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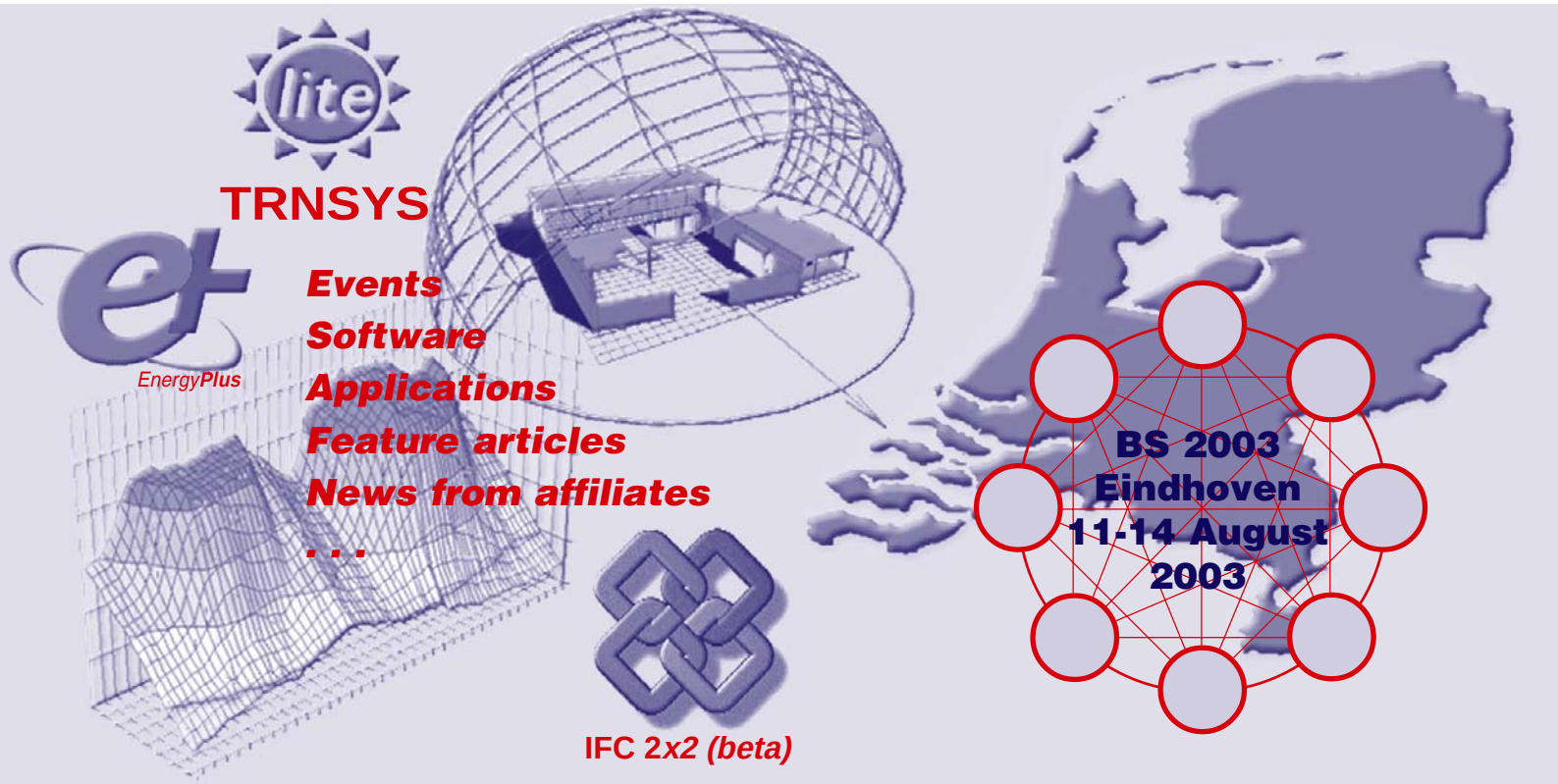

www.ibpsa.org

The journal of the International Building Performance Simulation Association

Contents

Building Simulation 2003

The biennial IBPSA International Conference and Exhibition on Building Simulation is the premier event in the field, covering all topics in the area of computer simulation in building.

Computer simulation has become an increasingly popular tool to predict the energy and environmental performance of buildings at all stages of the building life cycle: design, commissioning, operation and management. The capabilities and usability of computer simulation programs has much improved since their early development. Although there will always be a continuing need for improvements in capability and accuracy, more attention must be paid to advocating the proper use of simulation tools, because widespread availability of computer simulation could lead to its improper use.

The International Building Performance Simulation Association (IBPSA) was founded in 1986 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. Previous conferences in Vancouver, Canada (1989), Nice, France (1991), Adelaide, Australia (1993), Madison, USA (1995), Prague, Czech Republic (1997), Kyoto, Japan (1999) and Rio de Janeiro, Brazil (2001) have contributed to this goal.

Technische Universiteit Eindhoven (TU/e) will host Building Simulation 2003 (BS2003), highlighting its commitment for advancing research in this area. This conference will focus on how simulation tools can bring better performance by better design in buildings.

Who should attend?

Architects, designers, environmental engineers, city planners, simulation software producers, and all academics, professionals and practitioners involved in the wide range of disciplines associated with building performance simulation.

Make your plans now. You can get the latest information at **www.bs2003.tue.nl/**.

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

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Email: **jahe@fago.bwk.tue.nl**

IBPSA Website

For full information on how to order IBPSA's publications, or to look at Proceedings of past IBPSA Building Simulation conferences or past IBPSA Newsletters, please look on the IBPSA Website at: **www.ibpsa.org**.

IBPSA Regional affiliates

For information on joining IBPSA, please contact your nearest regional affiliate. If there is no affiliate in your region, join IBPSA by using the Central membership form.

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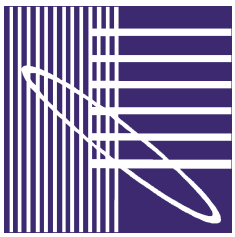

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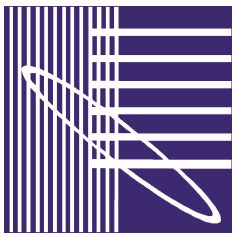

IBPSA Management Board

Forthcoming events

Calendar

Date		Event	Venue
2003			
April 28 - May 1		EnergyPlus beginning modelers workshop	Chicago, USA
May	2-5	CAADRIA 2003	Patumtani, Thailand
June	3-4	EnergyPlus advanced modelers workshop	Chicago, USA
June	15-19	37th International Making Cities Livable Conference	Siena, Italy
July	3-5	3rd China Urban Housing Conference	Hong Kong, China
August	*11-14*	*BS'2003 (see page 2)*	*Eindhoven, Netherlands*

EnergyPlus beginning and advanced modelers workshops

GARD Analytics

Beginning modelers workshop:
28 April - 1 May 2003
Chicago, USA
www.gard.com/training.htm

Advanced modelers workshop:
3 - 4 June 2003
Chicago, USA
www.gard.com/training.htm

EnergyPlus is the US Department of Energy's new generation building energy simulation program. It includes many innovative simulation capabilities, including time steps of less than one hour and modular systems simulation modules that are integrated with a heat balance-based zone simulation. With the many new features available in EnergyPlus, even those who have used other energy simulation software will benefit from one of the workshops being organised by GARD Analytics.

Two workshops have been scheduled:

- EnergyPlus Introductory Workshop for Beginning Modelers, April 28 - May 1, 2003
- EnergyPlus Advanced Workshop, June 3 - June 4, 2003

Both workshops will be held at the Wingate Inn in Prospect Heights, Illinois, a northwest suburb of Chicago.

For more information, visit the EnergyPlus website at **www.gard.com/training.htm**, send an e-mail to **EnergyPlus- Training@gard.com** or contact:

Terry L. Cornell
GARD Analytics Inc.
1028 Busse Highway
Park Ridge, IL 60068-1802
email: **tcornell@gard.com**

CAADRIA 2003

The **A**ssociation for **C**omputer **A**ided **A**rchitectural **D**esign **R**esearch **I**n **A**sia

3 - 5 May 2003
Patumtani, Thailand
www.caadria2003.com

CAADRIA is an association of those who teach and conduct research in computer-aided architectural design in schools of architecture throughout Asia. IBPSA members are invited to participate in CAADRIA's annual conference, which will be held this year at Rangsit University, Patumtani, Thailand on 3-5 May, 2003.

Participants from all over the world have been interested in this conference, and there are around 72 papers selected out of 180 abstracts by an international review panel. Papers will be presented under the following themes:

- Collaborative Design
- Knowledge Representation
- Design Education
- Virtual Environment and Computer Media
- Information Systems
- Simulations.

If you are interested in the conference please register as soon as possible. For registration information, please visit **www.caadria2003.com/registration.html**.

For further information about the conference, visit the conference website at **www.caadria2003.com** or email **info@caadria2003.com**.

37th International Making Cities Livable Conference

The International Making Cities Livable Council

15 - 19 June 2003
Siena, Italy
www.livablecities.org

Making Cities Livable is an international conference for architects, urban designers, landscape architects, city officials, planners, and social scientists. Academics and practitioners from many parts of the world share ideas and establish working relationships. Previous ICML conferences have been held in Venice & Siena, Italy; Freiburg, Germany; Vienna and Salzburg, Austria; Charleston, San Francisco, Santa Barbara and Santa Fe, USA and elsewhere.

The deadline for submission of abstracts (200 words) is April 15th. Admissible topics are:

Abstract deadline 15 April!

Public Urban Spaces:

- Creating Multi-functional Public Places
- Principles for the Design of New Squares
- Modern Architecture on the Historic Square: Achieving Fit
- Community Participation in Urban Space Design
- Case Studies
- The "European" Square around the World
- History of the Urban Square

General themes:

- Architecture & City Identity
- Sustainable Town Development
- Teaching the Livable City
- other topics related to the conference theme.

Please send abstracts to the Programme Committee Chair:
Suzanne H. Crowhurst Lennard,
IMCL Conferences
P.O. Box 7586, Carmel, CA 93921, USA
fax: 831-624-5126
tel: 831-626-9080
email: **Suzanne.Lennard@livablecities.org**.

For more information see **www.livablecities.org**.

3rd China Urban Housing Conference

Chinese University of Hong Kong

3 - 5 July 2003
Hong Kong, China
http://innovations.arch.cuhk.edu.hk/chi2003/index_E.htm

The Center for Housing Innovations (CHI) at the Chinese University of Hong Kong will be hosting the Third China Urban Housing Conference on 'Sustainable Environment: Quality Urban Living' from 3 to 5 July 2003.

The CHI expects this year's conference to be the 'best yet'. The confirmed keynote speakers and distinguished guests include renowned housing experts and researchers from mainland China, Hong Kong, and Taiwan — see **http://innovations.arch.cuhk.edu.hk/chi2003/Keynote_E.htm** for a list.

The conference has attracted support from important government, academic, and professional organizations from mainland China as well as Hong Kong.

Registration is now open. You may download the Registration Form from the conference web site (in PDF format) and fax the completed form to the Conference Secretariat at **http://innovations.arch.cuhk.edu.hk/chi2003/Registration_E.htm**.

Further details are posted on the conference web site at **http://innovations.arch.cuhk.edu.hk/chi2003/index_E.htm**, which will be updated as the program develops.

For further information, please contact:

Prof. TSOU Jin-yeu (Jin)
Director, Center for Housing Innovations
The Chinese University of Hong Kong
email: **innovations@cuhk.edu.hk**

Software news

TRNSYSlite: a simplified user interface for single zone building simulation

Werner Keilholz, CSTB Sophia Antipolis, France

In the planning process and evaluation of innovative energy concepts, the simulation of buildings and systems gets more and more important. With the internationally well known software program TRNSYS 15, dynamic building and system simulations with very high complexity can be accomplished. However, due to the modular structure and the high flexibility of TRNSYS 15, even simple building simulations with only one zone — in design competitions or in the concept design phase, for example — have been relatively complex.

In order to speed up the performance of such simple building simulations significantly, TRNSYSlite has been developed to provide a simplified user interface for TRNSYS 15. TRNSYSlite is a very useful tool for both experts and beginners.

A demonstration version is available from CSTB's web site at:
http://software.cstb.fr in French, or
http://software.cstb.fr/soft/present.asp?langue=us&context=TRNSYSlite&m=ho in English.

Meetings are held annually in Europe for TRNSYS users. The 5th European and French TRNSYS meeting was held at Sophia Antipolis on 24-26 March 2003, consisting of a seminar on the 24th and training on 25-26 March. A pdf file of the entire programme announcement can be downloaded from:
http://software.cstb.fr/events/5th_TRNSYS_meeting.pdf.

For further information about TRNSYSlite or the TRNSYS meeting in March, contact:

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web: **http://evl.cstb.fr/english/team/WK/werner.htm**

EnergyPlus V1.1 to be released mid-April 2003

Dru Crawley, US Department of Energy

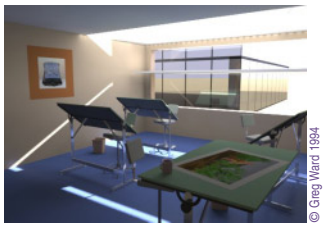
A major update of the USDOE's building energy simulation program, EnergyPlus, will be released in April 2003. The 30 new features include:

- Many updates throughout the building envelope, daylighting, HVAC equipment and system, and support tools.
- More checking and reporting on node connections.
- Improved error checking and error-checking messages throughout.
- Sub-hourly (interval) schedule input added.
- Compact schedule entry.
- Rain and snow indicators.
- Design Conditions produced as Location-Design Day combo data set file.
- Composite Constructions data set.
- Between-glass shades and blinds.
- Airflow windows.
- "Internal Gains" report for each zone.
- User-enterable system design (autosizing) flow rates.
- User-enterable surface convection coefficients.
- Free cooling, hydronic heat exchanger.
- Variable Speed Fans.
- Demand limit and track electric operation scheme.
- Coldest Zone supply air set point strategy.
- Air-to-air heat recovery (sensible energy, latent energy, or both).
- Outdoor dry bulb and outdoor wet bulb controls.
- Pond heat exchanger.
- Ground surface heat exchanger.
- Simple ventilation when outdoor temperature is greater than indoor temperature.
- Updated HVAC templates with autosizing.
- Added Daylighting reference points to DXF file; also documented the DXF file more completely.
- Pollution calculation reporting.
- Many features added to the IDF Editor: editing and displaying IP units, supporting autosizable fields, in-cell editing.
- New input file example for each new feature.
- Linux Version.
- Web site now includes link to directly translate the web pages into more than 8 languages.
- More weather data…

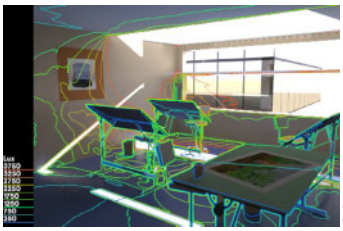
For more information, visit the EnergyPlus web site at **www.energyplus.gov**.

Gard Analytics will be holding workshops on EnergyPlus in April/May and June - see ***page 7***.

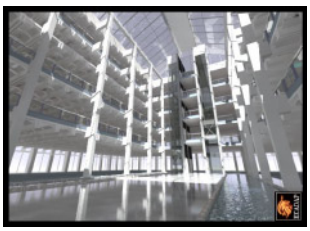
News about Radiance lighting and daylighting simulation software



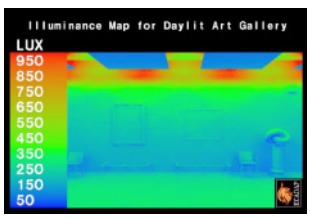
Furnished interior view of a daylit, furnished office with a light shelf



The same view, with illuminance contours



Daytime view of an atrium with a water feature



Illuminance map of a daylit art gallery

There are many more Radiance images in the gallery on the Radiance web site

Radiance software continues to find extensive worldwide use in major design offices, in consultancies and in academia. To encourage further development and use Lawrence Berkeley National Laboratory (LBNL) has initiated several activities that will help the Radiance user community work cooperatively to continue to extend the power and applicability of the software.

Conversion to Open Source License

On December 11, 2002, Lawrence Berkeley National Laboratory announced the new Radiance Open Source License.

The objective of this new license is to encourage further development and distribution of the Radiance software and derivative applications, so that a larger number of users can benefit from Radiance's capabilities.

The Radiance Open Source License follows the "Apache" open source paradigm, which provides complete freedom on the use, development and distribution of the Radiance source code and executables. The initial version of the Radiance software that is distributed under the new open source license is version 3.4, which has been available through the Radiance web site (**http://radsite.lbl.gov/radiance**) since January 2002.

To address the expected "versioning issue", LBNL will maintain an official version of the software that will include all of the new functionality developed by LBNL and contributed by Radiance developers that has been evaluated and approved for inclusion. This will increase the chances of maintaining a version that includes as many improvements as possible without compromising the integrity of the underlying calculations. LBNL is using a small group of advisors, headed by Greg Ward, the original author of Radiance, to evaluate software contributions and include them in upcoming releases.

With support from LBNL, Greg Ward has added ANSI-C prototypes to the main Radiance code modules and organized the core rendering routines into a callable library to simplify and streamline its incorporation into third-party code bases. He has also created a new animation program utilizing this library call structure to optimize the rendering of object and camera motion sequences.

Greg is collaborating with Peter Apian-Bennewitz of pab-opto to create a CVS control site at the ISE Fraunhofer Institute in Freiberg, Germany that will allow programmers from around the world to access the Radiance source tree, report bugs, and make authorized changes, opening up our code development and porting efforts.

Upcoming releases

The current plan is to make the next release (3.5) functionally OpenSource on the Radiance website, and distribute compiled binaries (as well as official source packages) from at least two mirror sites. Plans are also contemplated for the porting of the 3.5 release to the Windows operating system, for the development of an official Windows version that matches the UNIX release.

"Powered by Radiance"

In an open source environment, we want to ensure that there is an "official" version of Radiance that maintains the accuracy and computational integrity of the original version as it evolves. LBNL encourages Radiance developers to assist in development efforts and to contribute enhancements and improvements to the Radiance software back to the Radiance community. LBNL will evaluate contributions for inclusion in the official LBNL version. End-user applications using the LBNL version of the Radiance software will be entitled to use a "Powered by Radiance" logo (under development) to indicate that the underlying engine is the LBNL-approved version of the Radiance engine.

Radiance Workshop, San Francisco, September, 2003

LBNL will host a workshop on Radiance, inviting architects, engineers, and researchers from the U.S. and around the world to present the work that they have done with the software and discuss issues relating to its future development. The previous workshop, held last fall in Fribourg, Switzerland, was a tremendous success. Go to **www.radiance-online.org** for details of the Fribourg meeting. Details of the SF meeting will be posted on **www.radiance-online.org** and on **http://radsite.lbl.gov**.

Information and Discussion groups

If you are interested in the Radiance development efforts, please join the Desktop Radiance Yahoo (**www.eGroups.com/group/desktopradiance**) and the Radiance On-Line (**www.radiance-online.org/**) groups. Other Radiance information and downloads can be obtained from the LBNL site, **http://radsite.lbl.gov**.

Case Studies of Radiance use and potential Internships

Radiance was originally developed with support from the U.S. Department of Energy. We would like to be able to show DOE and other funding agencies more examples of how Radiance has been used to create more comfortable and energy efficient buildings. If you have case studies, design analyses, research papers completed using Radiance, or other similar material please contact us. We are currently seeking financial support for summer interns with prior Radiance and lighting/daylighting simulation experience - contact us if you are interested.

Educational resources

With support from Southern California Edison we have developed a web-based Virtual Lighting Simulator (VLS) which permits rapid comparisons of lighting and daylighting design alternatives. The web interface provides access to 56,000 pre-calculated room parametric design options with images and with associated quantitative performance data. You can visit the VLS at **http://gaia/lbl.gov/VLS**.

The LBNL Contacts for additional information are:
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Building Energy Tools Directory

Dru Crawley, US Department of Energy

The Building Energy Tools Directory at **www.energytoolsdirectory.gov** is a web-based directory of Information on more than 260 building-related software tools from around the world, ranging from research software to commercial products with thousands of users.

The common theme throughout the directory is providing information for sustainable design, improving energy efficiency or incorporating renewable energy concepts in buildings. The energy tools in this directory include databases, spreadsheets, component and systems analyses, and whole-building simulation programs. For each tool in the directory, a short description is provided along with information about expertise required, users, audience, input, output, computer platforms, programming language, strengths, weaknesses, technical contact, availability and cost. A link is also provided to directly translate the web pages into more than 8 languages.

Second beta version of DoeRayMe released

Jason Glazer, GARD Analytics

DoeRayMe is a simple and flexible user interface for the building energy simulation program DOE-2.1e. It is intended to be used as a user interface for many "screening tool" applications or for parametric studies. Each column represents a different case being simulated. The results are shown in the grid below the inputs and graphs are available too.

DoeRayMe may be used by inexperienced as well as experienced DOE-2.1e users. The program uses a specially developed DOE-2.1e input file called a template that includes special codes that describe the parameters available to change in the user interface. This allows new "screening tools" to be developed by anyone with DOE-2.1e knowledge.

Beta test period ends 30 April!

The DoeRayMe program is being distributed for free, and users can redistribute it freely with any templates they develop.

To find out more about the new version and download the beta software go to **http://gard.com/DoeRayMe/**. But hurry: **the beta test period ends April 30**. All comments are welcome.

Jason Glazer can be contacted at **jglazer@gard.com** or
GARD Analytics (**www.gard.com**)
1028 Busse Highway
Park Ridge, IL 60068
USA

ABACODE beta released

Hussein Abaza, PNNL

PNNL has announced the release of the beta virgin of ABACODE, a multi media IECC code compliance tool. ABACODE Interactive Trade-off worksheets are designed to help in complying with the International Energy Conservation Code (IECC).

These spreadsheets are based on Trade-off Worksheet User's Guide, which is prepared by the Building Energy Standard Program at Pacific Northwest National Laboratory for use by the US department of Housing and Urban Development (HUD). In addition to complying with the IECC code, this software is exceptionally user friendly and does not require extensive installation.

To download the software, visit the ABACODE home page at:
http://filebox.vt.edu/users/habaza/abacode/index.html.

For more information, contact Hussein Abaza at PNNL, **habaza11@cs.com**.

Industry Foundation Classes (IFC) Release 2x2 beta

Vladimir Bazjanac, Lawrence Berkeley National Laboratory

Industry Foundation Classes
IFC 2*x2* *(beta version)*

The beta of the IFC2x2 data model of buildings has just been released. It includes pretty much a complete set of HVAC definitions that are used by design and simulation tools. In addition, it includes a rich schema that defines electrical systems in buildings, as well as several other model enhancements.

IFC2x2 beta model can be downloaded from:
ftp://iaiweb.lbl.gov/IFC_Release_2x2/Beta_Release, files
20030320_IfcR2x2_beta_express_lf.zip, and
20030320_IfcR2x2_beta_html_distribution.zip (the HTML description of the model.)
The final version of IFC2x2 will be released on May 14.

A number of developers of software that uses HVAC definitions have formed an "HVAC implementers round table" to help each other in implementation work and to foster implementers' agreements as necessary. Some of them have already started preliminary work on IFC interfaces to their respective software. First products based on IFC2x2 are expected on the market this fall.

For additional information, contact: Vladimir Bazjanac, **v_bazjanac@lbl.gov**.

EZ Sim Software

David Robison, Stellar Processes

EZ Sim is a low-cost spreadsheet template providing an engineering simulation model. Unlike other models that are focused on the design process, EZ Sim is designed for easy calibration of the model to match an existing building to monthly utility bills. EZ Sim:

- operates with monthly average data instead of hourly data. It is designed to compare against actual monthly utility bills.
- operates with simple weather data - just daily average temperature. These data are readily available for most locations and are based on the actual, not long-term average or TMY, weather.
- is based on building physics, not a statistical curve-fit. There are no hidden "black boxes". All modeling parameters are displayed on one page for easy documentation.
- 0provides post-installation verification of savings consistent with IPMVP or LEED protocol.

Further information, including technical papers and case examples, are posted at **www.ezsim.com**, or contact David Robison at:

Stellar Processes
1033 SW Yamhill Suite 405
Portland OR 97205
USA
phone: (503) 827-8336

HVACware.net announces TMY2BIN

Randy Wilkinson, HVACware

TMY2BIN converts TMY2 weather files — available for free on the Internet for most major cities — to bin weather data for quick energy calculations using a spreadsheet program. It is highly flexible, for example supporting flexible occupied hours vs. unoccupied hours.

There was more information about TMY2BIN in the winter 2002 edition of *ibpsa*NEWS. For full details, visit HVACware's web site at **www.hvacware.net** or email Randy Wilkinson at **randy@hvacware.net**.

Announcements

IBPSA members invited to join the BLDG-SIM list

BLDG-SIM is a mailing list for users of building energy simulation programs such as DOE-2, Trace-600, HAP, EnergyPlus, Blast, ESP, SERIRES, TRNSYS, TASE, Energy-10 (there is an extensive directory at **www.eere.energy.gov/buildings/tools_directory/**.)

BLDG-SIM is an attempt to foster the development of a community of simulation program users across the world. Experienced and inexperienced users are equally welcome to share their questions and insights about these programs.

To see what sorts of issues have been addressed in the past, look at the archive of past messages on the list site at **www.gard.com/ml/bldg-sim.htm**.

BLDG-SIM recently celebrated its fourth year in existence. Through its history, the mailing list has exchanged over 900 messages and has about 500 subscribers. It is a low-traffic list and has maintained a high "signal-to-noise" ratio. Both nitty-gritty simulation specific questions and policy issues are discussed. Recent topics of discussion include:

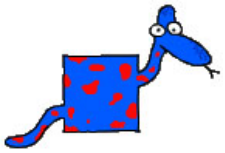
- simulation of demand controlled ventilation in DOE-2
- methods of calibrating simulations with actual metered data
- the role of the entire design team, including the architect, in using building simulation
- the availability of weather files for unusual locations.

If you use or are interested in learning how to use a building energy simulation program, please join the BLDG-SIM mailing list by sending a blank e-mail message to **BLDG-SIM-subscribe@gard.com.**

If you have any questions, please contact the list adminstrator Jason Glazer at **jglazer@gard.com** or at

GARD Analytics (**www.gard.com**)
1028 Busse Highway
Park Ridge
IL 60068, USA

Tel: +1-847-698-5686.



Square One and ECOTECT

ECOTECT software

Square One Research, a small software company based in Cardiff, UK, has just achieved two important goals. It has just announced a new release of its software package for architects and building designers, ECOTECT— and achieved RIBA certification for a range of free on-line courses on aspects of building performance. Now, architects who complete a course successfully can claim CPD credits accepted by their professional institution. The Square One web site offers a wide range of other educational information, too.

ECOTECT is a software package with a unique approach to conceptual building design, coupling an intuitive 3D design interface with a comprehensive set of performance analysis functions and interactive information displays. Performance analysis functions include:

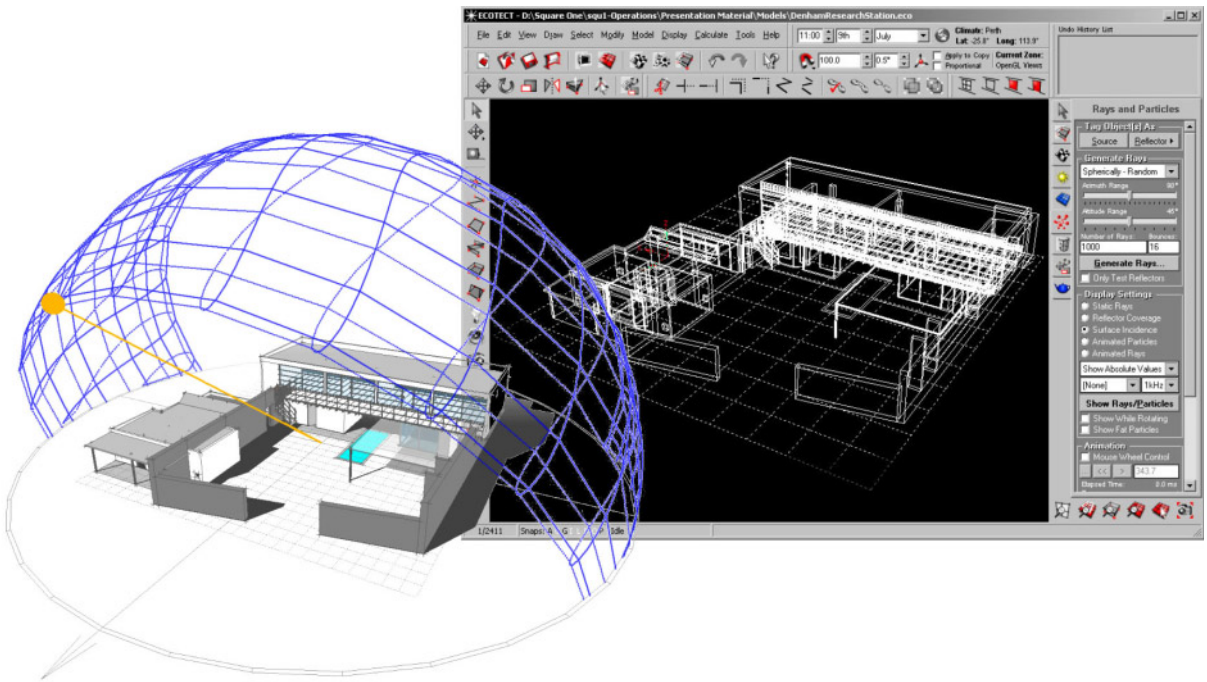
- Shadows and Shading
- Solar Analysis
- Lighting Design
- Thermal Performance
- Acoustic Analysis
- Cost & Resource Management
- Modeling Importing & Exporting to other CAD software.

The ECOTECT software features a designer-friendly 3D modelling interface fully integrated with a wide range of performance analysis and simulation functions. What sets ECOTECT apart is the visual nature of calculation feedback and its support for very early stage conceptual design as well as final design validation. This allows designers to start generating vital performance-related design information before the building form has even been developed. As the design develops, solar, thermal, lighting, acoustic, resource consumption and cost calculations can all be performed to feed back into the decision loop to both analyse and drive model refinements. Once the design is reasonably developed, ECOTECT can be used to export model files for a wide range of the more focused analysis tools used by consultants and engineers, allowing them to concentrate on their analysis without spending weeks interpreting 2D drawings.

In this new release (v5.20):

- The scripting facilities have been significantly updated with the implementation of the LUA embedded language. Scripts can now directly access detailed results from all calculations as well as generating and manipulating model geometry. This allows for iterative scripts to quickly optimise model geometry based on calculated performance feedback.

- New OpenGL visualisation of models and calculation results has been added. Combined with a wide range of display controls and 'sketchiness' of the model, this has vastly increased the options for the presentation of the building model and performance results.
- New calculation methods for generating optimised shading have been added that fully account for the overshadowing of external obstructions and existing buildings on a site. This technique can also be used to project polygonal objects up onto complex curved canopies in order to determine the required distribution of shading.
- This release now fully implements the Elemental and Whole Building (for Offices and Target-U-Values for domestic buildings) compliance methods available in Part-L of the UK building regulations. As these are derived directly from the building model and its geometry, the designer can instantly check for compliance at any stage of the design process and after any change to the model.
- The RADIANCE export and control functions have also been significantly improved in this release. ECOTECT now supports complex material assignments as well as the proper use of instances and referenced octrees for assembling very complex models. RADIANCE renders can now be invoked directly from within ECOTECT.



For an overview of how these functions operate, go to the ECOTECT web site **www.ecotect.com**, and select *SOFTWARE > ECOTECT > Overview* in the main menu. You can also download an evaluation version of the software. Full licenses start at US$75 for a student license. For more information about ECOTECT, contact Caroline Raines at Square One, **info@squ1.com**.

RIBA certification for Square One on-line courses

Square One's website has recently been RIBA CPD certified.

The site offers a wide range of information on environmental design for building designers, with detailed sections on solar control, climate, comfort, thermal analysis, acoustics and lighting. All content is free for anyone to use and heavily illustrated, with many interactive diagrams to help explain both simple and advanced building design concepts.


CERTIFICATE OF COMPLETION

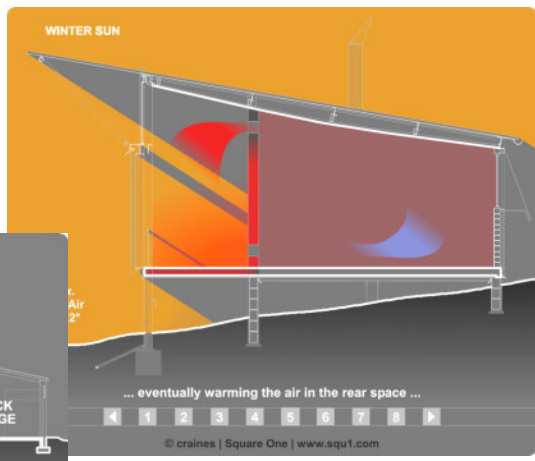
Fred Bloggs

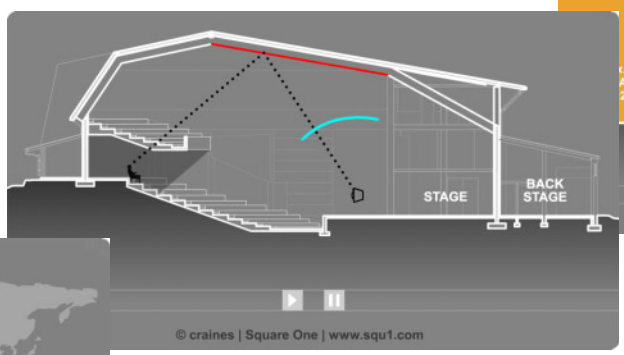
"Acoustic Design Course"

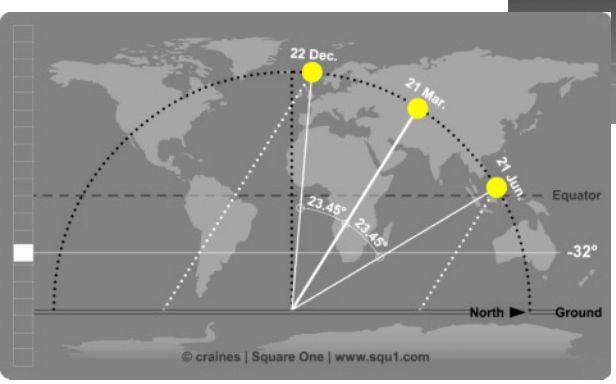
The information is complemented by a free on-line course system which allows visitors to test their knowledge in various areas. On successful completion, the user can display and print a RIBA CPD certificate stating what the course involved and how well they did.

This system has been in operation for around 6 months now and is being used by architectural practices to ensure fundamental background knowledge amongst their staff, and by many architecture and engineering schools as well. A system of grouping users is provided to allow for enrolment control and supervision by group leaders (office managers or lecturers). This has proved a very simple way of introducing on-line content to existing university degree courses.

Detailed information on how the course system works and what's involved, and in-depth FAQs from past users, can be found on the main website menu via *FREE STUFF > COURSES*, or go direct to **www.squ1.com/squ1Courses/cseIntro.html**.







For more information about the site and the courses, visit **www.squ1.com/** or contact Andrew Marsh at **info@squ1.com**.

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Integrating simulation in design

Integrating building energy simulation in the design process

Monjur Masum Mourshed, Denis Kelliher, Marcus Keane, IRUSE (Informatics Research Unit for Sustainable Engineering), National University of Ireland, Cork, Ireland

Abstract

To significantly increase building energy performance, the use of building simulation software at the earliest has been emphasized. Inherent complexity in data representation, I/O (Input and Output) and Visualization of available software requires specialist knowledge to leverage the potentials offered. Early stages of design are characterized by unstructured and incomplete data which is insufficient as inputs to software based on detailed representations of the systems in the building. Existing simulation software, developed in research organizations are targeted to be used by building services engineers at detailed stages and does not suit the purposes of design community. This article attempts at identifying the reasons behind unpopularity of simulation software in the early stages of design and also argues that a new breed of decision support systems is needed for energy efficient building design.

Introduction

Building regulations, energy labelling, and tax exemption for low-energy buildings — all are contributing towards the increased use of building energy simulation programs in the design process. Based on algorithms — evolved and matured over time — these tools simulate physical properties and behaviour of buildings; provide designers with an indication of performance and help to make informed decisions. To take it a step further, integrated simulation approach considering interactions among all of the building's components and systems are incorporated in the current generation of simulation programs. Benefits offered by these concepts include but not limited to increased energy savings, occupant comfort, and ROI (Return On Investment). Apart from some exemplary projects, these holistic concepts and advanced simulation programs are of little use in the design community.

Developed mostly in research organizations, building energy simulation programs focus on modelling and simulation than on the integration with the design process. Enormous amount of input processing is required even to simulate of a small subset of the domain. Complicated process to accomplish tasks made their use limited to occasional validation of the proposed idea than to assist in the design development.

Extension of the capabilities of simulation software/ UI (User Interface, some simulation software clearly separates engines from interfaces) can play a vital role in early stages of design, in which most of the decisions affecting energy-efficiency of the building are made.

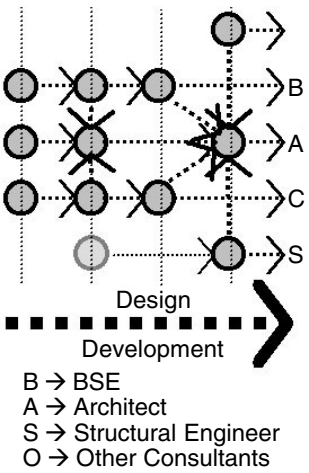

Figure 1: Data flow among design professionals in different stages

Design process and building simulation

Building design is a sequential decision making process, in which decisions taken at an early stage dictate the properties and behaviour of the building at later stages. Composition of the design team, fragmentation of the process and activities make it unique from other mass-manufactured product design. Although the concept of integrated design and construction has been emphasized, it merely imitates what has been done in the manufacturing industry and focuses more on the product than on the process. Increased complexity due to the technological advancements in materials, construction, and management calls for whole and integrated building simulation at the earliest to guide the decision making process. Early stages of design are characterized by unstructured data, incomplete building information and horizontal data-flow from one stage to another. **Figure 1** shows that vertical data-flow increases as design progresses with increased level of collaboration among design professionals. Decision support systems leveraging capabilities of building simulation software can offer help in integrating expertise of different domains in the design process particularly in early stages.

Brief overview: Building Energy Simulation

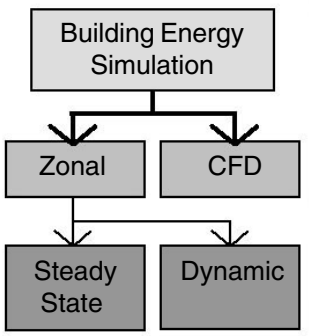

Figure 2: Types of building simulation software

Computer aided building energy simulation falls into two main categories based on modelling approach: zonal and CFD (Computational Fluid Dynamics). Software (TAS, EnergyPlus, ESPr, DOE etc.) based on zonal modelling approach gives statistical indication of year-round energy performance of the building. To reduce complexity and computation time, these models are simplified where every point in space/ zone is considered to be in similar thermal state. New calculation engines encompassing new features can be implemented into existing infrastructure. Software based on zonal modelling can again be categorized into two: steady-state and dynamic. These tools are limited in capabilities to simulate large single space with spatial differences (Atrium, Lecture hall etc). CFD tools (CFX, Flovent, etc) are based on the principles of fluid flow and able to represent real-life situations more accurately than their zonal counterparts. 3D space is divided into large number of grids and each node in the grid is assigned an initial value for different environmental parameters. Based on the equations of mass, momentum and enthalpy conservation; assigned values are replaced by solving the equations numerically. Computationally expensive CFD tools require enormous effort in preparing mesh and have limited use in building design.

Barriers of integration

Increased computing power and advances in information visualization has enabled simulation software to predict and present performance more accurately than ever

before. Some of the barriers still remain in practice preventing effective integration into the design process. Some key points can be summarised as:

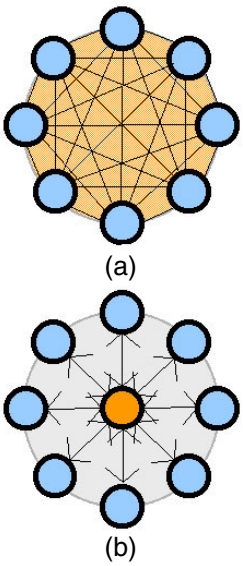

Figure 3:
(a) Before and
(b) after interoperability

- The lack of standardized data representation has led to the slow uptake of computer based simulation techniques in the design process. To overcome this limitation, concept of building product model has been proposed and developed which is essentially a semantic representation of all the elements and processes of building in all lifecycle stages (Eastman 1999). Neutral Data standards eliminate redefinition of data every time an exchange is needed, retain integrity and enhance inter-operability among software and stakeholders. **Figure 3a** shows the existing situation where a large number of translators needed to transfer data among software tools. **Figure 3b** shows the improvement, where building information is stored in a neutral format (File based, shared repository, and direct software access) reducing semantic loss of data through translation. IFC (Industrial Foundation Classes), a neutral data representation encompassing all lifecycle stages of building has been specified and promoted by IAI (International Alliance for Interoperability) (IAI 2003). Though a handful of software vendors implemented subsets of IFC, its importance in shaping tomorrow's design process has been proved.
- Simulation centric approach in software development has alienated them from the very purpose they have been designed for. Excessive emphasis on the capability of the simulation engine led to poorly designed user interfaces without regard to the design process. Until now, Architects and building services engineers are mostly concerned with the environmental design of buildings. Increasing awareness of lifecycle impact assessment as a concept to enhance sustainability has been expected to require involvement of all the design team members for energy efficient building design. Requirements of this diverse group of professionals need to be incorporated in the next generation of simulation software.
- From users' point of view, computer programs are meant to assist them in conducting day-to-day businesses. Some go further and change the process acting as catalysts. Bulk amount of result generated by simulation programs has no effect on design decisions unless they are processed and unnecessary bits have been eliminated from visualization.
- Applications of formal optimisation methods and artificial intelligence is necessary to find optimum values of parameters where the number of design variables are large and their relationship is complex to understand with a few graphs. Realizing the potentials offered by these techniques isolated sections of building simulation community have recently been focusing their research on decision making and optimisation. Outcomes of these researches are more of "showcases" than useful products ready to be used by the design community.

Ongoing work

Segregation of simulation engine from user interfaces in initiatives like DOE, EnergyPlus paved the way for efficient interface design targeting certain groups of professionals. Three of the ongoing initiatives are described here.

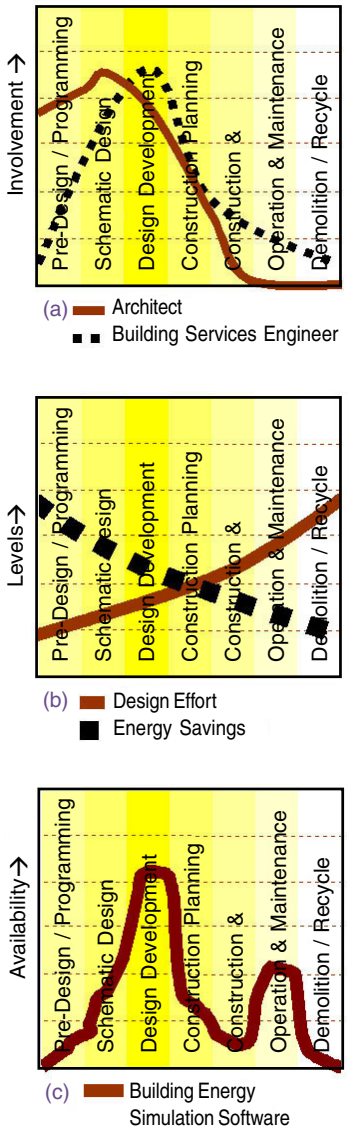

Figure 4: Relationships in different lifecycle stages of the building:

(a) Involvement of Architect and BSE in environmental design

(b) Level of Design Effort vs Energy Savings

(c) Availability of Building Simulation Software

Papamichael et al. (2001) designed BDA (Building Design Advisor), a software environment that supports the integrated use of multiple analysis and visualization tools throughout the design process. Decision making as part of the design was recognized and implemented. Elements of building are accessed through the Building Browser, while the Decision Desktop allows designers to compare design alternatives with respect to performance indicators addressed by integrated tools. BDA depends on parametric runs of simulations to produce comparison data for making decisions. Depending on the number of parameters and number of steps involved, whole process may take hours of computation time and may become hard to visualize and make decisions.

DAI (Design Analysis Interface), a research project by Georgia Institute of Technology, Carnegie-Mellon University and University of Michigan addresses integration issues from a process context (de Wilde et al. 2002). Emphasis was placed on the workflow between 'scenarios', 'tasks' and 'users'. The objectives of the DAI project are:

- Understanding and implementing the needs of users mainly energy consultants
- Respecting workflow of the users
- Development of scenario specific building simulation model interfaces
- Rapid development of internal data interfaces
- Tool independent system architecture
- Support to incremental design analysis cycles
- User controlled gateway to design information.

A number of projects have been undertaken at ESRU (Energy System Research Unit), University of Strathclyde to investigate the nature of design process, and how building simulation tools can be integrated for delivering better designs. ESPr, zonal-modelling based energy simulation software has been the centre point of ongoing efforts. Without developing new software from bottom-up, capabilities are added in modular fashion to accommodate growing needs. Hand (1998) opted for a project manager type of application which controls all aspects of simulation based design decision support. Citherlet (2001) emphasized on the holistic assessment of building performance based on an integrated simulation approach combining multiple simulation tools into one decision making platform.

All the initiatives described above are similar in their intent and somewhat to the proposed outcome. Decision making and integration into the design process have been emphasized. A closer look at the outcomes of the researches reveals that all opted for decision support systems harnessing capabilities of simulation software for better integration either implicitly or explicitly.

Building Simulation in different lifecycle stages

Contemporary practice involving building simulation applies mostly to detailed design stages and starts with the Building Services Engineer. **Figure 4a** shows the level of involvement of architect and building services engineers in environmental design during lifecycle stages. **Figure 4b** shows the relationship of design effort with

expected energy savings. It is evident that a bigger amount of energy can be saved by little efforts at the early stages. **Figure 4c** shows the availability of building energy simulation software in different stages. Lifecycle impact assessment tools encompassing all the stages of the building from inception to demolition/reuse will play a vital role with the increasing awareness of its importance. They have also been included to ascertain availability. A comparative analysis of the graphs shows that building simulation programs failed to address environmental design in early stages where most energy savings can be made. Building simulation programs are targeted for design development stages, where energy savings almost equal the design effort.

Optimisation techniques and decision support

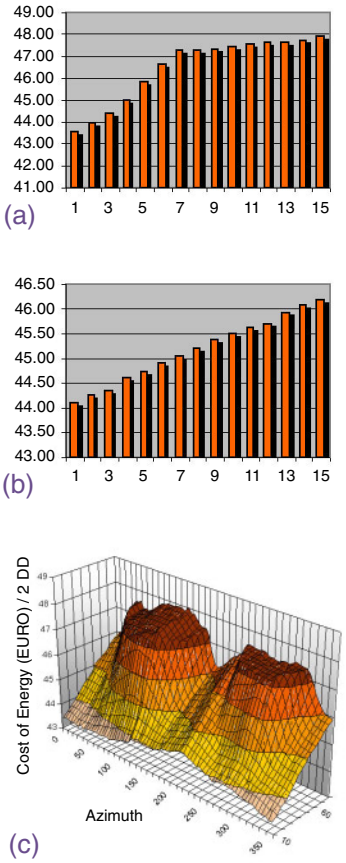

Figure 5: Application of formal optimisation techniques to search design space

Visualization of simulation results through a number of graphs may well reduce the richness of the 'integrated' simulation. **Figure 5** explains the complexity in visualizing simulation results from parametric runs of 2 design variables. A 5 zone building has been simulated for 2 design days using ArDOT with EnergyPlus as response generator. **Figure 5a** shows the relationship between Glazing Percentage (10%-90% of the south wall area) and Cost of Energy in Euros at Building Azimuth of 95deg. **Figure 5b** shows the same relationship at Building Azimuth of 180deg. Two graphs clearly show that 2-D graph based visualization of design variables would be incomprehensible for full spectrum (Building Azimuth of 1-360deg), requiring 360 graphs with steps of 1deg. They act on a single view involving two parameters, which is usually not the case, and sometimes mislead the designer. Combining them all to produce surface graphs as in **figure 5c** may become invalid with more than 3 design parameters.

A large number of design variables influence the environmental design of buildings. To apprehend the interaction of these variables with the building as a system can only be done by searching the optimum values in the design space. Application of formal optimisation methods can offer help in this scenario.

ArDOT

Realizing the constraints and potentials of building simulation programs, a tool has been under development at IRUSE (Informatics Research Unit for Sustainable Engineering), National University of Ireland under the name of ArDOT (Architectural Design Optimisation Tool).

A lot of emphasis has been placed lately on the use of 'dashboard' type of applications in Operations Research and Business Management. It offers huge potentials for Architectural/ Environmental Design. CAD (Computer Aided Design), being the transformed electronic drawing boards has the potential to be used as 'design dashboard'. User interface research in architectural informatics, has revealed that architects and building designers are comfortable with drawing packages (AutoCAD, Microstation, ArchiCAD) and they intend to kick off analysis, visualization software from within CAD tools. One major impediment in proliferation of digital tools in design is the lack of understanding that translation of data and opening/ reopening another tool to perform a subset of tasks greatly reduces efficiency of the team and the process.

ArDOT has been designed as decision support systems embedded within existing CAD software. For data representation, IFC based shared repository has been implemented. Extraction and archival of data are dealt through API (Application Programming Interface) access to the database. Implementation of a neutral standard greatly enhances inter-operability among actors and software. Fundamental concepts of ArDOT is that it connects CAD directly to Building Simulation software and employs optimisation methods to search design space to investigate the complex relationship among conflicting design variables and objectives. User-centric approach has been the focal point of development.

Conclusion

Technology uptake is a complex issue involving a wide variety of factors. Building simulation programs though advanced enough in terms of accuracy and domain representation has failed to address the issues of usability - a determining factor for uptake of technology. The way to accomplish a task differs greatly among design professionals. The use of a generalized simulation tool has failed to cater for the needs of professionals with diversified objectives. Decision support systems harnessing potentials offered by building simulation and optimisation techniques have been proposed as alternatives in this article.

References

Citherlet, S. 2001. *Towards the Holistic Assessment of Building Performance Based on an Integrated Simulation Approach*, PhD Dissertation, Swiss Federal Institute of Technology, Lausanne, Switzerland.

de Wilde, P., Augenbroe, G., der Voorden, M. V. 2002. *Design analysis integration: supporting the selection of energy saving building components*, Buildings and Environment, Vol. 37, No. 8-9, pp. 807-816.

Eastman, C.M. 1999. *Building product models: computer environments supporting design and construction*, CRC Press, USA.

Hand, W. J. 1998. *Removing barriers to the use of simulation in the building design professions*, PhD Dissertation, University of Strathclyde, Glasgow, UK.

IAI 1999. *Introduction to IFC*, webpage **http://cig.bre.co.uk/iai_uk/iai/page5.htm**

Papamichael, K., LaPorta, J., Chauvet, H. 1997. *Building Design Advisor: Automated integration of multiple simulation tools*, Automation in Construction, Vol. 6, No. 4, pp. 341-352.

Acknowledgment

The authors would like to thank the members of BLDG-SIM, a user group of researchers and professionals in building simulation for their valuable views and comments. The group is publicized by Jason Glazer of GARD Analytics, email **bldg-sim@gard.com** (*see Announcement on* ***page 17***).

News from Affiliates

IBPSA-Australasia

Veronica Soebarto, University of Adelaide

The IBPSA-Australasia meeting in 2002 was held at Deakin University in conjunction with the ANZAScA (Australia and New Zealand Architectural Science Association) Conference in November.

Five members made presentations, including:

- Dr. Angelo Delsante, from CSIRO: The improvements to the NatHERS (Nationwide House Energy Rating Scheme) simulation engine, which include the modeling of different thermal resistances for air gaps with heat flow up or heat flow down, perimeter insulation of concrete slab floors, and modeling of natural ventilation.
- Mr. Steven Moller, from CSIRO: The Energy Express program, an energy simulation program for commercial buildings that can be used by building designers as well as engineers.
- Dr. Veronica Soebarto, from University of Adelaide: The development of the methodology and tool for environmental performance assessments for buildings (ENER-RATE)
- Dr. Richard Hyde, from University of Queensland: A design/built project of a healthy home in Gold Coast, Queensland
- Ms. Barbara Joubert, from Victoria University of Wellington: Survey results on the use of simulations programs in architectural practices in New Zealand (which pointed out many interesting and important issues about the usability and user-friendliness of simulation programs).

In addition to the regular IBPSA members, the seminar attracted a number of ANZAScA conference participants. As a result, IBPSA-Australasia gained 10 new members.

The 2003 seminar will again be held in conjunction with the ANZAScA conference, which will be held in Sydney.

Full contact information for IBPSA-Australasia is on page 5

There is more information about us and our activities on our web site, currently hosted at **www.arch.adelaide.edu.au/~ibpsa.**

IBPSA-Japan

Yasuo Utsumi, Miyagi National College of Technology

In collaboration with the AIJ (Architectural Institute of Japan), many recent activities have been taking place in IBPSA-Japan, including symposia, seminars, and forums. Information on some of these can be found on the AIJ web site at **www.aij.or.jp/eng/bulletin/index_b.html**

Events in the past three months have included:

January 2003

- A symposium on the optimization of the building systems

February 2003

- A forum on standardizing architectural information, *When will the building model be useful for the practical field?*
- A seminar on an LCA assessment tool for buildings, *An evaluation tool for environmentally-conscious planning and labeling of environmental quality and environment accounting*
- A symposium on the public launch of the building thermal simulation code and the library

March 2003

- A symposium on the prediction of the wind environment by CFD
- A symposium on thermal performance and its evaluation, including code quality assurance and commissioning
- Publication of Expanded AMeDAS Weather Data in English.

Full contact information for IBPSA-Japan is on page 5

IBPSA Membership Information Sheet and Application:

The following information is for membership and orders for IBPSA proceedings. You may order directly from the forms below, or you can request by e-mail a hard copy of the request sheet. Conference proceedings are not part of the membership fee, though they are significantly discounted for members. We are not able to process credit card orders at this time.

IBPSA is comprised of International Regional Affiliates. If you are located within one of the affiliated regions listed on the IBPSA website at http://www.ibpsa.org/regional.htm , please contact the appropriate representative regarding membership in IBPSA. If you are not within any of the affiliated regions, you may join IBPSA central by using the attached form.

Members of the affiliate organization are automatically considered full members of IBPSA-Central. If you are joining IBPSA, please inquire as to the affiliate organization in your region. Additional affiliates may be forming soon.

The IBPSA Newsletter is published twice annually. It contains instructions on how to create an IBPSA affiliate in your region (start-up grants are available from IBPSA), as well as announcements for Building Simulation Conferences. All members of IBPSA's Regional Affiliations receive the newsletter.

TO LEARN MORE ABOUT IBPSA in general, look at the World Wide Web page at "http://www.ibpsa.org"

Thank you for your interest in IBPSA. Join to get more news from the Newsletter.

Jeff Haberl, IBPSA Publications
jhaberl@esl.tamu.edu

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IBPSA MEMBERSHIP INFORMATION

"The professional association devoted to improve the built environment through computer simulation and analysis"

Mission

The International Building Performance Simulation Association (IBPSA) was founded 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.

Goals:

Along with building designers, owners, operators and developers,

* Identify problems with the built environment that may be solved by improved simulation tools and techniques
* Identify the performance characteristics of buildings on which simulation should be focused
* Identify building performance simulation R & D needs and transfer new developments to the user
* Promote standardization of the building simulation industry
* Inform and educate its members and the public regarding the value and the state-of-the-art of building performance simulation.

Activities:

* Biannual International Building Simulation Conference.
* Resource publication on simulation tools (under development)
* Newsletter announcing upcoming events and software tools.
* Sponsorship of regional workshops and seminars on simulation.

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Membership Classification Desired (check one): Effective date: Sept. through Aug.

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A graduate from a college or university, or a registered professional engineer or architect.

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BS'91	85 / 675	$50	Nice, France	20-22 Aug. '91
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International Building Performance Simulation Association

The regionalization of IBPSA

To whom it may concern

Dear Colleague:

You may be aware of the International Building Performance Simulation Association (IBPSA) which has existed since the late 80s to represent and promote the application of computer-based design and management techniques in the construction industry worldwide.

To further the goals of the organization, we have embarked on a regional development program by which we plan to stimulate the establishment of regionally based, autonomous organizations who are affiliated to IBPSA. In this way we hope to achieve the correct balance between the servicing of practitioner needs at the local level and the provision of information flow at the international level.

I am writing to you to ask whether you might be interested in exploring further the possibility of establishing an IBPSA affiliated organization in your part of the world. To help you reach a decision, there follows details on the regionalization proposal. A copy of IBPSA's Strategy Plan, IBPSA's By-Laws and more general information about IBPSA's activities, biannual Building Simulation conferences, etc. is available from its web site at: http://www.ibpsa.org/

IBPSA very much hopes that you will see merit in this idea and is looking forward to receiving your reply in the near future.

Yours sincerely

The IBPSA President

IBPSA Regionalization Guidelines

IBPSA's Mission
The International Building Performance Simulation Association (IBPSA) is a non-profit making organization that was first incorporated in January 1987. The Association's principal mission is to promote and advance the practice of building performance simulation in order to improve the energy and environmental performance of new and existing buildings worldwide.

IBPSA seeks to achieve its goals through the establishment of a range of products and services aimed at informing and equipping those who are involved in the construction industry and who seek to utilize computer-based tools to good effect. To this end, the **IBPSA Strategic Plan** identifies nine specific areas that encompass the organization's activities. These are:

1. ***Strategic Alliances*** with professional organization such as the engineering and architectural societies. The intention is to engender a better understanding of the profession's requirements and the technology's potential.

2. ***International Conference Series*** to periodically collate and preserve those developments that comprise the current state-of-the-art.

3. ***Technical Development Program*** aimed at influencing the direction the technology of building simulation might take at any given point in time.

4. ***Educational Initiatives*** concerned with the teaching of building simulation in the higher education institutions and in the context of continuing professional development.

5. ***Harmonization Activities*** in an attempt to regularize the application of the different modeling systems through the definition of standard methods for performance assessment and the provision of standard support data.

6. ***Member Recruitment*** aimed at extending the IBPSA products and services to those practitioners who can most benefit from the new technology.

7. ***Products and Services*** devised in response to the profession's evolving needs.

8. ***Technology Transfer*** concerned with the delivery of training in all aspects of computer-based performance assessment at all stages of the building life cycle.

9. ***Regional Development*** to subject the foregoing activities to appropriate regional influences and enable their effective delivery.

This document addresses the last area concerned with regional development in order to more effectively address local needs and create a mechanism for an international exchange of know-how and best practice.

Rationale
IBPSA has achieved significant success at the international level - largely through its biannual conference program (Vancouver '89, Nice '91, Adelaide '93, Wisconsin '95 and Prague '97) and worldwide electronic mailing facility. IBPSA has also recognized the difficulties surrounding the development of products and services that are appropriate to the day-to-day needs of its members.

The underlying causes of these difficulties are twofold. Firstly, the geographical spread of IBPSA members is wide and gives rise to a requirement to cover disparate work practices, technologies and professional needs. Secondly, IBPSA's organizational structure is such that the coordination of activities at the local (regional) level is problematic. At the same time like-minded, but regional, organizations are making significant progress at the local level through their seminar, workshop, publications, training and software development activities.

If the construction industry were to be well supported in its attempts to harness effectively the emerging IT and simulation technologies then the establishment of regionally based support organizations was essential. Equally essential was the creation of a structure by which these organizations could affiliate in order to disseminate their know-how and promote their local best practice. Only in this way could the benefits of the new technology be understood and future standardization enabled. It was with the view of a network of autonomous regional organizations that IBPSA has turned to regionalization and is encouraging existing or newly formed groups to become IBPSA affiliates.

Structure and Operation

Under the existing structure, IBPSA affiliates are financially and administratively independent. In practice, this means that they raise and deploy their funds as long as these funds are under the control of elected officers and are used in pursuit of aims and objectives that are consistent with those of IBPSA. IBPSA-Central concentrates its resources on issues such as inter-region communication, international conferences and product standardization. In this way IBPSA complements and empowers the regional affiliates in their attempts to inform and support their members in the context of local design issues and concerns. The entire IBPSA network is represented by a 15-member Board comprised of an executive and regionally elected officers.

The following guidelines have been devised to assist with the establishment and operation of an IBPSA regional affiliate.

1. Organizers of a new regional affiliate should prepare a brief proposal for the IBPSA Board of Directors. This should outline the proposed name, geographic territory, organizational structure and goals and objectives (if different from those included in the IBPSA charter statement). Affiliation depends only on the organization having a purpose and mission consistent with those of IBPSA. The Affiliate and IBPSA then enters into a specific agreement by defining their working relationship based on regional considerations prevalent at the time.
2. Regional affiliates may be named **"IBPSA <region>"** or they may use any other appropriate name. Their letterhead and other publicity material should indicate that they are "an affiliate of IBPSA".
3. For regions with limited financial resources, IBPSA can provide a limited amount of **matching start-up funds** (see below) to aid the initial set-up of the affiliated organization. A case for support should be submitted to the IBPSA Secretary for consideration by the Board. (See attached proposal guidelines.)
4. The financial structure of a regional affiliate is independent from IBPSA. This means that affiliates will retain all member dues or other funds raised by their activities.
5. IBPSA will provide affiliates with a list of operational guidelines (see attached by-laws), contact information for persons available to assist the local organizer and electronic images of the IBPSA logo.
6. The regional affiliate will provide membership data to IBPSA for use in mailing IBPSA materials.

7. Members of the regional affiliates will automatically be full members of IBPSA. Any given individual or organization will pay dues directly to IBPSA only if there is no regional affiliate operating in their area.
8. IBPSA will make newsletters and other IBPSA materials available to all members of the regional affiliates either in printed form or in downloadable electronic format from the IBPSA web page. This will be at no cost or at a nominal cost depending on the circumstances. Other services may be provided by IBPSA to the regional affiliates for a fee.

Start-up Proposal Guidelines:
It has been the IBPSA Board's policy to grant start-up funds to regions that are in need of matching funds to get the organization officially registered and/or to purchase initial office support equipment. The proposal should be submitted to the IBPSA board and should contain the following elements:

1. Name of Affiliate: i.e., **IBPSA-<region>.**
2. Geographic territory covered.
3. Organizational structure – The IBPSA Charter is founded on a set of board- and member-approved by-laws (see attached). Each Affiliate's organizational structure is therefore expected to adhere to the same or similar principles of operation.
4. Officers -- i.e., Specify the officers that will be constitute the board (e.g., Chairperson, secretary, treasurer, etc. – see IBPSA by-laws)
5. List of goals and objectives – Must be consistent with the mission statement and objectives of the IBPSA Charter.
6. Minutes of the first organizational meeting, indicating organizational business transacted.
7. List of initial members and their affiliations (can be those attending the first meeting).
8. Proposed activities of the affiliate.
9. Proposed amount of annual membership dues.
10. Breakdown of costs associated with set-up of the Affiliate organization.
11. Amount of matching funds provided by the Affiliate.
12. Amount of the requested support from IBPSA. *

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* Please note that IBPSA's policy is to provide start-up funds with the expectation that the Affiliate will return the granted amount once the region reaches financial stability. The Affiliate is therefore asked to return the funds on a voluntary basis, so other regions can be assisted in the same fashion.

Becoming an IBPSA Affiliated Organization

If you would like to become an affiliated organization then please write to the IBPSA Secretary at the address given at http://www.ibpsa.org . Alternatively, you may wish to discuss the matter further with one of the IBPSA office bearers or a representative of one of the existing affiliates whose addresses can also be found at http://www.ibpsa.org.