

Building Energy Simulation

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The  Buzz

Ask an **EnergyPlus** Expert
2007 Q and A
http://SimulationResearch.lbl.gov/dirpubs/un_articleEP07.pdf

Archives:
<http://SimulationResearch.lbl.gov/report.html>

SimuPedia
A WikiPedia for
Building Simulation
<http://www.ibpsa-germany.org/index.php/Simupedia/en>



The April Fool

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PUB-439

Ask an EnergyPlus Expert . . .

ENERGYPLUS DOCUMENTATION

What would be the best sequence for a beginning user to read the EnergyPlus manuals?

Answer

1. Getting Started is the best place to start. For more details on the IDF editor, pay special attention to Auxiliary Programs
2. Example files - find an example file that matches what you want to model and examine the objects in it.
3. Input/Output Reference - this is not meant to be read in sequence. Rather use it to look up specific topics as needed.
4. Engineering Reference, only if you are interested in the equations and algorithms.

If you open the EnergyPlus Documentation Main Menu (EPlusMainMenu.pdf) there is a search button on the lower right that will search across all of the EnergyPlus pdf documents.

Main EnergyPlus documentation page

<http://www.eere.energy.gov/buildings/energyplus/documentation.html>

User Guides

- Getting Started and Overview ([PDF 1.03 MB](#))
- Input/Output Reference ([PDF 7.35 MB](#))
- Output Details and Examples ([PDF 853 KB](#))
- Engineering Reference ([PDF 8.26 MB](#))
- Auxiliary Programs ([PDF 1.49 MB](#))

Developer Guides

- Module Developer's Guide ([PDF 525 KB](#))
- Interface Developer's Guide ([PDF 389 KB](#))
- Programming Standard ([PDF 171 KB](#))

The BLDG-SIM Mailing List has a New Home

The popular BLDG-SIM mailing list has moved from Gard Analytics to OneBuilding.org. If you subscribe to BLDG-SIM (or any of the other lists formerly maintained by GARD) you will be automatically switched over to OneBuilding.org. An archive of all BLDG-SIM posts is located at the following URLs.

Archived by thread: <http://www.gard.com/ml/bldg-sim-archive/threads.html>

Archived by date <http://www.gard.com/ml/bldg-sim-archive/maillist.html>

General information about the mailing list is at:

<http://lists.onebuilding.org/listinfo.cgi/bldg-sim-onebuilding.org>.

See also <http://lists.onebuilding.org/pipermail/bldg-sim-onebuilding.org/>

The newest issue of SBSE News is electronically available at

<http://www.sbse.org/newsletter/issues/newssp08.pdf>

The Society of Building Science Educators (SBSE) is an association of university educators and practitioners in architecture and related disciplines who support excellence in the teaching of environmental science and building technologies.

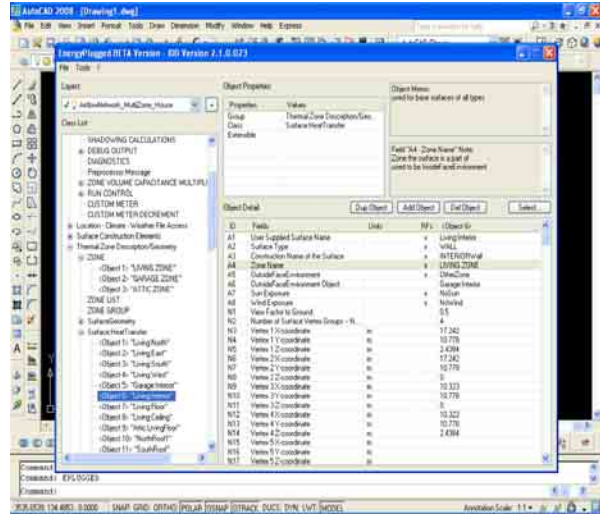
EnergyPlugged (beta freeware)

EnergyPlugged is an Autodesk AutoCAD plug-in for quickly creating and editing EnergyPlus input files.

Some features of EnergyPlugged:

- draw your tri-dimensional building in AutoCAD or import it from your favorite CAD program
- click to select each surface and see the geometry data
- check potential relations between objects and select the one you need
- continue adding and editing EnergyPlus objects in the editor
- import dataset objects (schedules, internal gains, etc.) in the same or in different layers
- exchange objects between layers
- convert values into SI and IP units
- add and edit comments to objects in the editor for future revisions
- save an .idf file from each layer

EnergyPlugged is an ObjectARX application that requires [Autodesk](#) AutoCAD 2007 or later to run.



Download from:

<http://www.geocities.com/energyplugged/index.htm>

or

http://www.freewarefiles.com/program_3_231_39460.html

EnergyPlugged was written and released by
Marcello Dall'Olio
(marcello.dalolio@yahoo.it).



The bi-annual conference of IBPSA-Canada is being organized to bring together professionals, academics and students interested in building performance simulation issues and applications. The 2008 conference is hosted by École d'architecture de la Faculté d'architecture, d'aménagement et des arts visuels de l'Université Laval, in collaboration with the National Research Council of Canada. It will be held in Quebec City, Canada on May 21 and 22, 2008 (pre-conference and post-conference workshops on May 20 and 23, 2008). <http://www.esim.ca/2008/home.htm>

2008 WORKSHOPS -- SACRAMENTO MUNICIPAL UTILITIES DISTRICT (SMUD)

- April 03 [Energy Management Systems \(EMS\)](#)
- April 16 [Emerging Cooling Technologies for the West](#)
- April 18 [Lighting for Historical Places](#)
- April 29 [Advanced Management Compressed Air Systems II](#)
- May 06 [Principles of Lighting](#)
- June 24 [Retrocommissioning and HVAC Fundamentals for the Field](#)

Go to the main SMUD website at <http://www.smud.org/index.html> then click the tab for "Education and Safety" and then select "Workshops" underneath the heading.

EnergyPlus Available for Apple's Intel-based Macintosh Platform



The newest version of EnergyPlus (2.1), released 10/31/07, is available for Apple's Intel-based Macintosh platform (in addition to Windows and Linux versions). Download at no cost from the EnergyPlus web site: <http://www.energyplus.gov>.

Our thanks to Greg Stark of Building Synergies, LLC for his help in porting EnergyPlus to the Apple Macintosh platform.

Status of EnergyPlus Plug-In for SketchUp



DOE plans to release an EnergyPlus plug-in for Google's SketchUp at the end of 2007. This free EnergyPlus plug-in will integrate building simulation functionality into the SketchUp drawing environment. The plug-in stores EnergyPlus input data on SketchUp surfaces as they are drawn by the user. An EnergyPlus toolbar provides a way to create zones and surfaces with only a few mouse clicks. Construction assignments are 'painted' onto surfaces using a palette of EnergyPlus wall, roof, and window constructions. Users will be able to execute an annual simulation from within SketchUp. Watch the EnergyPlus web site <http://www.energyplus.gov> and email for more information.

EnergyPlus_Support Group at YahooGroups



Are you a commercial or academic user of EnergyPlus? Join over 1200 EnergyPlus users in an email group on YahooGroups. It's a place to ask your questions and share information with other users. The YahooGroup provides a searchable archive of all 7 years of discussion. You can also upload files to share with other users. This group supplements but does not replace the primary program support.

EnergyPlus-Support@gard.com.

The main web page for the group is: http://groups.yahoo.com/group/EnergyPlus_Support

To subscribe, send an email message to:

EnergyPlus_Support-subscribe@yahoogroups.com

The BLDG-SIM Mailing List has a New Home

The popular BLDG-SIM mailing list has moved from Gard Analytics to OneBuilding.org. If you subscribe to BLDG-SIM (or any of the other lists formerly maintained by GARD) you will be automatically switched over to OneBuilding.org. An archive of all BLDG-SIM posts is located at the following URLs.

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Archived by date <http://www.gard.com/ml/bldg-sim-archive/maillist.html>

General information about the mailing list is at:

<http://lists.onebuilding.org/listinfo.cgi/bldg-sim-onebuilding.org>.

See also <http://lists.onebuilding.org/pipermail/bldg-sim-onebuilding.org/>

Ask an EnergyPlus Expert . . .

COOLING TOWER -- VARIABLE-SPEED

I ran the example file "CoolingTower_VariableSpeed.idf." It worked when we used 2 design days but after I changed the run period from 2 days to 1 year, I got 6783 warnings! Should I take the warnings seriously?

Answer

Try using the single-speed or two-speed cooling tower models unless you specifically want to use a variable-speed cooling tower. You should also read the Engineering Reference to understand the model and it's limitations if you intend to perform simulations with the variable-speed cooling tower.

The warnings identify when the empirical model inputs are outside the range used to develop the model coefficients. The variable-speed tower models are more useful when actual performance data is available and model coefficients can be developed for specific cooling towers.

ELECTRIC RADIATORS

I would like to simulate electric radiators using EnergyPlus. I'm considering using either BASEBOARD HEATER:ELECTRIC:Convective or LOW TEMP RADIANT SYSTEM:ELECTRIC. Which option would be more suitable?

Answer

BASEBOARD HEATER:ELECTRIC:Convective is 100% convective gain to the zone. If the equipment you are modeling is small-area with air-flow openings, such as along a baseboard, then use this equipment type. It sounds like this is what you want to model.

LOW TEMP RADIANT SYSTEM:ELECTRIC is intended to model electric heating elements embedded in a floor or ceiling (or wall). It's output is primarily radiant, with some convection from the warm surface.

CHILLED BEAMS AND HOT WATER CONVECTORS

Is there a way to model chilled beams? Should I use the LOW TEMP RADIANT SYSTEM objects? And do I also use the same objects for hot water convectors in the building perimeter? I read the documentation on this but just want to be sure.

Answer

For perimeter hot water convectors, use BASEBOARD HEATER:WATER:CONVECTIVE. If you are using a standard unitary or VAV system, you can specify these as part of the COMPACT HVAC:ZONE:* object.

Chilled beams are more difficult. The LOW TEMP RADIANT SYSTEM is a starting point, but it will not produce the same level of convective heat transfer as a chilled beam would typically have. You could increase this by setting a high convection coefficient on the low temp radiant heat transfer surface. If it is an active chilled beam with some forced airflow, the induction unit (SINGLE DUCT:CONST VOLUME:4 PIPE INDUC) might be more appropriate. The key difference is whether the particular chilled beam configuration you are modeling is primarily radiant or convective.

Interested in BIM? Check out [HTTP://BIMOLOGY.BLOGSPOT.COM](http://BIMOLOGY.BLOGSPOT.COM)

Ask an EnergyPlus Expert . . .

COLD ROOM SIMULATION

I'm simulating a supermarket that contains additional cold rooms. The cold rooms are supplied by a central cooler and have a different height (shorter) than the rest of the building.

1. What type of system should we use to refrigerate such rooms?
2. Can the cold rooms be modeled as refrigerated cases? And if so, how do we account for its height, since EnergyPlus only accounts for (linear) length and does not offer a height option?

Answer

1. If central cooling is typically used for these rooms, use a furnace or unitary system. You would most likely schedule the heating coil off. Be careful to avoid frost build up on the coil (check the supply air temperature). These models were intended to simulate air conditioners for "occupied" zones and have not been tested at low temperatures. You can probably simulate conditions down to about 15C but I'm not sure about the lower limits. A window air conditioner or packaged terminal air conditioner (PTAC) would also work if it's a single zone. And these models do not require a heater and are easier to implement. A packaged terminal heat pump (PTHP) could also be used in a single zone, but this model requires a heater.

2. The refrigerated case model is based on an empirical model by Howell. This model varies case performance based on room relative humidity or dew point. Interactions of the case with the zone are modeled through case credits. This model is probably not the best choice for simulating a cold room. Additionally, this refrigerated case would have to be connected to a refrigeration compressor rack, which is typically not used for walk-in coolers or cold rooms found in a supermarket. The intent of this model is to simulate various display cases in a supermarket, other uses would be crude approximations. The refrigerated case model could only be used to "approximate" energy use for isolated and well-insulated walk-in type coolers or freezers. The height input in the refrigerated case object is only for anti-sweat heater calculations (heat balance method). Case performance is based on lineal footage to simulate various case lengths. See the Engineering documentation for equations used and references to papers describing the model.

The supermarket (SuperMarket*.idf) example files distributed with EnergyPlus may also be useful. There is an example of a walk-in freezer, but is only intended to be an example and shows how flexible the refrigerated case model inputs were designed. You must carefully use manufacturers data to get close to the actual energy use for this type of equipment.

FAN COIL MASS FLOW RATE

I am doing a simulation with a fan coil. The result shows the chilled water inlet and outlet temperature and mass flow rate of the fan coil. I set the inlet and outlet temperature to 7C and 12C; however, the result says outlet temperature is 17C. Is there any way to control the chilled water outlet temperature to 12C and the mass flow rate changes to meet zone cooling load.

Answer

The delta temperature input in the PLANT SIZING object controls the autosizing of chilled water coils. Once the coil is sized, the fan coil controller determines the flow rate required to meet the load. The user has no ongoing control over the leaving water temperature from the coil.

You could try manually sizing the coil by entering an adjusted value for the maximum water flow rate. For example, if the coil is autosizing the max flow rate to 0.2, and this results in a 10C rise across the coil, then entering a max flow rate of 0.4 (instead of autosizing) might give you a result closer to a 5C rise across the coil.

Another option to consider is using the other chilled water coil model.

Ask an EnergyPlus Expert . . .

CONVECTION COEFFICIENT

How can I force the convection coefficients in double-glazing with shade? I have an interior convection coefficient, a thermal resistance between two glass layers, a thermal resistance between glass and shade, and an exterior convection coefficient.

Answer

You can specify user convection coefficients for a single surface or multiple surfaces. Refer to the Input/Output Reference Manual; search on convection coefficients (p. 210ff or p 251 of the pdf).

Question

So, then, I need to use the object AllExteriorWindows for exterior convection coefficient and another object AllInteriorWindows for interior convection coefficient. What should I use for the thermal resistance between the glass and for the shade?

Answer

No, you can specify the exact surface to which you want to apply the convection coefficients, unless you want to do all exterior windows.

For example, if you wanted to set convection coefficients for a surface:

```
CONVECTIONCOEFFICIENTS,  
ZONE SURFACE SOUTH,  
Interior,  
Value,  
3.076,  
,  
Exterior,  
Value,  
10.22,  
;
```

And when you are doing more than one surface you would use:

```
CONVECTIONCOEFFICIENTS:MULTIPLESURFACE,  
AllExteriorWindows, !- SurfaceTypes  
Exterior, !- Convection Type #1  
MoWitt; !- Convection Value Type #1
```

LOW SOLAR COLLECTOR EFFICIENCIES

Has anyone else run a solar collector (thermal) system and output the hourly efficiencies? I did this, and they were extremely low. Based on manufacturer's data (Thermomax AST80 parameters), I would expect efficiencies in the 50-80% range. But my output shows more like 10-30%. I would think that this would be independent of my loop configuration.

My collector surfaces are much larger than the test surfaces. Each of the six collector surfaces is about 50m², and the test surface is 11m². I was hoping not to have to have 30 collectors in parallel, but if that is what I need to do to get a normal efficiency I'll do it.

Answer

The flow rate you are putting through the collectors is too high. The model includes some fairly complex modifications for when flow rates, during the simulation, differ from those during the tested conditions (for details see section 6.20 in Solar Engineering of Thermal Processes, Duffie and Beckman 1991). Your collectors are running with flow rates that are 2 to 3 orders of magnitude higher than the flow rates during the rating testing. It makes sense to me that efficiencies would be lower in this situation. I think it is safer to model actual collector areas and flow rates more similar to the tested rate, so you should probably use more collectors or reduce the scale of what you are modeling.

Recent Reports

ENERGY PERFORMANCE OF UNDERFLOOR AIR DISTRIBUTION SYSTEMS

Prepared For:
California Energy Commission
Public Interest Energy Research Program

Commission Contract No.: 500-01-035 -- June 2007

Prepared By:
Fred Bauman, Tom Webster, Hui Jin, Wolfgang Lukaschek,
Corinne Benedek, and Edward Arens
Center for the Built Environment
University of California, Berkeley

Paul Linden and Anna Lui
University of California, San Diego

Fred Buhl and Darryl Dickerhoff
Lawrence Berkeley National Laboratory

Abstract

This multi-year project developed EnergyPlus/UFAD, a version of the publicly available whole building energy simulation program EnergyPlus that adds the capability for modeling underfloor air distribution systems. The project also developed a practical design tool for determining the cooling airflow quantity for underfloor air distribution systems.

EnergyPlus/UFAD and the cooling airflow design tool are the first validated underfloor air distribution system tools of their kind. As such, they represent a significant advance in the state of the art of the design and energy analysis of such systems. This highly collaborative effort involved experts and facilities from four organizations, including the Center for the Built Environment at University of California, Berkeley; University of California, San Diego; Lawrence Berkeley National Laboratory; and York International. This final report and seven appendices present experimental testing and analytical and computational fluid dynamics modeling on room air stratification and underfloor plenum distribution—critical efforts that formed the development of models for EnergyPlus. Also discussed are new implementations of heating, ventilation, and air conditioning systems to support underfloor air distribution system modeling in EnergyPlus and the development of a practical design tool for such systems.

<http://www.energy.ca.gov/2007publications/CEC-500-2007-050/CEC-500-2007-050.PDF>



ANZAScA 2008 – November 26-28, 2008

42nd Annual Conference of the Australian and New Zealand Architectural Science Association

Abstracts due April 18, 2008
University of Newcastle, Newcastle, Australia
Web Site: <http://www.newcastle.edu.au/anzasca2008/>

Announcement from Dr. Christoph van Treec of IBPSA-Germany – BauSIM 2008

it is our pleasure to announce the second bi-annual conference of IBPSA-Germany which will be held in Kassel, Germany on September 8-10, 2008 at the University of Kassel. The main focus will be placed on the topic "Sustainable and energy efficient building design." The deadline for submitting abstracts is April 30, 2008. A number of selected contributions will be subject to publication in the journal BAUPHYSIK. Details of BauSIM 2008 are on the conference website: <http://bausim.ibpsa-germany.org> treeck@bv.tum.de

EnergyPlus Version 2.1

Support Tools

Support software is listed on the main EnergyPlus website.

Weather Data

http://www.eere.energy.gov/buildings/energyplus/cfm/weather_data.cfm

Weather data for more than 800 locations are now available in EnergyPlus weather format.

See the write-up on how to create [Meteonorm Files](#)

Ask an EnergyPlus Expert

Questions from program users are answered promptly via the EnergyPlus User Group at Yahoo. To join, go to http://groups.yahoo.com/group/EnergyPlus_Support/

Selected questions and answers have been compiled into PDF documents: for [2002](#), for [2003](#), for [2004](#), for [2006](#), for [2007](#).

Are you an EnergyPlus consultant?

If you are an EnergyPlus consultant and would like to be listed in this newsletter and on our website, please send details to klellington@lbl.gov

Testing and Validation

Go to <http://www.eere.energy.gov/buildings/energyplus/testing.html> for info.

EnergyPlus is being developed by University of Illinois and Lawrence Berkeley National Laboratory, DHL Consulting, C. O. Pedersen Associates, Florida Solar Energy Center, GARD Analytics, the National Renewable Energy Laboratory, Oklahoma State University and others. Development of EnergyPlus is supported by the U. S. Department of Energy, Assistant Secretary for Energy Efficiency and Renewable Energy, Office of Building Technologies Program (Program Manager, Dru Crawley).

NEW ENERGYPLUS CONSULTANT

-- AUSTRALIA --

[P. C. Thomas](#)

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Meetings - Conferences - Symposia

2008

May 03-08	Solar 2008	http://www.ases.org/solar2008/
June 16-18	8th Nordic Symposium on Building Physics	http://www.nsb2008.org/
June 21-25	ASHRAE Annual Meeting in Salt Lake City, UT	http://www.ashrae.org
July 30 -Aug 01	SimBuild 2008 (Univ.Calif at Berkeley)	http://gaia.lbl.gov/ocs/index.php/simbuild/2008
August 17-22	Indoor Air 2008	http://www.indoorair2008.org
September 08-10	BauSIM 2008 IBPSA-Germany	http://bausim.ibpsa-germany.org

DOE-2.1E, Version 124

Are you a DOE-2 Consultant?

If you would like to be listed as a DOE-2 consultant on our website and in the *User News* please contact klellington@lbl.gov

DOE-2 Documentation OCR'd by the Energy Systems Lab, TAMU

PDF files at this link: <http://esl.tamu.edu/pub/DOE%2D2%5FOCR%5FManuals/>

More Free DOE-2 Documentation. Download from <http://SimulationResearch.lbl.gov/>

[DOE-2 Basics Manual \(2.1E\)](http://gundog.lbl.gov/dirpubs/BASIC/basiclist.html) <http://gundog.lbl.gov/dirpubs/BASIC/basiclist.html>

Update Packages: Update Packages are not cumulative; each one contains different information. Download all four packages then print and insert the pages into your existing DOE-2 manuals.

[Update Package #1:](#) DOE-2.1E Basics, the Supplement and BDL Summary

[Update Package #2:](#) BDL Summary and Supplement

[Update Package #3:](#) Appendix A of the Supplement

[Update Package #4:](#) (1000-zone DOE-2.1E) BDL Summary

[DOE-2 Modeling Tips \(pdf files\)](#) for [2006](#) [2005](#) [2004](#) [2003](#) [2002](#)

A compilation of all the "how to" and "DOE-2 Puzzler" articles from the newsletter.

[Changes and Bug Fixes to DOE-2.1E \(txt file\)](#)

<http://simulationresearch.lbl.gov/dirpubs/VERSIONS.txt>

All changes and bug fixes in a plain-text document.

Those energetic folks at the Building Simulation Laboratory at Texas A&M University have scanned all the DOE-2 manuals into pdf files. Jeff Haberl and Company have generously made the files available to DOE-2 users. Follow the link to the searchable pdf files [including the rare "Engineers Manual"].

<http://esl.tamu.edu/pub/DOE%2D2%5FOCR%5FManuals/>

NEW DOE-2 CONSULTANT -- CHINA

Jeff Wang

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American Council for an Energy-Efficient Economy (ACEEE)

April 10 [Energy Efficiency Finance Forum](#) (Arlington, VA)

August 17 [2008 ACEEE Summer Study on Energy Efficiency in Buildings](#)

2008 Educational Programs

Pacific Gas & Electric Company, San Francisco, California

For a complete listing of classes or to register go to www.pge.com/pec

BUILDING ENVELOPE

May 21 [Solar Analysis Boot Camp](#)

CONTROLS

May 07 [HVAC Control Series: Optimal Sequences of Control for HVAC Systems](#)
Jun 04 [Preparation for Nonresidential Lighting Technician Certification Exam](#)

DAYLIGHTING

Apr 02 [Daylighting Series](#)
May 21 [Solar Analysis Boot Camp](#)

H V A C

Apr 15 [HVAC Control Series: Principles of HVAC Control](#)
May 07 [HVAC Control Series: Optimal Sequences of Control for HVAC Systems](#)
Jun 03 [Introduction to Geothermal Heat Pumps](#)

LEED

Apr 02 [Daylighting Series](#)

LIGHTING

Apr 22 [Best Practice Lighting Report: The Devil is in the Details](#)
Apr 25 [See SPOT Run](#)
Jun 03 [Lighting Fundamentals](#)
Jun 04 [Preparation for Nonresidential Lighting Technician Certification Exam](#)

RENEWABLES

Apr 10 [Understanding Financial Analysis Methods for Photovoltaic \(PV\) Systems](#)
May 20 [Photovoltaic \(PV\) Site Analysis and System Sizing](#)

SOFTWARE

Apr 25 [See SPOT Run](#)

Journal of Building Performance Simulation

The *Journal of Building Performance Simulation* (co-edited by Ian Beausoleil-Morrison and [Jan Hensen](#)) is the new, official journal of the *International Building Performance Simulation Association (IBPSA)*. The first issue will debut in March 2008. 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.

Information about the journal is available at <http://www.tandf.co.uk/journals/titles/19401493.asp>

**DRQAT: A DEMAND RESPONSE
QUICK ASSESSMENT TOOL FOR LARGE
COMMERCIAL BUILDINGS**



Peng Xu, of Lawrence Berkeley National Laboratory, has developed a Demand Response Quick Assessment Tool. The tool, built on EnergyPlus simulation, is able to evaluate and compare different DR strategies, such as global temperature reset, chiller cycling, supply air temperature reset, etc.

The opportunities for demand reduction and cost savings with building demand responsive controls vary tremendously with building type and location. This assessment tool will predict the energy and demand savings, the economic savings, and the thermal comfort impact for various demand responsive strategies.

Users of the tool will be asked to enter the basic building information such as types, square footage, building envelope, orientation, utility schedule, etc. The assessment tool will then use the prototypical simulation models to calculate the energy and demand reduction potential under certain demand responsive strategies, such as precooling, zonal temperature set up, and chilled water loop and air loop set points adjustment.

Contact Peng Xu (PXu@lbl.gov)

PowerPoint Presentation:

<http://drrc.lbl.gov/pubs/webcast-7-9-07-xu.pdf>

Download DRQAT:

http://www.eere.energy.gov/buildings/tools_directory/software.cfm/ID=522/pagename=alpha_list

SIMBUILD 2008

BERKELEY

JULY 30, 2008 – AUGUST 1, 2008

IBPSA-USA will hold its third national conference on building simulation July 30 - Aug 1, 2008 on the campus of the University of California, Berkeley. The format will be broadly similar to SimBuild 2004 at the University of Colorado, Boulder and SimBuild 2006 at MIT, except that there will be more time allocated to invited presentations and structured discussions on key topics of current interest. Training workshops by various software vendors are being scheduled for the Monday and Tuesday preceding the conference.

<http://gaia.lbl.gov/ocs/index.php/simbuild/2008>

Conference Chair

Philip Haves

Lawrence Berkeley National Laboratory

Email: PHaves@lbl.gov

Scientific Co-Chairs

[Michael Wetter](#), LBNL, United States

[Larry Degelman](#), Texas A&M

