultät Bauingenieurwesen
- Handegord G.O., 1982, *The performance of exterior walls*, Proceedings of the Building Science Forum '82, NRC, Canada, p. 5-14

- Hagentoft C.E. and M. Serkitjis, 1995, *Simplified simulation models for natural and forced convection in porous media*, Proceedings of the International Symposium on Moisture Problems in Building Walls, Porto, p. 339-350
- Hagentoft C.E., 1996, *Performances and Practice, The Impact of Heat, Air and Moisture Transport on Energy Demand and Durability, Final Report IEA-ECBCS Annex 24 'Heat, Air, Moisture Modelling in Highly Insulated Envelope Parts'*, ACCO, Leuven
- Hagentoft C. E., Högberg A., 2002, *Prediction of driving rain intensities using potential flows*, Proceedings of the sixth Symposium on Building Physics in the Nordic Countries, Trondheim, Norway, June 17-19, pp 571-578
- Hansen K., 1986, *Sorption Isotherms, a Catalogue*, Technical University of Denmark, Department of Civil Engineering, Building Materials Laboratory, Teknisk Report 162/86
- Häupl P., Stopp H., 1983 and 1984, *Feuchtetransport in Baustoffen and Bauwerkteilen*, Luft- und Kältetechnik, 1983/4, 1984/1, 1984/2
- Hens H., 1975, *Theoretical and Experimental Study of the Hygrothermal Response of Building and Insulation Materials during Interstitial Condensation and Drying, Applied on Low-Sloped Roofs*, PhD-Thesis K.U.Leuven (In Dutch)
- Hens H., 1978, *Condensation in concrete flat roofs*, Building Research and Practice, October. p 292-309
- Hens H., Vaes F, 1982, *Glaser's calculation method*, WTCB-tijdschrift 1/82, pp 13-24 (in Dutch and in French)
- Hens H., 1996, *Modelling, Final Report IEA-ECBCS Annex 24 'Heat, Air, Moisture Modelling in Highly Insulated Envelope Parts'*, ACCO, Leuven, 84 p.
- Hens H., Janssens A., 1996, *Heat and Moisture Response of Vented and Compact Cathedral Ceilings: A Test House Evaluation*, ASHRAE Transactions, Vol. 105, Part 1, p. 837-850
- Hens H., 1999, *Fungal Defacement in Buildings: A Performance Related Approach*, International Journal of Heating, Ventilating, Air-Conditioning and Refrigerating Research, Vol 5, nr 3, p. 265-280
- Hens H., Roels S., Desadeleer W., 2005, *Glued concrete block veneers with open head joints: rain leakage and hygrothermal performance*. Proceedings of the Nordic Building Physics Conference, Reykjavik, June 2005, p 670-678
- Hens H., 2007, *Building Physics - heat, air and moisture: Fundamentals and Engineering Methods with Examples and Exercises*, Ernst & Sohn (A Wiley Company), Berlin, 270 p
- Hens H., 2010, *Applied Building Physics: Boundary Conditions, Building Performance and Material Properties*, Ernst & Sohn (a Wiley Company), Berlin
- Holm A., 2008, *Applications: Indoor Environment, Energy, Durability, Final Report IEA-ECBCS Annex 41 'Whole Building Heat, Air, Moisture Response'*, ACCO, Leuven
- IEA, 1990, *Sourcebook, Final Report ECBCS Annex 14 'Condensation and Energy'*, ACCO, Leuven
- IEA, 1990, *Catalogue of Material Properties, Final Report ECBCS Annex 14 'Condensation and Energy'*, ACCO, Leuven
- Janssen H., 2002, *The Influence of Soil Moisture Transfer on Building Heat Loss via the Ground*, PhD-Thesis, K.U.Leuven
- Janssen H., 2011, *Thermal Diffusion of Water Vapour in Porous Materials: Fact or Fiction*, International Journal of Heat and Mass transfer, 54 (2011), 1548-1562
- Janssens A., 1998, *Reliable Control of Interstitial Condensation in lightweight Roof Systems*, PhD-Thesis, Leuven
- Karagiosis A., 1993, *Overview of the 2D hygrothermal heat-moisture transport model LATENITE*, NRC-INR, Ottawa
- Kießl K., 1983, *Kapillarer und dampfformiger Feuchtetransport in mehrschichtigen Bauteilen*, Dissertation zur Erlangung des Grades Doktor-Ingenieur des Fachbereiches Bauwesen der Universität-Gesamthochschule Essen

- Kohonen R., 1984, *A method to analyse the transient hygrothermal behaviour of building materials and components*, Technical Research Center of Finland (VTT), Publication 21
- Krischer O., 1963, *Die wissenschaftlichen Grundlagen der Trocknungstechnik*, 2e Auflage, Berlin, Springer Verlag
- Kronvall J., 1982, *Air flows in building components*, Report TVBH-1002, Division of Building Technology, Lund University of Technology, Sweden
- Krus M., 1995, *Feuchtetransport- und Speicherkoeffizienten poröser mineralischer Baustoffe*, Theoretische Grundlagen und neue Metekniken, Abhandlung zur Erlangung der Würde eines Doktor-Ingenieurs, Stuttgart
- Kumaran K., 1996, *Material Properties, Final Report IEA-ECBCS Annex 24 'Heat, Air, Moisture Modelling in Highly Insulated Envelope Parts'*, ACCO, Leuven
- Kumaran K., Sanders C, 2008, *Boundary Conditions and Whole Building HAM Analysis, Final Report IEA-ECBCS Annex 41 'Whole Building Heat, Air, Moisture Response'*, ACCO, Leuven
- Küntz M. and J.G.M. van Mier, 1997, *Field Evidences and Theoretical Analysis of the Gravity-driven Wetting Front Instability of Water Runoffs on Concrete Structures*, Heron, Vol. 42, nr. 4, p. 231-244
- Künzel H., (1976), *Beurteilung der Schlagregenbeanspruchung und des Regenschurzes von Gebäuden*, IBP-Bericht B.Ho5/76 (in German)
- Künzel H. and Th. Grosskinsky, 1989, *Untersuchungen über die Feuchtigkeitsverhältnisse bei wärme gedämmten Satteldach-Konstruktionen*, IBP-Bericht FB/1989, Holzkirchen
- Künzel H.M., 1994, *Verfahren zur ein- und zweidimensionalen Berechnung des gekoppelten Wärme- und Feuchtetransports in Bauteilen mit einfachen kennwerten*, Abhandlung zur Erlangung der Würde eines Doktor-Ingenieurs, Stuttgart
- Lacy R. E., 1965, *Driving rain maps and the onslaught of rain on buildings*, RILEM/CIB Symposium on Moisture Problems in Buildings, Helsinki, August 16-19, Volume 3, paper 3-4
- Lähdesmäki K., Vinha J., Salminen K., Peukhuri R., Ojanen T., Paajanen L., Iitti H., Strander T., 2008, *Development of an improved model for mould growth: laboratory and field experiments*, Proceedings NSB 2008 pp 935-942
- Luikov A.V., 1966, *Heat and Mass Transfer in Capillary-Porous Bodies*, Oxford, Pergamon Press
- Masaru A., 2009, *Moisture Stress of Wind-driven Rain on Building Enclosures*, PhD-Thesis K.U.Leuven
- Nielsen A.F., 1974, *Moisture distribution in cellular concrete during heat and moisture transfer*, PhD-Thesis, Thermal Insulation laboratory, Technical University of Denmark
- Ojanen
- Okland O, 1998, *Convection in Highly-Insulated Building Structures*, PhD-thesis, NTNU-Trondheim
- Orr H., 1974, *Condensation in electrically heated houses*, Paper 2.6.1 of the 2nd International CIB-RILEM Conference on Moisture Problems in Buildings
- Pedersen Rode C., 1990, *Combined heat and moisture transfer in building constructions*, PhD. Thesis, Thermal Insulation laboratory, Technical University of Denmark, Report 214
- Pel L., 1995, *Moisture Transport in Porous Building materials*, PhD-Thesis, TU-Eindhoven
- Philip J.R. and D.A. De Vries, 1957, *Moisture movement in porous materials under temperature gradient*, Trans. Am. Geophysical Union, Vol 38-nº2
- Qiu X., 2003, *Moisture Transport Across Interfaces Between Building Materials*, PhD-Thesis, Concordia University
- Roels S., 2008, *Experimental Analysis of Moisture Buffering, Final Report IEA-ECBCS Annex 41 'Whole Building Heat, Air, Moisture Response'*, ACCO, Leuven

- Roels S., 2000, *Modelling Unsaturated Moisture Transport in Heterogeneous Limestone*, Doctoral Thesis, Leuven
- Rousseau M. Z., 1983, *Control of surface and concealed condensation*, Proceedings of the Building Science Insight '83, NRC- Canada, p. 29-40
- Rowley F., A.B.Algren and C.E.Lund, 1939, *Condensation of moisture and its relation to building construction and operation*, ASHVE Transactions, Vol. 44, No 1115, Pittsburgh
- Sanders C, 1996, *Environmental Conditions, Final Report IEA-ECBCS Annex 24 'Heat, Air, Moisture Modelling in Highly Insulated Envelope Parts'*, ACCO, Leuven
- Sedlbauer, K., 2001, *Vorhersage von Schimmelpilzbildung auf und in Bauteilen*, Dissertation Universität Stuttgart (in German)
- Seiffert, K., 1967, *Wasserdampfdiffusion im Bauwesen*, Bauverlag GmbH, Wiesbaden-Berlin
- Straube J, 1998, *Moisture Control and Enclosure Wall Systems*, PhD-thesis, Waterloo University
- Straube J. and E. Burnett, 1999, *Rain Control and Design Strategies*, Thermal Envelope and Building Science, Vol 23, p. 41-56
- Ten Wolde A., 1985, *Steady-state one-dimensional water vapour movement by diffusion and convection in a multilayered wall*, ASHRAE Transactions, Vol. 91, part 1a
- Ten Wolde A., 1989, *Moisture Transfer Through Materials and Systems in Buildings*, ASTM STP 1039, p. 11-18
- Trechsel H., 1994, Editor, *Moisture Control in Buildings*, ASTM Manual Series: MNL 18
- Van der Kooij J., 1971, *Moisture transport in cellular concrete roofs*, PhD-Thesis, TU-Delft, Uitgeverij Waltman
- van Mook F., 2002, *Driving Rain on Building Envelopes*, PhD-Thesis, TU-Eindhoven
- Viitanen H., Vinha J., Peukhuri R., Ojanen T., Lähdesmäki K., Salminen K., 2008, *Development of an improved model for mould growth: modeling*, Proceedings NSB2008, pp 927-934
- Vinha Juha (2007). *Hygrothermal Performance of Timber-Framed External Walls in Finnish Climatic Conditions*, PhD-Thesis, Tampere University of Technology
- Vos B.H., E. Coelman, 1967, *Condensation in structures*, Report nr BI-67-33/23, TNO-IBBC
- Vos B., Tamme E., 1976, *Rain penetration through the outer walls of cavity structures*, CIB-W40 meeting, Washington
- Woloszyn M., Rode C., 2008, *Modelling Principles and Common Exercises, Final report IEA-ECBCS Annex 41 Whole building heat, air, moisture response*, ACCO, Leuven
- Zillig W., 2009, *Moisture Transport in Wood Using a Multiscale Approach*, PhD-thesis, K.U.Leuven

Software news

IEA ECBCS Annex 60 Planning Meeting

On March 11 to 13, 2013, the IEA ECBCS Annex 60 “New generation computational tools for building and community energy systems based on the Modelica and Functional Mockup Interface standards” held its first expert meeting, hosted by RWTH Aachen University, Germany.

48 participants from 9 countries contributed towards finalizing the work plans of the Annex. It has been decided that the Annex will have two subtasks: Subtask 1 will further develop Modelica libraries for building and community energy systems, FMI-based tools for model exchange and co-simulation, and Building Information Model to Modelica translators. Subtask 2 will be devoted to the validation and demonstration of the computing tools developed in

Subtask 1. Applications will range from the detailed design of buildings to the design of community energy systems and the use of models in real-time in support of controls and fault detection. Modelica libraries, FMI-based interfaces and tools, and BIM translators developed within Annex 60 will be free and open-source.

The next steps will be to finalize the work plan and the official Annex text. The 3-year research phase is expected to start in June 2013. Special presentations will be given at the Building Simulation 2013 conference in Chambéry, France.

For further information, visit www.iea-annex60.org or contact the operating agents Michael Wetter (MWetter@lbl.gov) and Christoph van Treeck (treeck@e3d.rwth-aachen.de). ■



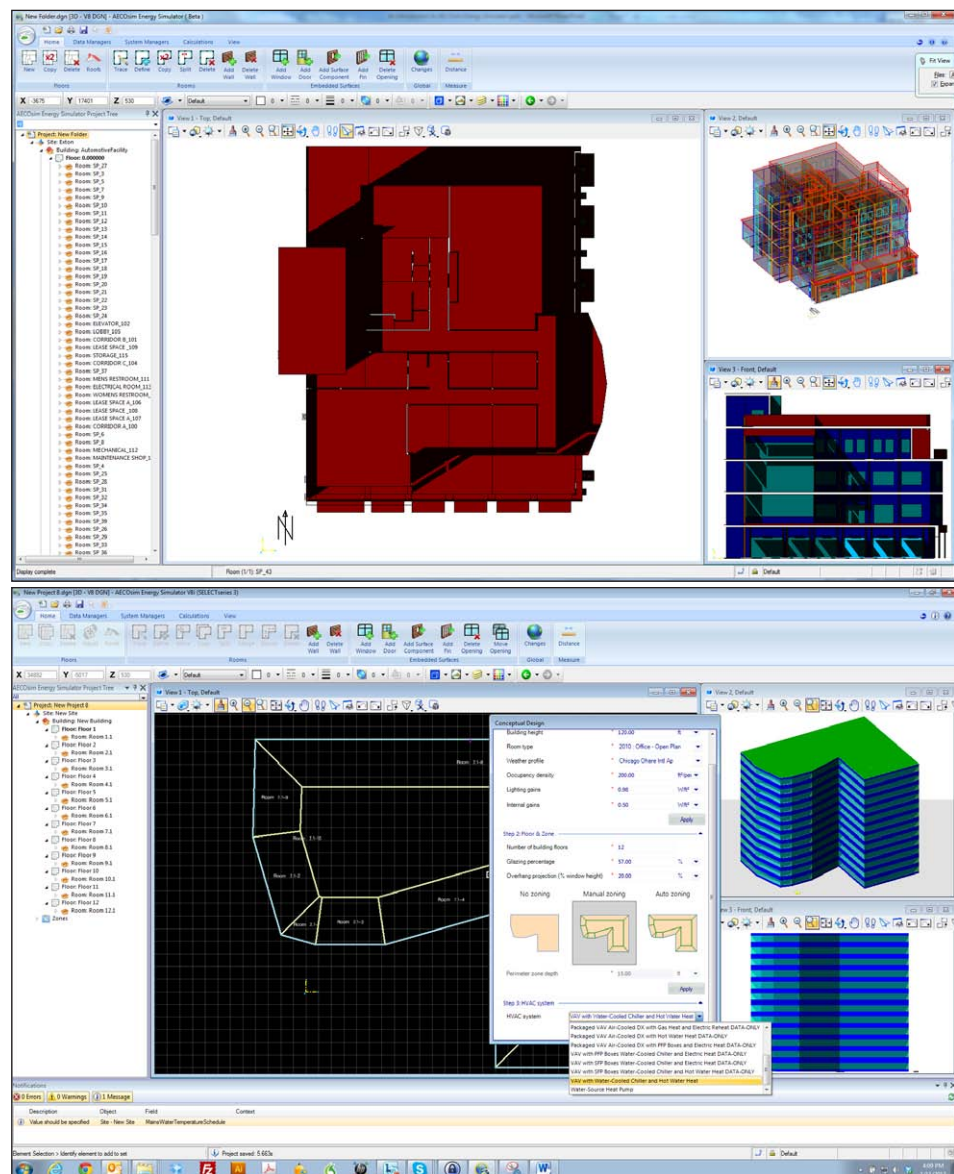
Attendees of the Annex 60 planning meeting at RWTH Aachen

AECOSim Energy Simulator

AECOSim Energy Simulator (AES) is a full-featured, graphic interface for building performance simulation built from the ground up. It uses the latest EnergyPlus (v7.2) as its core simulation engine. AES was initially released on September 30, 2011.

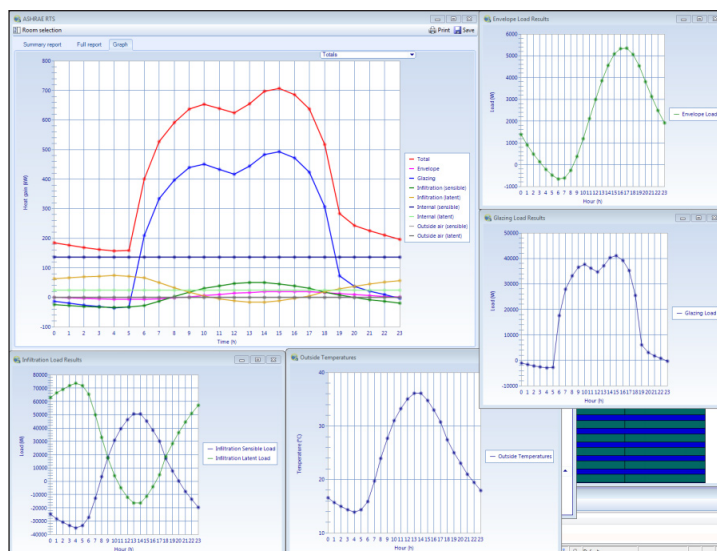
AES comes with a menu ribbon bar, putting multiple layers of options at users' fingertips. A tree allows easy visual navigation of the building spaces, walls, windows, doors, ceilings, roofs, internal loads, HVAC components, and zoning.

The heart of AES is its BIM interface – making it easy for users to visualize their building models and performance.



Options for creating an AES model include:

- **Conceptual Design** mode with 3 steps (13 inputs and sketch the building outline). Result – complete simulation model including all the ASHRAE 90.1 baseline and budget HVAC systems.
- **Import 2-D CAD** – DGN, DWG, or DXF and trace the building and spaces.
- **Import gbXML** – guided import to ensure that all spaces and zones have data.
- **Import graphics** – bitmap, JPEG, GIF, PDF and trace spaces



Conceptual Design

Step 1: Building

Building type * Office
 Building height * 120.00 ft
 Room type * 2010 : Office - Open Plan
 Weather profile * Chicago Ohare Intl Ap
 Occupancy density * 200.00 ft²/per
 Lighting gains * 0.98 W/ft²
 Internal gains * 0.50 W/ft²
 Apply

Step 2: Floor & Zone

Number of building floors * 12
 Glazing percentage * 57.00 %
 Overhang projection (% window height) * 20.00 %
 No zoning Manual zoning Auto zoning
 Perimeter zone depth * 15.00 ft
 Apply

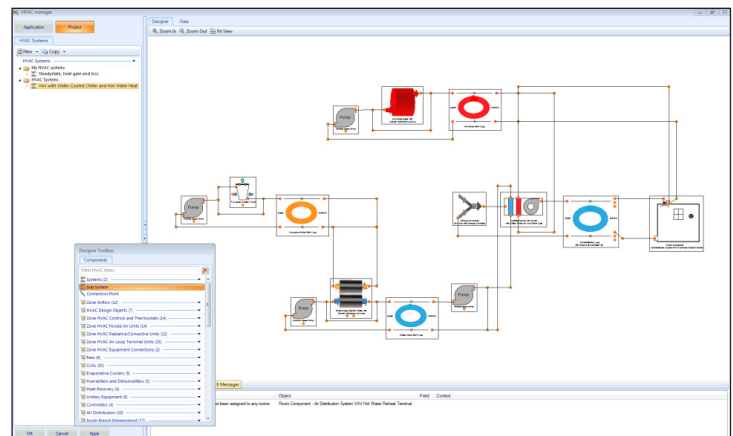
Step 3: HVAC system

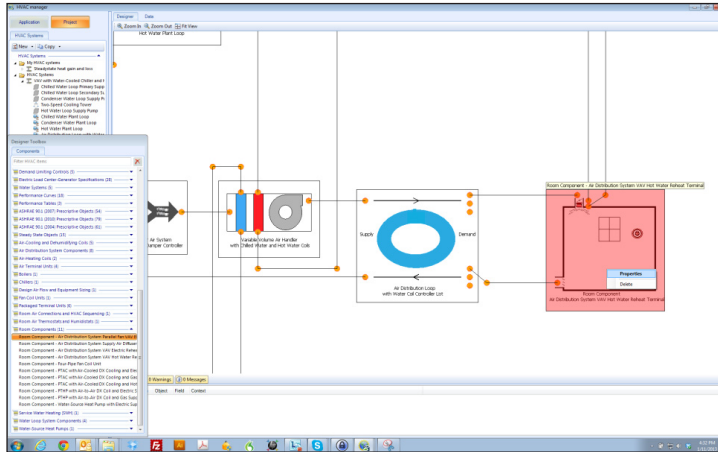
HVAC system VAV with Water-Cooled Chiller and Hot Water Heat
 Promote to full model

AES includes standardized building design load calculations from ASHRAE (Radiant Time Series and heat loss) and CIBSE and extensive databases of materials, constructions, schedules, spaces, HVAC equipment, and systems, with all the Standards 62.1 and 90.1 (2004, 2007, and 2010) default values.

31 preconfigured HVAC and SWH systems are available so that AES can automatically create all the necessary EnergyPlus nodes, branches, and connections.

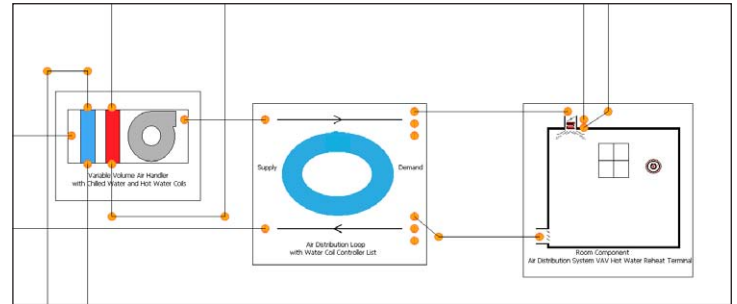
The **HVAC Designer** makes it easy to configure HVAC components and systems using a visual drag and drop system. Users





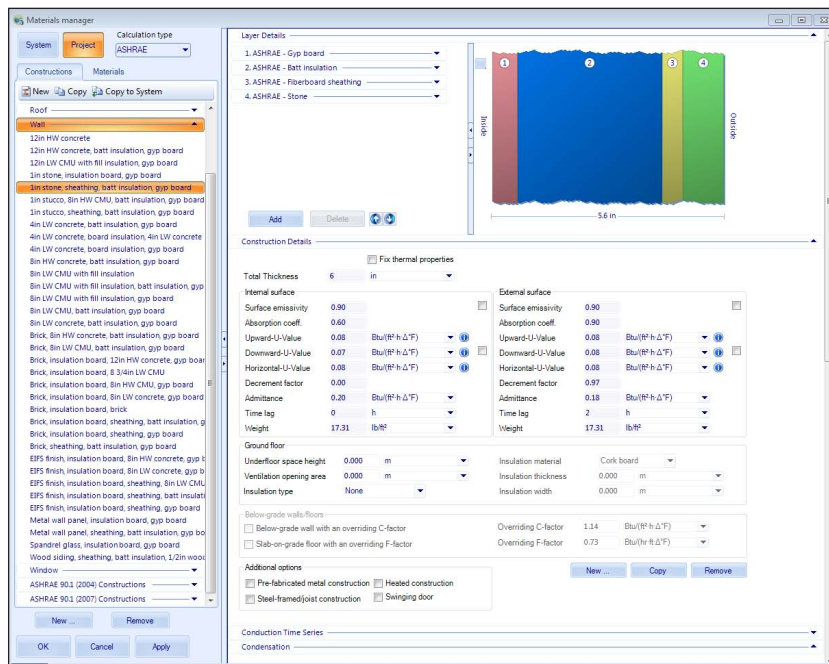
can start with any of the 31 preconfigured HVAC and SWH systems or create their own using the more than 50 components (pumps, boilers, chillers, or room components) in the HVAC Designer or build from individual EnergyPlus objects. Users can drill down into the individual EnergyPlus objects and customize for their building. Each HVAC Designer component is self-contained – all the EnergyPlus objects needed to simulate a chiller such as performance curves and availability schedules.

AES comes with preconfigured HVAC and SWH systems for all those required for use in ASHRAE Standards 90.1-2004, 2007, and 2010 Energy Cost Budget and Performance Rating Methods. It is as easy as assigning zones and rooms to the preconfigured systems.



Automatically create baseline and budget buildings for ASHRAE Standard 90.1-2004, 2007, 2010. Extensive room type data set includes default data for all space types in 90.1 (lighting, plug loads, schedules) and 62.1-2004, 2007, and 2010 airflow requirements.

Other robust data sets include materials, schedules, and weather data. Data managers provide easy access to extensive databases of materials, weather data, HVAC systems, space types, and other information. Users can customize the existing datasets or import their own.



The second release of AES is expected spring 2013. A 30-day trial is available upon request. Visit our web site www.bentley.com/en-US/Products/AECOSim+Energys+Simulator/ or YouTube Channel www.youtube.com/user/EnergySimulator. ■

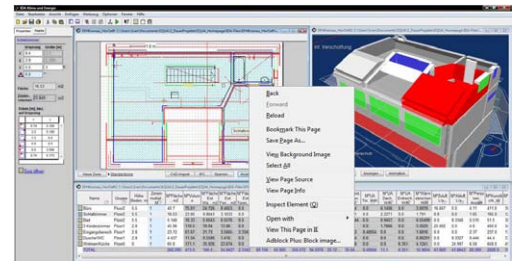
EQUA releases a new version of IDA Indoor Climate and Energy

Per Sahlin, IBPSA Fellow and CEO, EQUA Simulation AB

While still not commonplace, some new buildings today are sold with a performance guarantee based on computed results. The Swedish implementation of the EU Building Performance Directive includes a legal requirement on measured energy use during the first two years of a building's operation. In these situations (as well as many others), accurate building energy performance prediction is becoming an absolute necessity. Building professionals need to know beforehand how a building will perform.

In addition to the leading multi-zone envelope model, IDA ICE version 4.5 features new models for boreholes, solar collectors, tanks, heat pumps, and other renewable energy components. Complex systems can be defined in seconds. A new wizard for Early Stage Building Optimization (IDA ESBO) provides a smart method of describing complex buildings with minimum time and effort.

The user interface of IDA ICE is organized in levels, so that the full complexity of the model can be approached in steps. Beginners can quickly become productive without knowledge of the full details. For the most advanced users, every equation is available for inspection. In fact, advanced users can even write their own equations. Separate add-ins are available for special needs, including automatic generation of LEED Baseline buildings.



The new release also offers a range of new productivity features. Geometry of complex zones and buildings can now be directly imported from SketchUp and other geometry tools. Even the strangest architectural conception can be adequately modeled. The IFC BIM import has been significantly improved. For on-board geometry work, a new grid object speeds up the definition of repetitive objects, such as façade windows.

On a more fundamental level, even more powerful control concepts have been added. It is possible and efficient to manage customized controls without resorting to the advanced level (mathematical) user interface. Every active component can be controlled with respect to any variable in the model. A layered control architecture is possible, with multiple supervisory and device levels. Sampling MIMO controllers can be efficiently simulated even if their timestep is very small in comparison to the (variable) global step.

The tools-of-the-trade of an HVAC engineer are becoming more complex. Mastery of sophisticated modeling has been a critical success factor in the automotive industry and other fields for years. With the recent energy focus, a similar development is not unlikely within the building industry.

For more information please visit <http://www.equa-solutions.co.uk/en/software/idaice>. ■

IES VE 2012 Feature Pack 2 is now available to download

IES is pleased to announce that the second feature pack for VE 2012 is now available from their Download Centre. The latest features are:

- **UK Compliance Updates**
 - SBEM and EPCgen 4.1e updates for all regions
 - We are now on the “Approved Non-Domestic Software” list for Section 6 in Scotland for both DSM and SBEM
- **New Simulex 3D results viewer**
 - Advanced viewer with animator capabilities, movie fly through and x-ray features
- **Construction Database Enhancements**
 - New Tabular Edit interface with easy searching, filtering and sorting tools for quicker review of information for thermal analysis
 - Condensation analysis is now following the steady-state method specified in BS EN ISO13788:2002. Both glazed and opaque condensation now use this method
- **Range of ApacheHVAC Enhancements**
 - All new graphical Waterside user interface
 - HVAC Component output variables available in VistaPro
 - Other updates including additional electric heating coil & generic cooling source.
- **VistaPro Enhancements**
 - Advanced ability to interrogate HVAC networks using 400+ component and node results
 - New XY chart interrogation tools including regression trends and ability to highlight regions outside threshold values
 - New chart options including Stacked, Donut charts, Colour/Value Gradients and 3D Graphs
- **Updated RadianceIES Engine to Radiance 4**
 - Significantly increases simulation speeds, reduces runtimes
- **Daikin plug-in now covers new VRV IV range**

New Simulex 3D Viewer

The new IES 3D viewer for Simulex enhances your experience and provides much more advanced animation capabilities while investigating building egress. The viewer animates occupant movement on each floor of the building, while allowing you to “fly round” the building for easier visual analysis.

The viewer uses the recently developed VE “ModelViewer” capability and provides quick access to movie recording, and additional effects such as wall and floor transparencies.

Training Roadshow

The IES Training Road Show is an exclusive series of two day training programs taking place across North America. These training events offer attendees the opportunity to learn simulation techniques and methods to enable more sustainable design practises, directly from our experts.

Each stop on the Road Show will feature two full days of training. These can be taken together or separately.

Day 1: Intermediate Simulation Analysis: Introduction to version 6.4.0.5 of the IES <Virtual Environment>; Importing from SketchUp and Revit; Weather and Solar analysis; Artificial Lighting and Daylighting (LEED Eq8.1; Glare Analysis; ASHRAE Heating and Cooling Loads; Occupancy Comfort (Eq7.1); Natural/Mixes-mode Ventilation Analysis and; Introduction & Basics to HVAC Energy Analysis...And much more!

Day 2: Advanced and Building Integrated Systems Modeling: Detailed HVAC Energy Analysis; Geothermal Analysis with Gaia GLD2010; modeling of ASHRAE 90.1 PRM HVAC systems and controls; ASHRAE 62.1 Increased Ventilation Analysis; Build and run DOAS with active controls; Heat exchangers, indirect-evaporative cooling, energy recovery, heat pipes, runaround loops, and desiccant wheels; UFAD systems modeling; Advanced Occupancy CFD Comfort Analysis for ASHRAE 55...And much more! ■

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/m_affiliates.asp.

IBPSA-Australasia

Paul Bannister, Exergy Australia Pty Ltd

IBPSA Australasia is supporting the Australian Institution of Refrigeration, Air-conditioning and Heating (AIRAH) to run a 1-day simulation workshop in Melbourne on 18 April. The focus of the workshop is very much towards information and instruction, with topics including:

- Weather data
- Harmonisation of simulation requirements for different schemes and codes
- Simulation calibration, measurement and verification
- Modelling chillers boilers, fans, pumps and infiltration
- Use and abuse of simulation
- Accreditation, teaching and quality assurance

More details can be found at www.airah.org.au. ■

IBPSA-Chile

In 2012, IBPSA-Chile collaborated with the UCN School of Architecture to submit a bid to the Chilean government's Science and Technology Research National Committee (CONICYT), and received funding to support an IBPSA Chile-Brazil workshop to take place during the ENCAC Conference in Brasilia in September 2013. The is intended to help develop relationships between the two Latin-American

chapters of IBPSA and the planning of future actions on a regional level. Argentina's experience in simulation will be presented by invited speakers.



IBPSA-Chile is also involved in the organization of a course on *Energy simulation of buildings and urban environment: from theory to practice* to be hosted by the UCN School of Architecture in June 2013.

IBPSA-Chile now has 20 members from 10 institutions. ■

IBPSA-China

Yiqun Pan, Chair of ASim2012, Tongji University, Shanghai

1st Asia Conference of IBPSA held successfully in Shanghai, China

IBPSA's 1st Asia Conference, ASim2012, was successfully held at Tongji University, Shanghai, China on 25-27 November 2012. As the first in the IBPSA Asia conference series, this biennial meeting aimed at promoting development of building simulation technologies in Asia. The meeting was jointly hosted by Tongji University, Tsinghua University, IBPSA-China, IBPSA-Japan and IBPSA-Korea. The 2nd ASim will be held in Japan in 2014.

The theme of ASim2012 was *Simulation for Real Performance*. 212 researchers participated, most from Asia, with a few from Europe and USA. There were technical sessions, keynote speeches and workshops on the conference, and discussion was comprehensive and insightful. 87 papers were presented orally or in poster on the meeting, around 7 topics: Building Envelope Performance, Energy System and Equipment, Thermal Comfort and Occupant Behaviors, Natural and Mixed Ventilation, Whole Building Modeling, Building Automatic Control and CFD for Building Performance. The Best Oral Paper, Best Poster Paper and Best Student Paper received awards.

Four internationally renowned scholars gave keynote speeches: Prof. Yi Jiang from Tsinghua University on Occupant Behavior Simulation in Building, Prof. Shinsuke Kato from University of Tokyo in Japan on Control of Airflow in Data Center - CFD and Ventilation Effectiveness Analysis, Prof. Kwang Woo Kim from Seoul National University in Korea on Comfort, Simulation and Energy with Radiant Heating and Cooling System and Dr. Drury B. Crawley from Bentley in USA on Trends: Buildings, Technologies and Energy Simulation. ■



Prof. Yi Jiang



Prof. Shinsuke Kato



Prof. Kwang Woo Kim



Dr. Drury B. Crawley

IBPSA-Egypt

IBPSA-Egypt held its sixth quarterly meeting on 09 February 2013 in the Department of Architecture at Cairo University. This included presentations on the second LEED project in Egypt, the Aramex warehouse, and on a case study of an energy efficiency renovation carried out for an Arab contracting company.

Submission of abstracts for BS Cairo 2013 closed with 97 received from Egypt, the UK, the USA, Lybia, Yemen, Switzerland, Italy, the KSA and Turkey. The reviewing committee now has 19 members, from Egypt, the UK and the USA. The conference will be held in Cairo's international conference hall on 23 and 24 June 2013, and will include training workshops for Design Builder and ENVI-met.

More details and the conference poster can be found on p17 of this issue of *ibpsaNews* and at <http://eeer-society.wikispaces.com/IBPSA-Egypt+Conference>. ■

IBPSA-Germany

Christoph Nytsch-Geusen (Scientific coordinator BauSIM 2012)

BauSIM 2012 Conference

IBPSA-Germany's fourth German-Austrian BauSIM Conference was held at the Berlin University of Arts on 26-28 September 2012, with the theme *Building Performance Simulation on Different Scales: From Building Components, Rooms and Buildings up to District Energy Systems*.

Energy planning at the urban level has been receiving increasing attention recently. Whether the focus is simply on fitting new plant to existing developments or, in some countries at least, on complete new cities or towns, this often involves the use of renewable energy sources to help achieve sustainability and energy efficiency. In this context different, specialized simulation tools may be used for whole districts, multi-zone buildings, single rooms and building components, singly or in combination, in order to solve the complex simulation problems that arise.

Many approaches to and examples of this were presented during BauSIM 2012. Topics including *City modeling*, *Energy systems for districts*, *Simulation of multi-zone buildings*, *Thermal and hygric indoor comfort* and *Building element simulation* were covered in parallel sessions. In all there were more than 60 national and international presentations of simulation methods, problems and solutions, provoking lively discussion among more than 100 delegates. Three keynote talks addressed the different scales of *City and Buildings* (Prof. Darren Robinson, University of Nottingham, UK), *Building and Room* (Prof. Christoph van Treeck, RWTH Aachen, Germany) and *Room and Building Component* (Prof. John Grunewald, TU Dresden, Germany).

More information about BauSIM 2012 is available on the conference web site, <http://bausim2012.ibpsa-germany.org>. ■

IBPSA-Italy

Andrea Gasparella and Vincenzo Corrado

Building Simulation Applications BSA2013 Conference, Bolzano, Italy, 30 January – 01 February 2013

IBPSA-Italy's first conference was a great success, with more than 70 attendees, 118 authors, 44 presentations and two keynote speeches.

Jan Hensen and Ardeshir Mahdavi captivated the audience respectively with the first day keynote on *Computational building energy simulation for design of high-performance buildings* and the second day keynote on *Predictive building systems control logic with embedded simulation capability: experiences, challenges, and opportunities*. Two full parallel sessions were devoted to discussing the work of PhD students.

The final round table, on strategies to enhance the penetration of the use of building simulation, was open to the public and attracted around a hundred attendees, including local engineers and architects and members of AICARR (the Italian Association of Air Conditioning, Heating and Refrigeration), CTI (the National Thermotechnical Committee, in charge of technical standards development), the ANDIL association (the Italian clay brick and roof tile producers' association), IBPSA-Italy and IBPSA-Germany/Austria.

The proceedings will be available both in electronic form (free of charge) and hard copy with ISBN by the end of April 2013. Selected papers will be published by the International Journal of Building Performance Simulation after revision by the editorial board.

For updates and more information please visit www.unibz.it/en/sciencetechnology/welcome/IBPSA.html (the conference website) or www.ibpsa-italy.org (IBPSA-Italy's website), or contact the conference organizing board at bsa2013.ibpsa-italy@unibz.it or bsa2013@ibpsa-italy.org. ■

IBPSA-Korea

Kwang-Woo Kim (affiliate president)

IBPSA-Korea, in close collaboration with the Korea Institute of Architectural Sustainable Environment and Building Systems (KIAEBS), has held special sessions on building simulation at all the biannual national KIAEBS conferences since it was formed in 2010. These sessions have been designed to increase awareness of both advanced approaches to simulation and new developments in the field, and of IBPSA and its work.

The main topics discussed in the special session at Pusan on Oct 20, 2012 were:

- Façade optimization of an irregularly shaped building
- Optimal design strategies of building energy systems
- Difficulties and issues in dynamic energy modeling of a real high rise office building
- Optimal design of building envelopes using a Gaussian emulator
- Prediction and prevention of condensation using building Simulation



Special session on building simulation at Pusan on 20 October 2012

IBPSA-China, IBPSA-Japan and IBPSA-Korea successfully held the first ASim conference (IBPSA-Asia conference) at Tongji University, Shanghai, China on 25-27 November 2012, with *Simulation for real performance* as its main topic. In total, nearly 90 papers were presented. ASim proved to be a successful platform to promote better and active use of building simulation in East Asia, and a perfect place for building simulation users in the Asian region to get together for further international collaboration and exchange of scientific knowledge.



IBPSA-Korea members at 1st ASim on 26 November 2012 (Tongji University, Shanghai, China)

The 2nd ASim conference will be hosted by IBPSA-Japan in 2015. IBPSA-China, IBPSA-Japan and IBPSA-Korea sincerely hope that more members of other IBPSA Asian affiliates - from India, for example - and more building simulation enthusiasts from around the Asian region will join them to make ASim 2015 another success. ■

IBPSA-Netherlands-Flanders

Intelligent Buildings for Intelligent Cities (16 November 2012, Antwerp)

On the 16th of November IBPSA-Netherlands-Flanders together with IE-net organized a seminar on intelligent buildings for intelligent cities. 61 attendees participated in discussions on various topics.

Recent European legislation imposes on the EU Member States the obligation to build only near-zero-energy buildings by 2020. The development of a European Smart Grid should occur simultaneously. The built environment offers significant potential to respond to the challenge of a low-CO2 society to come. Besides the reduction of energy demand of buildings in new and renovation projects, attention should also be given to opportunities to make buildings exchange energy, to integrate renewable energy and make buildings flexibly responsive to supply and demand.

Manufacturers, consultants and designers face major challenges in realizing the transition to a low-CO2 society. Simulations can help to make optimal choices and also to identify unexpected problems. Here it is not enough to focus only on traditional packages that simulate and analyze the performance of individual buildings. There is a need for an integrated approach allowing the performance of several buildings connected by an intelligent network to be analyzed.



This seminar provided an overview of the challenges that arise in designing zero-energy buildings to integrate current and future energy infrastructure, and the possible role of a Smart Grid. Using advanced simulation environments from different viewpoints addresses the issue of integrating renewable energy sources, the exchange of energy between buildings, integration into a Smart Grid, and building flexibility Finally, insights from practical examples were given.

Speakers' presentations are downloadable from www.ibpsa-nvl.org (in Dutch). ■

IBPSA-Nordic

Per Sahlin

BuildSim-Nordic 2012 Conference presentations are available

IBPSA-Nordic held its 1st biennial conference, BuildSim-Nordic 2012, on 17-18 October at the 15th HVAC Exhibition in Lillestrøm- Norway. The conference presentations can be found at <http://ibpsa-nordic.org/conf/abstract.php>.

PhD dissertation

Recent work including very thorough TRNSYS simulations and laboratory measurements is described in a PhD dissertation, *Retrofitted Solar Thermal System for Domestic Hot Water for Single Family Electrically Heated Houses - Development and Testing*, submitted by Ricardo Bernardo under the supervision of Åke Blomsterberg at Lund Institute of Technology, Sweden. Ricardo will be examined *viva voce* on his dissertation in June.

ICE 4.5 product announcement

EQUA has released a new version of IDA Indoor Climate and Energy. For details, see p38 of this issue of *ibpsaNEWS*. ■

IBPSA-Switzerland

Changes are afoot.

After five years of dedicated leadership of the Swiss chapter Prof. Gerhard Zweifel is stepping down as President of IBPSA-CH.

Swiss simulationist circles discussed whether this should be the occasion to close the chapter completely. Switzerland has three main language regions (German, French and Italian), each of them bordering on a country with a national chapter of its own, and some felt that dissolving IBPSA-CH and having members join “their” adjacent chapter might be the better way forward.

However, a new group of people actively involved in building performance simulation in Switzerland felt that this would be a missed chance to engage with and inspire the local community, and decided to act on their convictions. Dissolving the Swiss chapter would make servicing the needs of the (admittedly small) Swiss market practically impossible.

On 26 March, during the 9th ZIG-Planerseminar, a general assembly (GA) of IBPSA-CH was held at the Lucerne University of Applied Sciences and Arts. The GA elected a new board, now headed by Prof. Dr. Achim Geissler, amended the bylaws, and reached agreement on the future course of IBPSA-CH.

Future activities will focus on quality assurance of building performance simulation. IBPSA-CH will continue to address research on simulation models and interfaces, but will concentrate specifically on quality assurance in design practice.

IBPSA-CH is now working towards hosting an annual IBPSA-CH session at either a national or an international conference. The idea is to organize IBPSA-CH sessions alternating between the biennial conferences organised by Status-Seminar and CISBAT. The first IBPSA-CH sessions under this new regime are expected to take place during the international CISBAT conference at the EPFL in Lausanne, Switzerland on 4-6 September 2013. ■

IBPSA-USA

In support of greater regional activity, IBPSA-USA continues to work on the creation of chapters around the USA, including outlining the process of setting up an infrastructure to operate under the umbrella of the national organization. Chapters are encouraged to hold seminars, collaborate with other professionals regionally, and create venues for modelers to share knowledge and experience.

The election of Board Members for 2013 through 2015 was held at the Bi-Annual Business Meeting in Dallas, Texas, on January 26th. President Shanta Tucker and Vice President Joe Deringer were re-elected. New members, Erik Kolderup and Dru Crawley will serve as Secretary and Treasurer, respectively. Other new members include: Peter Alspach, Chris Balbach, and Robert Guglielmetti. Returning members include: Chip Barnaby, Greg Dobbs, David Eldridge, Ellen Franconi, and Michael Wetter.

In support of young modelers, IBPSA-USA will award up to seven scholarships to cover travel expenses for Building Simulation 2013. Applicants must be attending a university in the USA during Fall 2012 through Fall 2013. Sixteen students submitted applications by the March 15 deadline. Details of the program can be seen at www.ibpsa.us under Current Activities.

BEMBook Wiki

IBPSA-USA would like to announce recent improvements to the BEMBook Wiki - www.bembook.ibpsa.us - and would like to invite the energy modeling community to participate in this online resource. You are invited to both explore and contribute content. It is simple to edit an existing page or to create a new page. Please check it out! For quick guidance on getting started, see: www.bembook.ibpsa.us/index.php?title=Getting_Started.

We invite you to contribute your knowledge to the wiki.

Here are a few highlights about the new, improved wiki:

- A new menu bar and table of contents greatly improves site navigation
- Building energy modeling training presentations are available for download
- There is a growing body of content - though we still have a long way to go! Here are examples of a few recent contributions:
 - www.bembook.ibpsa.us/index.php?title=History_of_Building_Energy_Modeling
 - [www.bembook.ibpsa.us/index.php?title=Building_Information_Modeling_\(BIM\)_for_Building_Analytical_Modeling_\(BAM\)](http://www.bembook.ibpsa.us/index.php?title=Building_Information_Modeling_(BIM)_for_Building_Analytical_Modeling_(BAM))
 - www.bembook.ibpsa.us/index.php?title=Best_Practices_for_Checking_Results

We hope that BEMBook will become the premier resource for the energy modeling community around the world – and with your help, it will!

Keep in mind that this wiki is software-independent and intended to provide general guidance regarding energy modeling concepts and practices. Promotion of specific software is not allowed! (and will be removed) BEMBook is an acronym for Building Energy Modeling Body Of Knowledge, and as the name indicates, its purpose is to broaden the body of knowledge available to the energy modeling community in a way that helps everyone.

Contact the BEMBook Wiki editorial committee at bembook@bembook.ibpsa.us for more information.

You are also invited to join:

- IBPSA-USA (see www.ibpsa.us)
- This Education Committee
- The BEMBook wiki editorial committee

This announcement and invitation is from the IBPSA-USA Education Committee:

Joseph Deringer (Chair)

Ellen Franconi

Erik Kolderup (Chair, BEMBook wiki editorial committee)

Jim Dirkes (BEMBook wiki editorial committee)

Eddy Santosa (BEMBook wiki editorial committee)

Liam Buckley (BEMBook wiki editorial committee)

Greg Dobbs

Jared Higgins

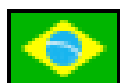
Stephen Kemp ■

IBPSA affiliates

URLs for IBPSA affiliates' websites and email addresses for their contact persons are available on the IBPSA Central web site at www.ibpsa.org/m_affiliates.asp.



IBPSA Australasia
contact: Paul Bannister



IBPSA Brazil
contact: Nathan Mendes



IBPSA Canada
contact: Stephen Kemp



IBPSA Chile
contact: José Guerra Ramirez



IBPSA China
contact: Da Yan



IBPSA Czech Republic
contact: Martin Bartak



IBPSA Danube
contact: Marja Todorović



IBPSA Egypt
contact: Mohammad Fahmy



IBPSA England
contact: Malcolm Cook



IBPSA France
contact: Etienne Wurtz



IBPSA Germany
contact: Christoph van Treeck



IBPSA India
contact: Rajan Rawal



IBPSA Ireland
contact: Marcus Keane



IBPSA Italy
contact: Vincenzo Corrado



IBPSA Japan
contact: Mitsuhiro Udagawa



IBPSA Korea
contact: Kwang-Woo Kim



IBPSA Netherlands + Flanders
contact: Wim Plokker



IBPSA Nordic
contact: Ala Hasan



IBPSA Poland
contact: Dariusz Heim



IBPSA Scotland
contact: Lori McElroy



IBPSA Singapore
contact: Majid Haji Sapar



IBPSA Slovakia
contact: Jozef Hraska



IBPSA Spain
contact: David Garcia



IBPSA Switzerland
contact: Gerhard Zweifel



IBPSA Turkey
contact: Zerrin Yilmaz



IBPSA UAE
contact: Khaled Al-Sallal



IBPSA USA
contact: Charles "Chip" Barnaby

IBPSA committee chairs & contacts

Regional Affiliate Development Committee

Dru Crawley

Conferences Committee

Michel Bernier

Membership Development Committee

Jeff Spitler

Awards Committee

Pieter de Wilde

Website committee

Christoph van Treeck

IBPSA Fellows Committee

Pieter de Wilde

Publications Committee

Malcolm Cook

Public Relations Committee

Veronica Soebarto

IBPSA News

Christina Hopfe, Editor-in-Chief

Marion Bartholomew, Editor

To submit Newsletter articles and announcements:

Christina Hopfe (Newsletter Editor-in-Chief)

Cardiff University, Wales, UK

Email: hopfec@cardiff.ac.uk

IBPSA Corporate Address

148 Fanshaw Avenue

Ottawa, Ontario K1H 6C9

Canada

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>.

To post a message to all members, send email to bldg-sim@lists.onebuilding.org.

The BLDG-SIM list is provided by GARD Analytics. If you have any questions, please contact the list owner Jason Glazer at jglazer@gard.com or +1 847 698 5686. ■

CALL FOR PAPERS

New to Taylor & Francis for 2008

Journal of Building Performance Simulation

Official journal of the International Building Performance Simulation Association (IBPSA)

EDITORS:

Ian Beausoleil-Morrison, Carleton University, Canada

Jan Hensen, Eindhoven University of Technology, The Netherlands

Taylor & Francis would like to invite you to submit your article to *Journal of Building Performance Simulation*

The *Journal of Building Performance Simulation (JBPS)* is the official journal of the International Building Performance Simulation Association (IBPSA). IBPSA is a non-profit international society of computational building performance simulation researchers, developers, practitioners and users, dedicated to improving the design, construction, operation and maintenance of new and existing buildings worldwide.

The *JBPS* is an international refereed journal, publishing only articles of the highest quality that are original, cutting-edge, well-researched and of significance to the international community. The journal also publishes original review papers and researched case studies of international significance.

The wide scope of *JBPS* embraces 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. This includes modelling and simulation aspects of building performance in relation to other research areas such as building physics, environmental engineering, mechanical engineering, control engineering, facility management, architecture, ergonomics, psychology, physiology, computational engineering, information technology and education. The scope of topics includes the following:

- Theoretical aspects of building performance modelling and simulation.
- Methodology and application of building performance simulation for any stage of design, construction, commissioning, operation or management of buildings and the systems which service them.
- Uncertainty, sensitivity analysis, calibration, and optimization.
- Methods and algorithms for performance optimization of building and the systems which service them.
- Methods and algorithms for software design, validation, verification and solution methods.

Submissions

Manuscripts will be considered on the condition that they have been submitted only to *Journal of Building Performance Simulation*, that they have not been published already, and that they are not under consideration for publication or in press elsewhere. All submissions should be in English. Papers for submission should be sent to the Editors at j.hensen@tue.nl. For full submission details, please see the journal's homepage www.informaworld.com/jbps and click on the "Instructions for Authors" tab.

To register to receive an alert when the first issue is published, please visit:

www.informaworld.com/jbps

Volume 1, 2008, 4 issues per year

Print ISSN 1940-1493 Online ISSN 1940-1507

Institutional Rate (print and online access)	US\$468	£240	€374
Institutional Rate (online only)	US\$444	£228	€355
Personal Rate (print only)	US\$156	£80	€125
IBPSA member subscription (print only)	US\$49	£25	€39

TAYLOR & FRANCIS GROUP ONLINE SERVICES

Alerting services from informaworld™

To receive the table of contents for *Journal of Building Performance Simulation* visit the Journal homepage at www.informaworld.com/jbps

To sign up for other table of contents, new publication and citation alerting services from informaworld™ visit: www.informaworld.com/alerting

Online Access

Online access is included with a print institutional subscription to the Journal or alternatively is available as an online only option. For further information connect to: www.informaworld.com/jbps

Online Sample Copies

A fully searchable sample copy of this journal will soon be available at www.informaworld.com/jbps

informaworld™ Librarians' Area

Visit our web resource for Librarians and Information Professionals at: www.informaworld.com/librarians



eUpdates

Register your email address at www.informaworld.com/eupdates

to receive information on books, journals and other news within your areas of interest.



CrossRef

An international active reference linking service. Visit www.crossref.org for more information.

To the Librarian

Please include this journal in your next serials review meeting with my recommendation to subscribe:

From _____

Dept _____

Date _____

Please note this Taylor & Francis journal offers either print & online or online only subscriptions for institutions.

To find out more about our journals, please visit: www.informaworld.com/journals

For further information or to subscribe, please contact:

T&F Order Processing, T&F Informa UK Ltd, Sheepen Place, Colchester, Essex CO3 3LP

Telephone: +44(0)20 7017 5544

Fax: +44(0)20 7017 5198

Email: tf.processing@informa.com



Taylor & Francis
Taylor & Francis Group