*EnergyPlus*SPARK*DOE-2* EnergyPlus*VisualSPARK*DOE-2*GenOpt*EnergyPlus*DOE-2*GenOpt*EnergyPlus*
*VisualSPARK*DOE-2*GenOpt*SPARK*EnergyPlus*DOE-2*GenOpt*VisualSPARK*DOE-2 *GenOpt*EnergyPlus*

Building Energy Simulation ◆ *User News*

*EnergyPlus*SPARK*DOE-2* EnergyPlus*VisualSPARK*DOE-2*GenOpt*EnergyPlus*DOE-2*GenOpt*EnergyPlus*
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Highlights

Regular Features

The 🐝 *Buzz*

EnergyPlus User Survey

We invite all EnergyPlus users to participate in our survey. The questionnaire is on the Simulation Research Group's website.

Here's the direct link: http://SimulationResearch.lbl.gov/surv07.html

We will be gathering data from June through September 2007.

In October we will draw the names/emails of five program users who completed the questionnaire; each one will receive a suitably "techie" prize!!

(We promise that the prize will NOT be a copy of the giant 6-ft long poster of 20th Century Buildings. ☺

Although . . . there are still a few copies available. Send email to (klellington@lbl.gov) to get a free poster!

Release of EnergyPlus 2.0

NEW FEATURES

DATA SETS

- New materials data set based on ASHRAE 2005 HOF (replaces legacy DOE-2 and BLAST data).
- Updated solar collector data set from the SRCC adds 55 more collectors for a total of 173.
- Added air change rate to ventilation loads report in StandardReports data set.

INPUT

- Objects and name lengths can now be 100 characters (previous limit was 60).
- New weather data for 86 locations added: 69 in Australia, 16 in Canada, and 1 in Iran.
- Three new unit ventilator input files created:
    - UnitVent5Zone.idf,
    - UnitVent5ZoneAuto.idf,
    - UnitVent5ZoneFixedOANoCoilOpt.idf.
- Three new thermal storage example input files created:
    - IceStorage-Parallel.idf,
    - IceStorage-Series-ChillerDownstream.idf,
    - IceStorage-Series-ChillerUpstream.idf.
- Example input files created for all new features (More than 225 example files now available)

GEOMETRY • WINDOW • WALLS • SHADING

- Shadowing Calculations object now allows user to specify maximum figures in shadowing overlaps.
- Phase change materials (PCM) with variable thermal conductivity and a temperature-enthalpy function incorporated in conduction finite difference solution algorithm.
- Basement program now outputs EnergyPlus IDF for wall and floor surface temperatures.
- Users can now enter interzone surfaces once and EnergyPlus will automatically create the mirror interzone surface.

DESIGN CALCULATIONS

- Zone Sizing modified to allow standards-type calculation of design outside air flow rates; allows minimum cooling and maximum heating limits on design supply air flow rates.

ON-SITE ENERGY SUPPLY

- Fuel cell model updated.
- Combustion micro cogeneration model added.

OUTPUT

- Report Variables and Meter Variables (rdd and mdd) separately reported and output as IDF.
- Meters can now report cumulative value in addition to resetting at reporting time interval.

Release of EnergyPlus 2.0

NATURAL AND MECHANICAL VENTILATION

- Zone forced air units added to reporting of mechanical ventilation rate and loads.
- Simple Ventilation object now reports air changes per hour.
- New options in UnitVentilator include no coil option and fixed amount for outside air control strategy.
- AirflowNetwork model can now use Zone Exhaust Fan, OnOff supply fan and the DX heating coil objects.

HVAC

- Water-to-air heat pumps now use RegulaFalsi solution technique to improve robustness and to speed up simulation.
- Applicability schedule added to System Availability Manager:Low Temperature Turn Off (to support thermal storage).
- Evaporative condenser option added to existing refrigerated case compressor racks including availability schedule and basin heater with controls.
- Draw-through fan configuration added for furnaces, unitary system and air-to-air heat pumps.
- Different supply air flow rates now allowed for cooling, heating and when no cooling or heating is required in unitary, furnace and air-to-air heat pumps.
- Common Pipe for Primary-Secondary systems provides an alternative to the Connection component object to model Primary-Secondary systems
- Balanced flow desiccant heat exchanger option added for the existing heat exchanger-assisted DX cooling coil object.
- Stratified water heater model added.
- Uniform load distribution option added to plant load range based operation scheme.
- Height-dependent air temperature and wind speed now available for most HVAC systems.

UTILITIES

- New EP-Launch utility tab added where users can launch Basement, CalcSoilSurfTemp, CoeffCheck, CoeffConv, Slab and Weather utilities.
- CSVproc now supported in EP-Launch.
- IDF Editor now preserves the order of user IDFs and includes a large number of other new features.

WATER MANAGER

- Green roof simulation added.

DOCUMENTATION AND GUIDES

- Input/Output Reference and Engineering Reference updated and extended for all new features and updates. Total documentation now exceeds 3300 pages.

EnergyPlus Now Available for Apple's Intel-based Macintosh Platform

The newest version of EnergyPlus (2.0), released on April 12, 2007, is also available today for Apple's Intel-based Macintosh platform (in addition to Windows and Linux versions). Key new features in V 2.0 include green roofs, phase-change materials, and enhanced building controls. 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 later in 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 more than 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 6 years of discussion. You can also upload files to share with other users. This group supplements but does not replace the primary support email address of 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

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* * * ENERGYPLUS SURVEY * * *
The EnergyPlus Development Team would like your input. We need to know who you are and how you use EnergyPlus. This is your chance to help guide the future development of EnergyPlus.
User Questionnaire.

ENERGYPLUS EXAMPLE FILE GENERATOR – *UPDATED!!!*

http://www.eere.energy.gov/buildings/energyplus/interfaces_tools.html

DOE and NREL are pleased to announce the update of the EnergyPlus Example File Generator. The goal of the Example File Generator is to provide input files for building models that serve as a starting point for using and learning EnergyPlus. This service is free and available at the EnergyPlus web site (www.energyplus.gov) under Interfaces & Other Tools.

Web-based forms allow you to input some general information about the building you want to model. The service then automatically creates a complete EnergyPlus input file, runs an annual simulation on NREL's computers, and then sends you an email with the EnergyPlus input file along with a summary of the annual energy results (and a dxf image file). The attached DXF of an EnergyPlus example file was generated in just a few minutes.

Assumptions should be carefully reviewed. There is no guarantee that the models are fully compliant with the energy performance Standards used to generate model details.

The new version has many new capabilities:
- Generates input file for EnergyPlus version 2.0.
- The input files are now completely annotated with the descriptions of the fields for each object.
- Added input boxes on the web page for New footprints for geometry including Rectangle, Courtyard, L-Shape, H-Shape, T-Shape, U-Shape
- Gas appliances
- Fins
- Continuous daylighting
- Addition of over 50 HVAC systems
- Ventilation rates by people and/or area
- Service Water Heating inputs

Give the service a try! If you have questions or feedback, email ewi_support@nrel.gov.

Ask an EnergyPlus Expert . . .

AIRFLOW OBJECT -- DESIGN VOLUME FLOW RATE

I want to simulate natural ventilation and have a question about the Airflow Object.
How do I explicitly define the design volume flow rate?

Answer
When using INFILTRATION and VENTILATION (simple airflow method), you must calculate the design volume flow rate using other software, handbook formulas, or "rules-of-thumb."
You can also use the AIRFLOWNETWORK simulation to compute flow rates using descriptions of openings, flow coefficients, and wind pressures. See AIRFLOWNETWORK SIMULATION, and AIRFLOWNETWORK:MULTIZONE:*.

Ask an EnergyPlus Expert . . .

MODEL CREATION AND AUTOSIZING

I have a basic question about model creation using EnergyPlus. We used the autosizing function to determine several factors for a cooling tower and detailed cooling coil but we ended up with a very unstable model. Is it typical to place autosizing parameters in the unknown components in EnergyPlus, run the appropriate sizing parameters, and then replace the autosize with the resulting values? In what cases will the "design" parameters (cooling tower W/k, fan flow, cooling coil capacitance etc.) not allow stable operation for all types of weather?

Also, I have been getting errors about an "unacceptable loop demand range" causing cooling tower shutdown for various errors and that the "condenser loop volume is too small for stable operation." The values that appear to cause the errors are the actual values observed in the building.

Answer
Generally, a fully autosized run behaves very well, and it is not typical to go back and replace autosize with hard values.

The "unacceptable loop demand range" may just be an input issue. In the range-based operation objects, the last upper range limit should always be a very large value to avoid an early iteration landing in the out-of-range zone.

The "condenser loop volume is too small for stable operation" appears to be happening at odd times (might be a small bug) but it should be adjusting this upward automatically and running fine.

Question
I understand that it may not be necessary to remove the autosizing parameters; however, the run time is excessive when using the system, plant, and zone sizing in the run parameters. Is there a recommended procedure for implementing values, in place of the autosizing numbers, that would allow me to run the model without these run control features active? It seems that I should be able to "size" the plant once, based on typical equipment parameters for a building of some cooling load, and keep those parameters for each day of the year. Is there any critical limiting factors that would keep me from setting the coil and cooling tower characteristics constant throughout the simulation year?

Answer
I am surprised that autosizing would add significantly to run time. Sizing performs a loads-only (purchased air simulation) for each DesignDay, then calls the systems once-through to size components.

All of the computed sizes are reported in the eio output file and once these are determined, they are fixed for the entire simulation -- nothing is changing over the course of the year.

The procedure for using hard sizes would be to take the values reported in the eio ouput component sizing reports and copy/paste them into the idf file, replacing each instance of "autosize." I doubt that you will find much difference in run-time between the autosized and hard-sized versions of the input, but if you do, please send us the input files for further investigation.

Ask an EnergyPlus Expert . . .

AUTOSIZING MULTIPLE CHILLERS

My model that includes two chillers and I used design objects to autosize them. However, I found that only one of the chillers works!

Answer
EnergyPlus autosizing does not understand multiple pieces of equipment. It will size each piece to meet the full load, in this case both chillers. Whenever you use multiple boilers, chillers, or cooling towers, follow this procedure:

1. Run the simulation with the plant equipment autosized.

2. Find the reported equipment capacities (for chillers, boilers, etc.) in the eio output file. The capacity of any one chiller or boiler will be the full-load capacity. (You should see the same capacity reported for each chiller, for example.)

3. Make a new version of the input file with hard sizes specified as needed to allocate the full-load capacity among the chillers (or boilers, etc.).

AUTOSIZING AND PARAMETRICS

I just finished the simulation of a baseline building using EnergyPlus. All of the equipment in this building was autosized. I plan to model multiple energy conservation measures using this baseline building. However, I am concerned that, with each simulation run, when I model an energy conservation measure (and add it to the baseline model), the capacity of the building equipment (boiler, chiller, fan, etc.) will change. Do I have to hard-size the equipment (boiler, chiller, fan, etc.), based on the values from the baseline model's EIO for the runs where I model these measures? Will the autosized capacity of the equipment to change with each run? Or, should I expect the autosized values to remain the same with each run?

Answer
If the energy conservation measures affect the building's zone loads, then the autosized zone design flow rates will change and, downstream, the boiler, chiller, fan, etc. An example would be a different type of window -- that would affect the autosizing results.

Question
Thanks for the response. Do you know of an easy way to input the autosized values from the EIO into the IDF? Inputting these values into the IDF manually seems time consuming and I am looking for an easier way.

Answer (work-around)
There is no automated way to do that. However, you could try this: Specify fixed flow rates in the ZONE SIZING and SYSTEM SIZING objects using the flow/zone and flow/system options. Then let the HVAC components autosize. The fixed flow rates will decouple the autosizing from actual zone loads, and the rest of the system sizing is driven by the supply air flow rates. I can't remember for sure if the zone sizing factor is applied to these values (it is for some inputs, not for others), so set the sizing factor to 1.0 for this approach.

Ask an EnergyPlus Expert . . .

WIND SPEED FOR SURFACE ORIENTATION

How does EnergyPlus determine the "Surface Ext Wind Speed" output from site wind speed, as listed in a design day object? There must be a formula that involves surface orientation but I cannot find it in the documentation.

Answer
The simple calculation does not take orientation into account.

From the Input/Output Reference:

Surface Ext Wind Speed [m/s]
The outdoor wind speed is calculated at the height above ground of the surface center.

From the code:
```
! LocalWindSpeed = Windspeed [Met] * (Wind Boundary LayerThickness
[Met]/Height [Met])**Wind Exponent[Met] &
! * (Height above ground / Site Wind Boundary Layer Thickness) ** Site
Wind Exponent
! LocalWindSpeed = WindSpeed * WeatherFileWindModCoeff * (Z /
SiteWindBLHeight) ** SiteWindExp
```

The calculations are also discussed in some detail in the Output Details and Examples document (file: eplusout.eio)

SYSTEM VOLUME FOR CHILLED AND CONDENSER WATER

In my experience with using EnergyPlus, it becomes very unstable at system volumes under 10,000 gallons.

If I let the program autosize this value to something very large (say, 120,000 gallons) what keeps the program from modeling such systems like a thermal storage loop when the system volume is so much larger than the actual building? How can I improve program stability for reasonable system volumes?

Answer
There are example files that auto-calculate loop volumes much smaller than 10,000 gallons and show no stability problems. For example, the reported loop volume for SolarCollectorFlatPlateWater.idf is 0.63787 m^3 (or 168) gallons. The auto-calculated loop volume is proportional to the loop maximum flow rate and the length of the zone time step. If the loop maximum flow rate input is not autosized, be sure that it is not larger than it should be.

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* * * ENERGYPLUS SURVEY * * *
The EnergyPlus Development Team would like your input. We need to know who you are and how you use EnergyPlus. This is your chance to help guide the future development of EnergyPlus.
User Questionnaire.

Ask an EnergyPlus Expert . . .

LOADS REPORTING

How do I get EnergyPlus results in the form of heating loads, cooling loads and lighting loads?

Answer
There are several different ways to report these. It depends on what exactly you are looking for: zone-level loads, equipment or coil-level loads, energy consumption by end-use, other?

For energy use by end-use, try this command:

```
Report:Table:Predefined,
Annual Building Utility Performance Summary; !- ReportName1
```

Some example monthly report objects may be found in

```
C:\EnergyPlusV1-4-0\DataSets\StandardReports.idf
```

VIEW FACTORS ERROR

I'm modeling an attic space in an A-Frame building; the ceiling has two sloped sides and one flat side. I got the following error. Can you tell me if this error was based only on the geometry or should I start digging into the coordinates.

```
** Severe ** View factors not complete. Probably bad surface
descriptions in zone="OPEN_LAB_404".
** ~~~ ** Enforced reciprocity has tolerance (ideal is 0.0)=1.3595E-002
```

Answer
First, check REPORT, Surfaces, Details; and make sure that all five surfaces enclosing the attic have the correct azimuth and tilt (result go in the eio output file). If these are correct, you might try breaking the two large sloped surfaces into two surfaces each. In extreme geometry situations, the view factor algorithm sometimes works better with several small surfaces rather than a few large ones.

SIMULATING AN EXTRA-LIGHT STRUCTURE

I need to simulate a very light envelope with 50% window-to-wall ratio (WWR); the walls are composed of three layers: metal, insulating material and again metal. Are there any restrictions to simulating such a structure with EnergyPlus? I am concerned, having such light envelope, that EnergyPlus might experience some numerical difficulties for convergence.

Answer
Describe the materials as regular materials (instead of just R values) and you will be better off. There is one example file that is described with very light (just R) values but it's not suggested for general use.

Ask an EnergyPlus Expert . . .

WIND PRESSURE COEFFICIENTS

There's something I don't completely understand about the wind pressure coefficients. In order to find the Cp values around my building, I've done CFD analyses. In my case, the predominant wind comes from the North; the wind that flows from North to South is what I've simulated using CFD so I know both the pressure distribution and the Cp values. What's the meaning of the 45° increments for each value of Cp?

Answer
Simulating the building with wind from the North gives you the Cp values for all surfaces at that wind angle (0). But this is just 1 Cp value for each surface. The wind in any simulation will come from many (or all) directions. If you simulate your building from the East, South, and West, you will then have the Cp values for all surfaces at wind angles of 90, 180, and 270. But, again, this is only 4 wind directions. If you simulate the building with wind from the North, NorthEast, East, SouthEast, South, SouthWest, West, and NorthWest, you will then have the Cp values for all surfaces at wind angles of 0, 45, 90, 135, 180, 225, 270, 315, and 360 (45 degree increments). Now you have Cp values for all surfaces at 8 wind directions. Get the idea? Since you already have the CFD model, this should be pretty easy.

CONVECTION COEFFICIENT

In my building model, I want to adjust the convection coefficient for the walls/floor/ceiling to the air by myself. Are there typical values for a room of about 16m^3 and infiltrations of 27m^3/h? And how does that value change if I introduce an HVAC with 10ACH?

Answer
You can report out the interior convection coefficients for a surface using the report variable called "Surface Int Convection Coeff."

First try reporting out the coefficients using the "Detailed" algorithm, which is an option under the INSIDE CONVECTION ALGORITHM object. The "Detailed" algorithm sets the coefficients based only on natural convection. Next, you can try the "CeilingDiffuser" algorithm, which adjusts the convection coefficients based on the ACH of air flow through the zone node. You will need to set up an air loop to provide 10 ACH. You should be able to take one of the example files and modify it for your needs. The one called FurnaceWithDXSystem.idf might be a good place to start. With the "CeilingDiffuser" algorithm, keep in mind that for ACH < 3.0 the correlation is not valid and the algorithm reverts to "Detailed." Finally, to set your own convection coefficients on a surface, use the CONVECTIONCOEFFICIENTS object.
The objects mentioned above are also documented in the Input/Output Reference and the Engineering Reference.

EnergyPlus Technical Note – Opaque Ventilated Façades

On May 28, 2007, Emanuele Naboni (PhD Candidate), a visiting researcher from the Politecnico di Milano (Italy) gave a lecture at Lawrence Berkeley National Laboratory on how he used EnergyPlus to model Ventilated Opaque Façades. A .pdf of his presentation is available at
http://SimulationResearch.lbl.gov/reports.html under the heading "All EnergyPlus Reports."
Here is the direct link: http://simulationresearch.lbl.gov/dirpubs/vent_facade.pdf

Ask an EnergyPlus Expert . . .

HOT/CHILLED WATER RESET SAVINGS

I am tying to estimate the energy savings of implementing a hot water reset as a function of outside air. When I implemented the hot water reset, the energy consumption of the boiler did not change – there were no energy savings. Why? I am using the BOILER:SIMPLE object; does it take into account the temperature of water delivered in its energy consumption calculation?

Answer
No, BOILER:SIMPLE does nothing more than apply the nominal efficiency and a part-load curve. It does not model any jacket losses, and so it's efficiency is not sensitive to the supply temperature. Also, with no piping losses in the simulation, that effect is not present either.
So, I would expect the same boiler energy consumption for these two cases. I can't think of an easy way to model this with current capabilities.

Question
I am having the same issue with chilled water reset -- is this to be expected?

Answer
No. Higher chilled water supply temperatures should reduce chiller power consumption for the same load. This assumes that the chiller EIR as a function of temperature curve is valid. One would also expect the load to fall because the latent cooling at the coils should fall with higher water temperatures.

SOLAR OUTPUT VARIABLES

I have a question about the Solar Exterior Surface Incident output variables. EnergyPlus reports the units in [W/m^2] if dimensions for each surface are known. Since the four points in the space must be defined, why not report directly in [W]? Then, the total solar radiation per area unit incident on a surface is the sum of Surface Ext Solar Incident + Surface Ext Solar Sky Diffuse Incident. Am I misunderstanding these output variables?

Answer
EnergyPlus does know the area of the surface, but the goal of these report variables was to report the solar intensity, which is easier to compare between surfaces when it has been normalized by the area. If incident solar for each surface in W would be useful, we can add it to the suggestion list. Most report variables are defined in the Input/Output Reference, just search for the variable name.

Here are four related report variables for incident solar:
    Surface Ext Solar Incident
    Surface Ext Solar Beam Incident
    Surface Ext Solar Sky Diffuse Incident
   Surface Ext Solar Ground Diffuse Incident

The first one is the sum of the last three.

The Solar Shoe Box, a Simple-to-Use Interface for EnergyPlus

The Solar Shoe Box creates a rectangular model (shoe box) of a direct gain passive solar building.

ArchiPhysics *

The precursor to The Solar Shoe Box was a program called FreeRunner, which was written to show how different variables affect the indoor temperature of a building. The user interface is similar to an equalizer, wherein the user "fine tunes" the indoor temperature level and temperature swings by using sliders to increase or decrease the variable.
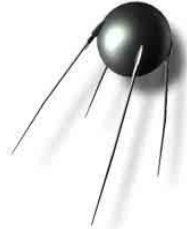
SolarShoeBox (basically a graphical text editor) has a OpenGL modeler and interfaces with EnergyPlus.

SolarShoeBox runs on both Windows and Macintosh (Universal). If you do not yet have the Mac version of EnergyPlus, SolarShoe Box will create an IDF that you can transfer to Windows to run in EnergyPlus.

If you download and use the program, please send your comments to troy@archiphysics.com

It's not Rocket Science . . . It's Building Science

* Troy N. Peters (AIA, LEED AP) is an architect living near Chicago, IL. He has created ArchiPhysics, a site that enables people to share research and teaching aids he has developed. The software on ArchiPhysics is free for the download. The EnergyPlus Development Team would like to thank Troy for allowing us to include his SolarShoe Box with other EnergyPlus-related software.

New Software From NRC-CNRC – The Institute For Research In Construction

Daylight 1-2-3

Daylight 1-2-3 (formerly known as the Lightswitch Wizard) is a non-expert design analysis tool that supports daylighting-related design decisions in commercial buildings during the initial design and design development stages. It predicts the daylighting and energy performance of side- and top-lit offices and classrooms.

The software was developed to help design professionals develop climate-responsive daylighting design concepts, optimize façade and roof layout and orientation with respect to daylight and energy use, and to quantify energy savings from occupancy sensors or photocell controlled dimming.

You can download the (WINDOWS only) software free-of-charge from www.daylight1-2-3.com.

Free Publications*!!!*

The New Buildings Institute has recently released pdf versions of their new Advanced Buildings Core Performance Guide and the Advanced Buildings Benefits Guide.

Download from:

http://www.advancedbuildings.net/publications.htm

nbi

Please visit our website at http://SimulationResearch.lbl.gov

EnergyPlus Version 2.0

Support Tools

Support software is listed on the main EnergyPlus website.

Weather Data

Main weather data site is at
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 2005, for 2006

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).*

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 monthly *User
News* Newsletter, please contact klellington@lbl.gov

Get Free DOE-2 Documentation. Download from http://SimulationResearch.lbl.gov/

DOE-2 Basics Manual (2.1E) 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 text document.

IBPSA
International Building Performance Simulation Association

Free Membership:
Did you know that membership in many of the IBPSA affiliates is now free of charge? Australasia, Canada, China, the Czech Republic, Germany, Switzerland and the U.S. all offer free membership. Links to the affiliates are listed on the Simulation Research Group's *Big List of Free* (http://SimulationResearch.lbl.gov/dirsoft/free.html) or you can go directly to the Affiliates page at IBPSA (http://www.ibpsa.org/m_affiliates.asp).

WikiPedia for Building Simulation
What do you get when you combine *Building Simulation* with a *WikiPedia*?? You get *Simupedia* -- a user-driven encyclopedia aimed at building simulation practitioners!! The idea originated with IBPSA-Germany and it is hoped that Simupedia will become a world-wide effort. Add to it at http://129.187.44.165/index.php/Simupedia/en .

IBPSA-Germany
Simupedia
Simulationsratgeber Bauwesen

Building Energy Events Offered at the Pacific Energy Center
San Francisco

PG&E Pacific Gas and Electric Company®

Building Controls
Aug 20   BOMA BEEP Seminar 4: No-Cost and Low-Cost Operational Adjustments to Improve Energy Performance

Building Performance
Aug 01   Retrocommissioning In Practice: Finding Low-cost Energy-saving Opportunities in Your Building
Aug 20   BOMA BEEP Seminar 4: No-Cost and Low-Cost Operational Adjustments to Improve Energy Performance

Commissioning (Cx)
Aug 01   Retrocommissioning In Practice: Finding Low-cost Energy-saving Opportunities in Your Building

Incentive Programs
Aug 11   Solar Power Basics for Residential Customers
Sep 08   Solar Power Basics for Residential Customers
Oct 13   Solar Power Basics for Residential Customers

Marketing + Finance
Sep 17   BOMA BEEP Seminar 5: Valuing Energy Enhancement Projects and Financial Returns
Sep 17   BOMA BEEP Seminar 5: Valuing Energy Enhancement Projects and Financial Returns - An Online Course
Oct 15   BOMA BEEP Seminar 6: Building an Energy Awareness Program - An Online Course

Renewables
Aug 11   Solar Power Basics for Residential Customers
Sep 08   Solar Power Basics for Residential Customers
Oct 13   Solar Power Basics for Residential Customers