



Release of EnergyPlus 1.1.1



The newest version of EnergyPlus (1.1.1) was released on September 17, 2003 and is now available in versions for the Windows and Linux operating systems. Many updates and extensions have been made to the building envelope, daylighting, and HVAC equipment and systems portions of the program. EnergyPlus can be downloaded free of charge from the EnergyPlus web site: www.energyplus.gov.

New Features of EnergyPlus Version 1.1.1

Input:

- Complete set of compact schedules for EnergyPlus use (including ASHRAE Standard 90.1-1989 schedules)
- All schedules are extensible--fields can be added to IDD as needed
- EPMacro variable names no longer case sensitive
- Users can change the number of warm-up days for certain input files if warranted
- Users can additionally specify dew point temperature in the design days or a relative humidity schedule
- Users can also set when minimums and maximums occur.

Geometry/Windows/Walls/Shading:

- Transform geometry automatically while rotating
- Shading surface transmittance accounted for in detailed daylighting calculation
- Added return air as destination choice for airflow windows
- Radiant system surface group is now extensible to any number of surfaces

Daylighting:

- Daylight illuminance maps
- Tubular daylighting devices (light tubes) including illuminance, solar gains and thermal resistance
- Daylighting shelves

COMIS:

- Added venting availability schedule to COMIS venting control at zone level
- Individual window/door COMIS venting control
- Automatic calculation of COMIS wind pressure coefficients for rectangular buildings

Electrical Power:

- Photovoltaic power calculations now integrated at time step, along with better reporting

HVAC:

- All chillers report COP at the time step
- Flow limits, outside air, and schedules added to Purchased Air
- Free cooling chiller works with all chiller types and may be on any branch
- Autosizing for Chiller:Direct Fired Absorption
- Frost control options
- Control supply air temperature to a setpoint when the air-side economizer is active
- Light-heat-to-return now included in air loop autosizing
- Lights return air fraction as function of return plenum temperature and air flow
- Simplified demand controlled ventilation
- Stand-alone energy recovery ventilator zone equipment (directly connected to a zone)

HVAC (continued):

- Autosized HVAC templates for Purchased Air, 4 pipe fan coil, VAV, and boiler and chiller loops
- New variable speed DX coil performance curves (5ZoneAutoDXVAV example file)
- Conversion utility for DOE-2 performance curves
- New temperature controlled (constant flow) hydronic low temperature radiant systems
- Additional evaporative cooler model
- Fluid properties set
- Pond heat exchanger
- Glycol reference data set
- Four new condenser loop operation control schemes based on environmental parameter ranges for hybrid ground source heat pumps

Output:

- Standard, sizing and daylight map reports can now be saved as CSV, TXT or tab-separated
- New standard report for time-binned outputs
- End Use category for electric equipment
- Overcast sky daylight factors written to the EIO file
- New monthly reports can be written in CSV, TXT, tab or HTML formats. Users can either define custom reports or use predefined reports which are similar to these DOE-2 standard reports:
 - Building Loads (DOE-2 LS-D)
 - Space Loads (DOE-2 LS-E)
 - Energy Consumption (by energy source, DOE-2 PS-B)
 - End-Use Energy Consumption (by energy source, DOE-2 PS-E)
 - Peak Energy End-Use by Source (by energy source, non-coincident)

Utilities:

- Many enhancements to IDFEditor including support for new units, pull down lists for choices and zero values
- Significant improvements (more than 20x) in execution speed for ReadVars
- ReadVars now can write more than 254 variables (Excel still will only read in the first 255 columns)
- ReadVars users can now specify the delimiter on their output files by selection of the proper file extension
- WinEPDraw detects non-planar surfaces and degenerate surfaces but will still produce a DXF
- EP-Launch supports the new style output (delimiter) files

EnergyPlus Weather Data

In August 2003, we republished all the weather data set on the EnergyPlus web site. The STAT report has been updated with many new statistics; please go to www.energyplus.gov/weatherdata.html

If you have weather data to share, please contact the EnergyPlus team at EnergyPlus-Support@gard.com.

Interfaces for EnergyPlus

A beta version of the first EnergyPlus user interface, DesignBuilder, is available at www.designbuilder.co.uk. DesignBuilder provides a range of environmental performance data such as: annual energy consumption, maximum summertime temperatures and detailed feedback on temperatures and heat flows in the building. DesignBuilder provides an interface to the latest EnergyPlus version for envelope, solar, ventilation and daylighting capabilities as well as heating and cooling load modeling. The software comes with summer and winter design data for 1439 worldwide locations and has access to more than 500 hourly simulation weather files.

Several developers have tools that produce or work with EnergyPlus IDF files:

www.squ1.com/

Ecotect from Square One couples an intuitive 3D design interface with a comprehensive set of performance analysis functions (visualization, solar and daylighting analysis, shadows and shading, lighting design, thermal

performance, UK building regulations, ventilation, and acoustic analysis) with interactive information displays. It also can export an EnergyPlus IDF file.

www.drawbdl.com/

DrawBDL, which allows users to visually review the building geometry in DOE-2 input and output files, can export the DOE-2 surface data in EnergyPlus IDF format (useful if you who want to convert DOE-2 input files into EnergyPlus input files).

www.deringergroup.com/Software/EPlusTools.htm

Several tools are available from the Deringer Group: DrawEzPlus is a 3-D geometry rendering tool that displays the geometry imbedded in an EnergyPlus file. Users can toggle between line and surface (fill) presentation modes, and can select to draw any mix of key building objects -- floor, walls, roof, windows, and attached and detached shading. EzPlus-Parm simplifies running multiple parametric EnergyPlus simulations. EzPlus-Parm helps a user to organize and edit all needed files. Their EcoAdvisor product also uses EnergyPlus to perform web-based building energy simulations.

www.tse-inc.net/tseplus

The first of a suite of tools to manage data for EnergyPlus is now available free of charge from Taylor Systems Engineering. TSe+Mat provides an interface to the materials datasets that come bundled with EnergyPlus and allows the user to add them to a personal database to maintain and modify for later use. Future tools under development include TSe+MatGiz (for materials and glazings) and TSe+Con (for constructions).



EnergyPlus University Course Teaching Material



The teaching of building energy simulation is well established at the university level at many institutions around the world. Many instructors have expressed an interest in using EnergyPlus in their courses if there was information available to help them switch. The U.S. Department of Energy is pleased to announce the availability of university course material for teaching building simulation using EnergyPlus. This course material is targeted specifically to the university environment for teaching students about building simulation while introducing them to EnergyPlus.

The course comprises 25 complete PowerPoint lectures (over 800 total slides) which cover topics from strategies for using energy simulation, expectations, building input, primary and secondary systems, and advanced features. While many of the lectures deal explicitly with how to model various components and systems with EnergyPlus, the lectures also provide an appropriate overview of building systems so that the students can understand the context and purpose of the technology within the building. The presentations include text, graphics, photographs, color-coded input, and other features designed to make teaching and understanding the concepts of building energy analysis easier. The course material also includes notes to instructors about assumptions made when developing the course as well as a course outline/schedule to help the instructor organize the semester and homework assignments and projects.

The course material is available at free of charge from the EnergyPlus web site. Those who download the course are simply requested to share feedback, example problems, experiences, etc. with DOE so that other instructors can benefit--and so that we can notify you of new material and updates in the future.

To download the materials, go to <http://www.eere.energy.gov/buildings/energyplus/cfm/training.cfm>

EnergyPlus Version 1.1.1

To download a free copy of the program go to
www.energyplus.gov



EnergyPlus Support Tools

Support software is listed on our website (http://simulationresearch.lbl.gov/EP/ep_tools.html) and in Section 2 of this newsletter.

EnergyPlus Weather Data from www.energyplus.gov/

There are 275 locations in the United States, 16 California thermal zones, 55 Canadian locations, and 233 international locations in more than 80 countries. We recommend that you also download the weather utility RPT file for each location. The RPT file includes design data where available, statistics for the weather file, including typical and extreme periods (hottest summer week, coldest winter week, typical spring week, etc), Koppen climate classification, heating and cooling degree days, monthly average minimum and maximum dry bulb and dew point temperatures, undisturbed ground temperatures, direct and diffuse solar radiation, relative humidity, and wind speed and direction.

Ask an EnergyPlus Expert

Questions from EnergyPlus users are answered by program developers. Download the 2002 Q&A pdf file from gundog.lbl.gov/dirpubs/un_articleEP02.pdf. To submit questions, join the EnergyPlus User Group: http://groups.yahoo.com/group/EnergyPlus_Support/

Are you an EnergyPlus Consultant ?

If you are engaged in EnergyPlus consulting, and would like to be listed in the *Building Energy Simulation User News* and on our website (<http://SimulationResearch.lbl.gov>), please send email to klellington@lbl.gov.

Join the EnergyPlus User Group

The developers of EnergyPlus have formed a support group to foster discussion and maintain an archive of information for program Users. We invite questions about program usage and suggestions for improvement to the code. Go to http://groups.yahoo.com/group/EnergyPlus_Support/

Translate EnergyPlus Web Pages

A new link on the main EnergyPlus web page (www.energyplus.gov/) allows you to view the pages in any of eight languages. Unfortunately, the translator doesn't work with PDF files. Look for the fish at the bottom of the web page. Pages may be translated into Chinese, French, German, Italian, Japanese, Korean, Portuguese and Spanish.

EnergyPlus is being developed by University of Illinois, and Lawrence Berkeley National Laboratory, with the assistance of DHL Consulting, 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, Dru Crawley, Program Manager.



Ask An EnergyPlus Expert



Time Steps

Question:

What is the difference between the *Time step* indicated in the Time step In Hour object and the "variable" time step indicated in the HVAC simulation (ref. Engineering Documentation)?

Answer:

The Time step In Hour object specifies the "basic" time step for the simulation. This is used in the Heat Balance calculation as the driving time step. When the HVAC portion of the simulation begins its solution for the current time step, it uses the basic time step as its maximum but then can reduce the time step, as necessary, to reach the solution. The technical details of the approach are explained in the Engineering Documentation, under "Integrated Solution Manager."

Users can see the actual HVAC time step used if they select the "detailed" option on an HVAC report variable (e.g. Zone/Sys Air Temp). To contrast, the "Zone" variables will only be reported on the Heat Balance time step (e.g. Mean Air Temperature).

Four time steps per hour are recommended in EnergyPlus for non-HVAC and six for HVAC calculations.

Question:

Does this mean that using a time step of one will cause EnergyPlus to diverge or sacrifice the accuracy?

Answer:

Actually, four or six time steps per hour are *necessary* for the HVAC calculations. The heat balance simulation will give reasonable results at one, four or six time steps per hour. Note that the Time Step value must be evenly divisible into 60 – therefore is limited to: 1,2,3,4,5,6,10,12,15,30,60

Operative Temperature Prediction

Question:

Is it possible in Energyplus to predict the operative temperature at a particular location within a space? I need the mean radiant temperature (MRT) and mean air temperature (MAT) at user-specified locations within the space.

Answer:

EnergyPlus does not calculate exact view factors, but you do have partial control over the MRT calculation for thermal comfort. You can choose "Zone Averaged" or "Surface Weighted" MRT. With Surface Weighted MRT, you specify a single surface in the zone which will be given a view factor of 0.5 to the person, and the other half of the MRT is the zone average. For more details, please see p. 146 of the Input Output Reference.





Ask An EnergyPlus Expert



Energy and Electricity Outputs

Question:

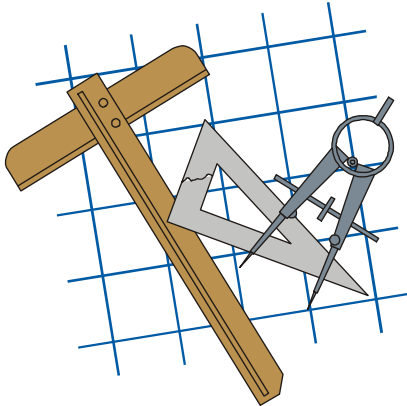
I am running three simple heat pumps serving three simple classrooms. I know the RDD file very well but I don't know which report variable to choose in order to find the electricity demand by the heat pumps. For the cooling and heating energy supplied for the room air, I use the zone/sys sensible heating and cooling report. Is this correct? Another thing : I noticed that the report meter: Electricity:Facility gives me a value much bigger than the sum of : zone/sys sensible heating + sensible cooling + lightning. can you tell me why ?

Answer:

To get the electric power of the heat pump, you must request the electric power output variables for each of its components: DX cooling coil (DX Cooling Coil Electric Power), DX heating coil (DX Heating Coil Electric Power), and fan (Fan Electric Power).

Zone/sys sensible heating/cooling are the net heating/cooling delivered to the zone. To see the gross load on the coils, see the DX heating/cooling coil output variables.

Building Energy Tools Directory



The web-based Building Energy Tools Directory at www.energytoolsdirectory.gov contains information on more than 270 building-related software tools from around the world. Haven't visited it lately? Many new tools have been added over the last several months including: AGI32, EnerCAD, PVSyst, CtrlSpecBuilder, REScheck, SkyVision, The Lightswitch Wizard, Energy CAP, ABACODE, and SMOC-ERS.

For each tool in the directory, a short description is provided along with information about technical expertise required, users, audience, input, output, validation, computer platforms, programming language, strengths, weaknesses, technical contact, availability and cost. A link is also provided for directly translating the web pages into more than eight languages.

Know of a tool (yours?) that isn't in the directory? Visit http://www.eere.energy.gov/buildings/tools_directory/your_software_here.html or contact Dru Crawley at Drury.Crawley@ee.doe.gov.



SPARK is an equation-based simulation environment that allows you to build customized models of complex physical processes by connecting calculation objects that represent system components like walls, fans, heat exchangers, chillers, ducts, mixing boxes, controls, etc. It is aimed at the simulation of innovative and/or complex building systems that are beyond the scope of whole-building programs like DOE-2 and EnergyPlus. VisualSPARK adds a graphical user interface to SPARK to simplify its use.

DOWNLOAD VisualSPARK FREE OF CHARGE FROM

<http://simulationresearch.lbl.gov> > [visualspark/](http://simulationresearch.lbl.gov/visualspark/)

SPARK WAS DEVELOPED BY THE SIMULATION RESEARCH GROUP OF LAWRENCE BERKELEY NATIONAL LABORATORY AND BY AYRES SOWELL ASSOCIATES, WITH SUPPORT FROM THE ASSISTANT SECRETARY FOR ENERGY EFFICIENCY AND RENEWABLE ENERGY, OFFICE OF BUILDING TECHNOLOGY PROGRAMS OF THE U.S. DEPARTMENT OF ENERGY, PROGRAM MANAGER DRU CRAWLEY.



PG&E Fall 2003 Programs

To register phone 415.973.7268 or go to www.pge.com/pec

WHOLE BUILDING

November 5 – 9:00 am to 4:30 pm	Nonresidential Envelope & Lighting Modeling with EnergyPro
November 6 – 9:00 am to 4:30 pm	Advanced Nonresidential Envelope & Lighting Modeling with EnergyPro (Advanced Users only, please)
November 19 – 9:00 am to 1:00 pm	Design Review Training Class
December 2-3 – 9:00 am to 4:30 pm	Commercial Energy Efficiency/Auditing (2-day class)
December 4 – 9:00 am to 1:00 pm	Commissioning Design Intent Workshop

HVAC

November 12 – 9:00 am to 1:00 pm	The Energy+Demand Response Equation
November 20 – 9:00 am to 1:00 pm	HVAC Retrofits
December 3 – 9:00 am to 4:30 pm	Raising the Energy IQ of Libraries
December 10 – 9:00 am to 4:30 pm	HVAC Fundamentals: New Ideas for Novices



ARCHITECTURE

November 18 -- 10:00 am to 12:00 pm	Skylighting in Buildings with Finished Ceiling Systems
November 18 -- 12:00 pm to 6:00 pm	Skylighting and Lighting Controls Product Showcase <i>Drop by the Energy Center to talk to product representatives about skylights and electric lighting controls. Registration for talking to reps is NOT required.</i>
November 18 -- 2:00 pm to 4:00 pm	Skylighting in Buildings with Exposed Structure
December 2 -- 9:00 am to 4:30 pm	High Performance Schools Workshop
December 17 -- 9:00 am to 12:30 pm	Green Building Materials Selection

LIGHTING

November 4 – 9:00 am to 4:30 pm	Lighting Software: Enter the Matrix
November 20 – 9:00 am to 1:00 pm	Retrofit, Relight, and Redesign
December 2 – 9:00 am to 4:30 pm	Lighting Fundamentals

EVENING LECTURE

November 3 – 6:00 pm to 8:00 pm	David DiLaura: History of Lighting Part II <i>Refreshments served before the lecture.</i>
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GenOpt 2.0 β

Generic Optimization Program

GenOpt is an optimization program for the minimization of a cost function, such as annual energy use, that is evaluated by an external simulation program.

GenOpt can be used with any simulation program -- such as EnergyPlus, TRNSYS, SPARK or DOE-2 -- that has text-based input and output. It also offers an interface for adding custom optimization algorithms to its library.

New features of Version 2.0 β

Capability to Process Discrete Independent Variables

GenOpt can now process discrete independent variables, such as different window constructions, either for optimization problems with discrete and continuous independent variables or for doing parametric studies.

New Optimization Algorithms

The following optimization algorithms are new in **GenOpt 2.0 β** :

- **GPSCoordinateSearch** and **GPSHookeJeeves**: These algorithms are members of the family of Generalized Pattern Search (GPS) algorithms. They can be used to solve optimization problems with continuous independent variables.
- **DiscreteArmijoGradient**: An algorithm that approximates gradients by finite differences and uses the Armijo line search algorithm.
- **PSOCC**, **PSOCCMesh**, and **PSOIW**: These algorithms are members of the family of Particle Swarm Optimization algorithms (which are global heuristic optimization algorithms). They can be used to solve optimization problems with continuous and/or discrete independent variables.
- **GPSPSOCCHJ**: This is a hybrid global optimization algorithm that starts by performing a Particle Swarm Optimization for the continuous and discrete independent variables and then switches to the Hooke-Jeeves Generalized Pattern Search algorithm to refine the continuous independent variables.

Pre- and Post-Processing

Some simulation programs, such as EnergyPlus, cannot pre-process the independent variables or post-process values that are computed during the simulation. For such situations, *input function objects* and *output function objects* can now be used without having to modify **GenOpt's** source code.

GenOpt 2.0 β (with documentation) may be downloaded free of charge from

<http://SimulationResearch.lbl.gov> > **GenOpt**

The Forecast Looks Favorable for ...

(Free!) Weather Data on Demand

You can access archived weather data from around the world through this U.S. DOE web interface:



www.eere.energy.gov/buildings/energyplus/cfm/weatherdata/weather_request.cfm

Hourly weather data is continuously collected and stored into a local database, available through this web interface. Most stations have information for dry bulb temperature, wet bulb temperature, wind speed/direction, atmospheric pressure, visibility, cloud conditions, and precipitation type.

Recent Reports

This report is available from the Simulation Research Group at Lawrence Berkeley National Laboratory. Please email your request to klellington@lbl.gov; be sure to include the LBNL number and title. Alternatively, you may download the pdf document from <http://gundog.lbl.gov/dirpubs/47275.pdf>.

LBNL-47275

Energy and Buildings 35 (2003) 797-811

An Empirical Correlation for the Outside Convective Air-Film Coefficient for Horizontal Roofs

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Abstract

From measurements of surface heat transfer on the roofs of two commercial buildings in Northern California we have developed a correlation that expresses the outside convective air film coefficient for flat, horizontal roofs as a function of surface-to-air temperature difference, wind speed, wind direction, roof size, and surface roughness. When used in hourly building energy analysis programs, this correlation is expected to give more accurate calculation of roof loads, which are sensitive to outside surface convection. In our analysis about 90 percent of the variance of the data was explained by a model that combined standard flat-plate equations for natural and forced convection and that took surface roughness into account. We give expressions for the convective air film coefficient

- (1) at an arbitrary point on a convex-shaped roof, for a given wind direction;
- (2) averaged over surface area for a given wind direction for a rectangular roof; and
- (3) averaged over surface area and wind direction for a rectangular roof.



VisualDOE 3.1 and LEED Training in San Francisco

Eley Associates is pleased to announce a three-day VisualDOE 3.1 professional training seminar, to be held November 19-21, 2003. This course will cover the full range of VisualDOE 3.1 features and provide a hands-on DOE-2 simulation experience. The third day (optional) will focus on using VisualDOE 3.1 to perform LEED (Leadership in Energy and Environmental Design) energy saving calculations.



VisualDOE Training (November 19-20)

This hands-on two-day training session provides detailed training of building energy simulation using VisualDOE, plus an introduction to DOE-2.1E.

VisualDOE LEED only Training (November 21 -- optional)

This third day of training focuses on how to use VisualDOE 3.1 for LEED energy saving calculations.

For all details, please visit <http://www.eley.com>

Building Energy Software

from the Building Technologies Department at Lawrence Berkeley National Laboratory

Free Downloads	
BDA 3.0 (Building Design Advisor)	gaia.lbl.gov/BDA
COMIS (multi-zone air flow and contaminant transport model)	www-epb.lbl.gov/comis
EnergyPlus 1.1.1 (new-generation whole-building energy analysis program, based on BLAST and DOE-2)	www.energyplus.gov --or-- SimulationResearch.lbl.gov > EnergyPlus
GenOpt[®] 2.0β (generic optimization program)	SimulationResearch.lbl.gov > GenOpt
Optics 5.1.02 (for analyzing optical properties of glazing systems)	windows.lbl.gov/materials/optics5/
RADIANCE 3.5 (analysis and visualization of lighting in design)	radsite.lbl.gov/radiance/
Desktop Radiance 2.0β (integrates the Radiance Synthetic Imaging System with AutoCAD Release 14)	radsite.lbl.gov/deskrad/
Radiance Control Panel (automates some Radiance tasks once the model has been created)	www.squ1.com/site.html
RESEM (Retrofit Energy Savings Estimation Model) (calculates long-term energy savings directly from actual utility data)	eetd.lbl.gov/btp/resem.htm
SUPERLITE (calculates illuminance distribution for room geometries)	eetd.lbl.gov/btp/superlite2.html
THERM 5.2 (models two-dimensional heat-transfer effects in building components where thermal bridges are of concern)	windows.lbl.gov/software/therm/therm.html
VisualSPARK 2.0 (Simulation Problem Analysis and Research Kernel) (connect component models to simulate innovative building envelope and HVAC systems)	SimulationResearch.lbl.gov > VisualSPARK
WINDOW 5.2 (thermal analysis of window products)	windows.lbl.gov/software/window/window.html
Free Software / Request by Fax from 510.486.4089	
RESFEN 3.1 (choose energy-efficient, cost-effective windows for a given residential application)	windows.lbl.gov/software/resfen/resfen.html
Web Based (free)	
Home Energy Saver (quickly computes home energy use) and	hes.lbl.gov and
Home Improvement Tool (simplified Home Energy Saver)	hit.lbl.gov



BLASTnews

www.bso.uiuc.edu

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 University of Illinois, 30 Mechanical Engineering Building,
 1206 West Green Street, Urbana, IL 61801
 Tel: (217) 333-3977 - Fax: (217) 244-6534
support@blast.bso.uiuc.edu

The **Building Loads Analysis and System Thermodynamics (BLAST)** program predicts energy consumption, energy system performance and cost for new or existing (pre-retrofit) buildings.

BLAST contains three major sub-programs:

- **Space Load Prediction** computes hourly space loads in a building based on weather data and user inputs detailing the building construction and operation.
- **Air Distribution System Simulation** uses the computed space loads, weather data, and user inputs.
- **Central Plant Simulation** computes monthly and annual fuel and electrical power consumption.

Heat Balance Loads Calculator (HBLC)

The BLAST graphical interface (HBLC) is a Windows-based interactive program for producing

BLAST input files. You can download a demo version of HBLC (for MS Windows) from the BLAST web site (User manual included).

HBLC/BLAST Training Courses

Experience with the HBLC and the BLAST family of programs has shown that new users can benefit from a session of structured training with the software. The Building Systems Laboratory offers such training courses on an as needed basis typically at our offices in Urbana, Illinois.

WINLCCID 98

LCCID (Life Cycle Cost in Design) was developed to perform Life Cycle Cost Analyses (LCCA) for the Department of Defense and their contractors.

To order BLAST-related products, contact the Building Systems Laboratory at the address above.

Program Name	Order Number	Price
PC BLAST Includes: BLAST, HBLC, BTEXT, WIFE, CHILLER, Report Writer, Report Writer File Generator, Comfort Report program, Weather File Reporting Program, Control Profile Macros for Lotus or Symphony, and the Design Week Program. The package is on a single CD-ROM and includes soft copies of the BLAST Manual, 65 technical articles and theses related to BLAST, nearly 400 processed weather files with a browsing engine, and complete source code for BLAST, HBLC, etc. Requires an IBM PC 486/Pentium II or compatible running MS Windows 95/98/NT.	3B486E3-0898	\$1500
PC BLAST Package Upgrade from level 295+	4B486E3-0898	\$450
WINLCCID 98: executable version for 386/486/Pentium	3LCC3-0898	\$295
WINLCCID 98: update from WINLCCID 97	4LCC3-0898	\$195

The last four digits of the catalog number indicate the month and year the item was released or published. This will enable you to see if you have the most recent version. All software will be shipped on 3.5" high density floppy disks unless noted otherwise.

This newsletter was prepared as an account of work sponsored by the United States Government (USG). While this document is believed to contain correct information, neither the USG, nor any agency thereof, nor the Regents of the University of California (RUC), nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process or service by its trade name, trademark, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the USG or any agency thereof, or the RUC. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof or of the Regents of the University of California



DOE-2



DOE-2.1E (v. 119) 1,000-Zone version for Windows from ESTSC; other vendors of DOE-2 based programs are listed on our website: <http://SimulationResearch.lbl.gov> > DOE-2

Cost is as follows:

- \$ 300 U.S. Government, non-profit Educational
- \$ 575 U.S., Mexico, Canada
- \$ 1268 Japan only
- \$ 1075 All Other Non-U.S.

DOE-2 Documentation on a CD from ESTSC - Cost US\$100

What is included on the CD?

- DOE-2 Reference Manual (Part 1)
- DOE-2 Reference Manual (Part 2)
- DOE-2 Supplement to the Reference Manual (2.1E)
- DOE-2 BDL Summary (2.1E)
- DOE-2 Engineers Manual (2.1A)

Order Software and ESTSC Documentation

Ed Kidd

NCI Information Systems, Inc.

Energy Science and Technology Software Center (ESTSC)

P.O. Box 1020

Oak Ridge, TN 37831

Phone: 865/576-1037

Fax: 865/576-6436

Email: estsc@adonis.osti.gov

Purchase DOE-2 Documentation

DOE-2 Sample Run Book (2.1E) -- The Sample Run book is the only remaining DOE-2 manual not available electronically. It must be purchased separately from NTIS; information is at <http://SimulationResearch.lbl.gov> > DOE-2 > Documentation

Free DOE-2 Documentation (<http://SimulationResearch.lbl.gov> > DOE-2 > Documentation)

- DOE-2 Basics (2.1E)
- Update Package #1:
DOE-2.1E Basics, the Supplement and BDL Summary
- Update Package #2: (Version 107, DOE-2.1E)
BDL Summary and Supplement.

DOE-2 Basics and Update Packages 1, 2, 3 and 4 are not included on the ESTSC CD. They consist of scanned pdf files and may be downloaded from our web site. You may also request the same information on a CD by sending email to kl ellington@lbl.gov.

The update files need to be printed and the update pages inserted into the existing DOE-2 manuals.

DOE-2 listings are continued on the next page

--Continued--

Free DOE-2 Documentation (<http://SimulationResearch.lbl.gov> > DOE-2 > Documentation)

- Update Package #3: Appendix A of the Supplement.
- Update Package #4: (1000-zone DOE-2.1E) BDL Summary.
- DOE-2 Modeling Tips (pdf)

Note that the Update Packages are **not** cumulative and each one contains different information. You have to download all four packages to update the DOE-2 documentation completely.

DOE-2 Modeling Tips is a compilation of all the "how to" articles from the *Building Energy Simulation User News* (through 2002).

DOE-2 Training

Private or group DOE-2 courses for beginning and advanced users: Contact Marlin Addison at (602) 968-2040, marlin.addison@doe2.com

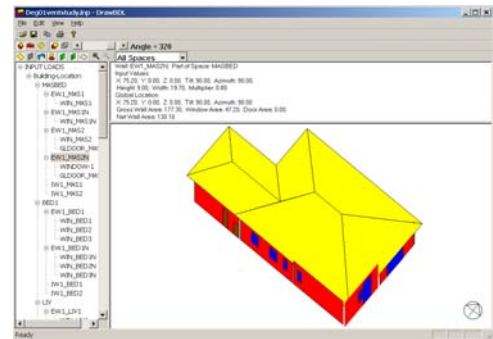
DOE-2 Help Desk

Email, phone or fax the Simulation Research Group with your questions (klellington@lbl.gov).
Phone: (510) 486-5711, Fax: (510) 486-4089

DrawBDL 3.0

Joe Huang and Associates is pleased to announce Version 3.0 of the DrawBDL program for viewing the building geometry in DOE-2 input and output files. DrawBDL has been completely rewritten using C++ to run in a native 32 bit environment such as Windows 95/2000/NT. In addition to having a new look and feel, Version 3.0 has the following improvements:

- New user interface with a hierarchical tree showing all building surfaces.
- No limit on the number of building surfaces, except for the amount of memory available on the computer.
- For building surfaces, the expanded data window shows not only the input values, but also their locations in the global coordinate system; for spaces, the data window shows the gross and net areas of walls, windows, doors, roofs, and skylights.
- Displays surfaces input as 2-D or 3-D polygons (please see DOE-2.1E Documentation Update #2 http://SimulationResearch.lbl.gov/dirsoft/21e_update2.pdf for the syntax to input surfaces as polygons).
- Changing the sort order of building surfaces used in the display; this allows users to "touch up" the shaded drawings for use in presentations.
- Output the surface data in EnergyPlus *.idf format. This is helpful for DrawBDL users who wish to convert their DOE-2 input files into EnergyPlus input files. Since DrawBDL reads and stores only building surface data, the converted EnergyPlus file is a partial file containing only the inputs for building surfaces.

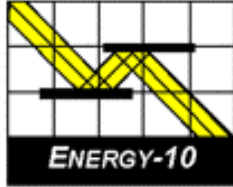


DrawBDL 3.0

DrawBDL 3.0 costs \$125 plus shipping (same price as the older version); for more information or to order, please contact →

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ENERGY-10, VERSION 1.6

ENERGY-10 is a design tool for smaller residential or commercial buildings that are less than 10,000 ft² or buildings that can be treated as 1- or 2-zone increments. It performs whole-building energy analysis for 8760 hours/year, including dynamic thermal and daylighting calculations. ENERGY-10 was specifically designed to facilitate the evaluation of energy-efficient building features in the very early stages of the design process.

Version 1.6 Upgrades

Synchronize Libraries

Libraries may now be associated with more than one building.

Free Run Mode

Automated process of monitoring how a building operates without any HVAC system.

Clear All Internal Gains

The name is self-explanatory.

New Buttons on Provisional Data Dialog Box

Users may specify whether they want autobuild HVAC sizing to be computed with or without daylighting.

Performance Summary Reports

Three performance summary reports have been added. One is a simple performance summary, which breaks down the standard summary into more readable chunks and adds a column that reflects the percentage change of going from Building 1 to Building 2. The other two are daylighting reports that show the standard daylighting factor calculated for each lighting zone.

NewDefaults Library

A new set of libraries contains all the standard libraries such as floorlib, rooflib, etc. with updated values.

Registry Path for ENERGY-10 Data

New registry path allows users to maintain separate copies of the three most recent versions of *ENERGY-10*. In addition, the installation script allows installation for either "all users" or the "current user only."

Additional Tutorials on Installation CD

Three new tutorials are included in the slide show section of the installation CD, including Economics, Daylighting, and Using *ENERGY-10* in the Design Process.

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Sustainable Buildings Industry Council (SBIC)

ENERGY-10 User Group www.sbicouncil.org/forum

SBIC Bookstore www.sbicouncil.org/store/resources.php - pubs

