



DesignBuilder Simulation Software: Introductory Training

Sunday, 13 November 2011
Novotel Sydney Brighton Beach

Overview

Whole building energy simulation is required for:

- Building and energy system long-term cost optimisation;
- Research, development and architectural design;
- Meeting alternative verification requirements for Section J of the BCA;
- Risk management within the Commitment Agreement framework of NABERS; and
- Green Star ENE-2 credits.

This one-day workshop will introduce participants to basic dynamic energy simulation of small commercial buildings using the DesignBuilder software tool, which is a graphical user interface for EnergyPlus.

DesignBuilder

DesignBuilder (www.designbuilder.com.au) is a unique software tool for creating and assessing building designs. Now in Version 3, it is compliant with ANSI/ASHRAE Standard 140-2007. DesignBuilder Software is a Gold Sponsor of Building Simulation 2011. The software incorporates the EnergyPlus simulation engine to calculate the energy performance of a building. It has been developed so it can be used at any stage of the design process. This includes concept stage (where just a few parameters are needed to capture the building design) to much more detailed building models for established designs. Output data may be selectively graphed or exported in tabular format for use in other applications. The DesignBuilder graphical interface significantly simplifies geometry creation within EnergyPlus, allowing the user to access the power of EnergyPlus. DesignBuilder is being continually integrated with EnergyPlus.

DesignBuilder allows rapid construction of building models. Buildings may be visualised in 3D to aid assessment of design / energy performance trade-offs. DesignBuilder is suitable for use by architects, building services engineers, energy consultants, and students. Some typical uses are:

- Evaluating impacts of building geometry and construction
- Evaluating façade and window options for energy use and comfort
- Visualisation of shading systems
- Thermal simulation of naturally ventilated buildings
- Design for daylighting, using Radiance engine
- Cooling and heating load calculation
- Visualisation of thermal performance
- Predicting annual energy use of buildings
- Thermal comfort (PMV, PPD, KSU, other)

DesignBuilder version 3 provides significant new features including:

- Detailed EnergyPlus HVAC
- Radiance daylighting
- Revit plugin, easing data transfer to DesignBuilder
- New high-speed simulation engine

Workshop Objectives

The objective of this course is to introduce DesignBuilder's powerful 3-D modelling capabilities. Participants learn to use the graphical DesignBuilder interface for EnergyPlus to create building geometry, visualisation and simple HVAC modelling.

Workshop Requirements

The venue does not provide computers, therefore you need to bring your laptop and work from it. Necessary software will be provided. A 30-day fully functional evaluation licence for DesignBuilder is available to all course participants. DesignBuilder and EnergyPlus are demanding on graphics and system resources. **Absolute minimum** system requirements to run DesignBuilder and EnergyPlus are:

- Windows XP, Windows Vista or Windows 7, 32-bit or Windows 7 64-bit (latter requires NVIDIA graphics card)
- 1 GB RAM under XP; 2 GB under Vista and Windows 7. The more RAM the faster the simulation runs; we strongly recommend more than 2GB. If you are uncertain, please refer to: www.designbuilder.co.uk -> Support -> Hardware Requirements. For Vista and Win7, ensure that you follow the advice on the support knowledgebase to switch off desktop composition and set XP-compatibility mode.

Conditions The organisers reserve the right to decline any registration. This workshop is an introduction to commercial software. Changes to this software tool are ongoing and the user would normally obtain updates to that software as required. The presenters can assume no responsibility for such changes. For more information on EnergyPlus and DesignBuilder, visit:

www.designbuilder.co.uk including a fully functional, 30-day, downloadable trial version of DesignBuilder.

Who Should Attend?

Engineers, architects, building energy modellers, sustainability assessors and others interested in exploring whole-building energy modelling and sustainability analysis. Participants with prior knowledge of energy efficiency in buildings will get the most out of this course.

Presenters

Peter Lyons, PhD (Physics), MASHRAE

Peter holds a PhD in physics from the University of Tasmania. Peter's expertise has been acquired locally and internationally and is applied across façade engineering and sustainable building design. Over 16 years he has specialised in energy performance modelling of all types of fenestration systems and of whole buildings, both residential and commercial. Peter is a past visiting researcher at Lawrence Berkeley National Laboratory, University of California where he continues applied research into the energy modelling and rating of windows and skylights. He has published over 50 research papers and reports. He has continuing research interests in the impact of windows on human comfort in buildings.

Peter is a foundation Technical Committee member of the new Australian Fenestration Rating Council. (AFRC) He is an accredited simulator with the US National Fenestration Rating Council and the AFRC and is active in ASHRAE Technical Committee 4.5 (Fenestration).

P.C. Thomas, BE, MSc (Mech Eng)

PC is a mechanical engineer with over 19 years' consulting and research experience in energy efficiency in buildings, energy auditing, energy simulation of technologically advanced buildings, and advanced glazing systems. He has carried out energy audits on major hospitals, commercial office buildings, industries, resorts and shopping centres. He has experience with design and installation of solar energy systems. He is passionate about efficient use of the earth's resources.

PC was a member of the International Energy Agency Task 34/43 - Validation and Testing of Building Energy Simulation Software. He is a member of the Independent Design Review Panel for the Australian Building Greenhouse Rating (ABGR) scheme. He was an invited member on Working Groups that helped to develop energy efficiency solutions for the BCA by the Australian Building Codes Board. He is a faculty member with the Green Building Council of Australia (GBCA) that administers the Green Star sustainable building rating scheme.

Justin Wong, PhD Candidate, UNSW

Justin's PhD studies make extensive use of BIM (Building Integrated Modelling); the use of an International Foundation Class (IFC) model to translate an object model between IFC-compatible software. His area of research is focused on developing a new way of translating complex building façades into IFC objects. He uses DesignBuilder and EnergyPlus extensively in his work, and assisted the DesignBuilder development team in beta testing of their CFD-integrated offering which was released with version 2 of DesignBuilder.



Registration Form

DesignBuilder Training Workshop, 13 November 2011

Building Simulation 2011, Novotel Brighton Beach, Sydney

Training runs from 9:30 am – 4:45pm.

Walk-in registrations on the day are welcome (please note: maximum class size is 20).

Workshop Fees

- Members of AIRAH, ASHRAE, CIBSE, AIA, ABSA, BDA, AIB, ACEA, AuSES: \$400 including GST.
- Non-members: \$440 including GST. Full-time students: \$220 including GST.
- For non-students, a further discount of 20% applies when three or more people attend from the same organisation.
- If your organisation is not listed, please enquire.

Price includes course materials, morning & afternoon teas.

Mr/Ms/Mrs/Dr	_____	First Name	_____	Surname	_____
Position	_____				
Organisation	_____				
Address	_____				
State	_____	Postcode	_____		
Tel	_____	Fax	_____	Email	_____

Method of payment

1. I enclose a cheque for \$ _____ (made out to DesignBuilder Software Australia)	OR
2. Please debit my (please circle): MasterCard VISA for the amount of \$ _____	
Card No. _____ - _____ - _____ - _____	Expiry ____ / ____ CSC _____
Cardholder Name _____	Signed _____ Date ____ / ____ / 2011

Summary of substitution and cancellation policy

If you are no longer able to attend this event, a substitute delegate may take your place. However, if you wish to cancel your registration a full refund, minus a \$50 service fee, will be given provided you have notified us in writing, by fax or email at least three working days before the start of the event. No refund is available for cancellations under three days.

Condition of acceptance

It may be necessary for reasons beyond the control of the organisers to alter the content of the program.

Please complete this form and fax it to (02) 6103 9033

or scan and email it to: info@designbuilder.com.au