

Directory of Software and Services for EnergyPlus

Program Name	Description
EnergyPlus 1.4.0	Freely downloadable from www.energyplus.gov/ Support -- mailto:EnergyPlus-Support@gard.com Support Group -- groups.yahoo.com/group/EnergyPlus_Support

EnergyPlus Tools, Interfaces and Utilities

Utilities – Included in EnergyPlus – For creating, editing, and running input files.

Tool	Description
IDF Editor	For users who want a simple way of creating or editing EnergyPlus input data files (IDF), IDF Editor provides this service. Any EnergyPlus object may be viewed and edited using a spreadsheet-like grid. For inputs with several options, a list is provided. When a numeric input has a range of valid values, those values are displayed. It also automatically provides a list of object names when an object needs to be linked to another. By displaying all objects of the same kind next to each other in a grid, it is easy to see how inputs are different across the building. The IDF Editor outputs an EnergyPlus input file with proper syntax and comments to help the user understand the input values. In addition, the IDF Editor converts standard inch-pound units into SI units compatible with EnergyPlus.
EP-Launch	Provides a simpler alternative for running EnergyPlus than batch files. EP-Launch allows the user to select the input file directly or from a list of recent or sample files. It also allows easy selection for weather data files. After the EnergyPlus run completes, EP-Launch reports if any errors or warnings occurred. In addition, EP-Launch acts as a file manager for each run and can help open a text editor for any of the input and output files, opens spreadsheet for several results files, and starts up a viewer for the building drawing file.

EnergyPlus Example File Generator

Description

A Web-based service is available that creates and runs EnergyPlus input files for simple models of commercial buildings. The input files (and annual results summary files) are sent to your email address as attachments. This is a pilot project and is currently made available only as a BETA service. You can access the service and customize the characteristics of the building you want to model on the [EnergyPlus Example File Generator Application](#) (pop-ups must be enabled).

Third Party Tools – To create, edit, and display input files.

Vendor	Description
<p>Joe Huang and Associates 31 Sarah Lane Moraga CA 94556-2563 Ph: (925) 247-9180</p>	<p>DrawBDL+3.1 (www.drawbdl.com) allows users to visually review the building geometry in both EnergyPlus and DOE-2 input files. DrawBDL can export the DOE-2 surface data in EnergyPlus IDF format; useful for those users who wish to convert their DOE-2 input files into EnergyPlus input files.</p>
<p>The Deringer Group, Inc. 1250 Addison Street Berkeley, CA 94702 Ph: (510) 843-9000 Fx: (510) 843-9300</p>	<p>EnergyPlus Online Simulations are online tools embedded in the Deringer Group's EcoAdvisor, a set of training modules on sustainable buildings. These tools can be used by anyone and require no special knowledge of EnergyPlus.</p> <p>EnergyPlus Interface Support Tools This set of stand-alone Windows-based tools is intended to make the text-based use of EnergyPlus faster, easier, and more accurate. The tools assume that the user is somewhat familiar with typical text-based interfaces for energy simulations. So far there are two proof-of-concept tools.</p> <p>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.</p> <p>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.</p>
<p>GeoPraxis, Inc. 205 Keller Street, Suite 202 Petaluma, California 94952 Ph: (707) 766-7010 Voice Fx: (707) 766-7014 Fax</p>	<p>Green Building Studio is a web-based service provided by GeoPraxis, Inc . which gives 3D-CAD users quick, reliable, and free estimates of a building's energy costs during the early stages of conceptual design. Green Building Studio is powered by GeoPraxis' IDEA Server building energy simulation management software that incorporates DOE-2 and EnergyPlus into this solution. Key to the integrated interoperability exhibited in GBS-compliant 3D-CAD applications is the Green Building XML schema (gbXML), an open XML schema of the International Alliance of Interoperability's aecXML Group. Green Building Studio creates an EnergyPlus IDF file.</p>
<p>Taylor Systems Engg. Inc. 9801 Fair Oaks Blvd., Suite 100 Fair Oaks, CA. 95628 Ph: (916) 961-3400 Fx: (916) 961-3410</p>	<p>TSe+, 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+MatGlz (for materials and glazings) and TSe+Con (for constructions).</p>

Creating EnergyPlus input files

Vendor	Description
EP-QUICK Jason Glazer, Glazer Software www.glazersoftware.com	EP-Quick is an easy-to-use program that creates an EnergyPlus input file for a building, without HVAC, using simple templates for the shape and zone layout. EP-Quick is not a full interface for EnergyPlus but simply a way to generate input files quickly.
ESP-r	In keeping with the philosophy of linking the ESP-r simulation suite to other modelling systems, users can now export to EnergyPlus an ESP-r model with materials, constructions, surfaces (all three and four sided surfaces as well as those including one window or one door - more complex surfaces are currently filtered out) and solar shading devices. Boundary condition attributes are translated and the parent/child relationship between opaque and transparent surfaces established. The exported models usually pass the EnergyPlus parser with no errors or with minor warnings. Currently, approximate optical properties are established and schedules are not yet included. We anticipate updating the geometric filters to match the current EnergyPlus release as well as including casual gain schedules in the near future. Those wishing more information about ESP-r or to download the standard distribution can go to www.esru.strath.ac.uk/Programs/ESP-r.htm Those wishing more information about the capabilities of ESP-r can go to www.esru.strath.ac.uk/Programs/ESP-r_capabilities/index.html
NaturalWorks Paul F. Linden (San Diego, CA) pfl@natural-works.com Guilherme Carrilho da Graça (Lisbon, Portugal) gcg@natural-works.com	EP_GEO and EP_SYS NaturalWorks has developed two spreadsheet-based interfaces that can complement the simple interface tools that are included in the standard EnergyPlus installation. EP_GEO (building geometry) - A spreadsheet that uses a set of simple macros to create rectangular building geometry, windows, shading, infiltration, internal gains and temperature control (using 'purchased air'). Rectangular zones can be automatically created in an idf file by simply entering zone height, width and length. An offset in zone origin can be used to insert multiple zones in an existing file. EP_SYS (systems) - This spreadsheet allows for creation of Purchased Air, Fan Coil And Variable air Volume systems in a large number of zones. The list of zones in an existing IDF file can be automatically imported and individual zones selected for insertion of one of the three basic types of systems available in the tool.
Square One Research Square One <i>research</i> Pty Ltd PO Box 1003 Joondalup, WA 6919 Australia	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. For more details, click here for an article from the Building Energy Simulation User News.
Interoperable HVAC Input Tool (IHIT) Barry O'Sullivan http://www.ucc.ie/iruse/barry-cw.html	The Interoperable HVAC Input Tool (IHIT) is one of many interoperable software tools being developed by the IRUSE research group at the National University of Ireland Cork. IHIT is a HVAC system design tool that allows a building design engineer to create HVAC system information for energy simulation in a context-sensitive format. The building designer creates the energy simulation HVAC model using ISO standard HVAC symbols/icons. IHIT continuously validates the underlying model and automatically outputs the model configuration in EnergyPlus IDF format and IFC neutral file format.

Interfaces for EnergyPlus

Vendor	Description
<p>DesignBuilder Software, Ltd. In the United Kingdom: www.designbuilder.co.uk/ In the United States: www.designbuildersoftware.com/</p>	<p>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.</p>
E2AC	<p>E2AC — A Brazilian interface for the EnergyPlus program E2AC is a simplified interface for the EnergyPlus program which allows the simulation of 'shoe box' models with or without air conditioning systems. The interface is under development by the LabEEE team (Energy Efficiency in Buildings Laboratory) at Federal University of Santa Catarina, Brazil. The current version (2.0 beta) is the first to be publicly available. Currently available only in Portuguese, it was developed to promote the use of EnergyPlus in Brazil. (An English version is under development.) E2AC has a library with typical Brazilian constructions and materials, and a template of a direct expansion air conditioner system (window mounted system). E2AC currently comes with hourly weather files and design days for 14 Brazilian cities. Through this interface, the user can simulate — in a few minutes — a single zone model and tests the effect of alternatives for envelope, internal loads density, schedules, set-point temperatures, and system capacities and efficiencies. E2AC allows the user to save several alternatives of a model in a single data file. Each alternative can be simulated directly from the interface. E2AC generates the EnergyPlus input data file (IDF) and executes EnergyPlus. NOTE: In order to run the simulation from the interface, it is necessary to install the current version of EnergyPlus on the user's computer. Output reports can be visualized through graphs plotted by the program. As this is a beta version, it will be expected that some bugs may be detected in the interface. Any problem or question can be reported to the LabEEE through e-mail. The program is under development and new features will be implemented soon, such as multi-zone and multi-floor building modeling. Website of the program: http://www.labeee.ufsc.br/edois/e2ac.html</p>
E+IEQ	<p>E+IEQ, being developed by Taitem Engineering, focuses on the energy and indoor environmental quality tradeoffs of building design. E+IEQ will feature 'smart defaults', wizards and customizable component libraries to speed data entry. Interface capabilities are planned to be gradually expanded to cover the broader scope of EnergyPlus. A first E+IEQ beta version is planned in 2005. If interested in being notified when the beta version becomes available, please send email to EPlusIEQ@taitem.com.</p>
<p>E-FEN Charlie Curcija, Ph.D. Mahabir Bhandari, Ph.D., DesignBuilder Software 18 Tanglewood Rd, Amherst, MA 01002, Tel: 413-256-4647</p>	<p>EFEN is an energy simulation program designed for analyzing energy impacts and cost effectiveness of fenestration systems in various commercial and high-rise residential buildings. The program incorporates a user-friendly graphical user interface (GUI) and enables quick and effective parametric analysis of different fenestration systems. EFEN utilizes the EnergyPlus simulation engine to perform building energy consumption analysis. The main feature of the program is that it incorporates several pre-defined default commercial building types with typical construction, interior loads, operating schedules, and HVAC system configurations, such that users can quickly develop an energy models of a building.</p>
<p>EPlusInterface Contact Santosh Philip</p>	<p>EPlusInterface is an open source initiative to develop a comprehensive interface for EnergyPlus. The code is free for anyone to use. The license is GPL. Modules currently under development are listed below; a few are ready to use. For latest downloads and status check http://www.coolshadow.com/EPlusInterface/</p>

Interfaces for EnergyPlus (continued)

<p>Hevacomp Design Simulation United Kingdom</p> <p>http://www.hevacomp.com/</p>	<p>With Hevacomp Design Simulation, a building is set up by tracing around the internal perimeter of each room, adjacent surfaces are automatically detected as partitions. Databases of constructional elements are used. An extensive roof and floor modelling program is available, which enables simple or complex roofs to be traced from DXF files. Walls and partitions are automatically trimmed vertically to fit the roof, rooms above and below target rooms are detected. This enables a full 3D model to be produced for little more effort than a simple 2D tracing. Once the building has been set up, building simulation, linking to EnergyPlus, can be carried out to examine room heat losses and gains, summer overheating, peak design months, overheating frequency and building energy. The package will also produce 3D external shading graphics and internal solar penetration graphics, showing moving sunshine patches within rooms.</p>
<p>Solar Shoe Box</p> <p>http://www.archiphysics.com</p>	<p>The Solar Shoe Box creates a rectangular model (shoe box) of a direct gain passive solar building. 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</p>
<p>xEsoView</p> <p>http://xesoview.sourceforge.net/</p>	<p>xEsoView, an open source file viewer for EnergyPlus eso files, gives the user a very fast overview of the simulation results. The program lists all reported variable names, which can then be sorted and filtered. At the same time, it shows the graphical representation of the selected variable. The time axis can be changed using predefined ranges but xEsoView also supports zooming. With a selection box you can switch between the available environments, e.g. summer design day and run-period.</p>

Building Geometry – Translate building geometry from CAD into EnergyPlus IDF Input

Vendor	Description
<p>IFCtoIDF</p> <p>http://www.eere.energy.gov/buildings/energyplus/interoperability.html</p>	<p>IFCtoIDF utility is still in beta testing. This utility, along with the BSPro COM-Server and several other software tools have been officially certified by the IAI as being compliant with IFC Releases 1.5.1 and 2.0 and are in the process of certification for Release IFC 2x. However, this does not mean that the utility is capable of seamlessly importing all data required for an EnergyPlus simulation from an IFC data file. The utility focuses on geometry only at this point.</p>

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Directory of Software and Services for DOE-2

ESTSC Versions of DOE-2

Program Name and Vendor	Description
DOE-2.1E (Ed Kidd, Kim Buckner) estsc@adonis.osti.gov ESTSC P.O. Box 1020 Oak Ridge, TN 37831-1020 Ph: 865-576-2606 / Fx: 576-2865 www.osti.gov/estsc	Source code, executable code and complete current documentation for: DOE-2.1E/Version 124 OS: Windows, SUN UNIX/LINUX

Commercial Versions of DOE-2

Program Name and Vendor	Description
ADM-DOE-2 (Richard Burkhardt) ADM Associates 3239 Ramos Circle Sacramento, CA 95827-2501 Ph: 916-363-8383 / Fx: 363-1788 www.adm-energy.com/	Use on 386/486 PCs with a math co-processor and 4MB of RAM. The package contains everything needed to run the program: program files, utilities, sample input files, and weather files. More than 300 weather files available. OS: DOS, Windows 95
Compare-IT (Matt Brost) RLW Analytics, Inc. info@rlw.com 1055 Broadway, Suite G Sonoma, CA 95476 Ph: 707-939-8823 / Fx: 939-9218 www.rlw.com	Compare-IT allows DOE-2 professionals to add value to their projects by giving clients "what-if" scenarios using DOE-2. The interface is designed for novice energy analysts and the GUI can be customized for each client's particular interests. Based DOE-2.1E. OS: DOS, Windows (98, 95, NT)
EnergyPro 3.0 (D. Vonderkulen) EnergySoft LLC 1025-5 th Street, Suite A Novato, CA 94945 Ph: 415.897.6400 / Fx: 897-6422	Nonresidential load calculations for HVAC equipment sizing. Exports forms to AutoCad for inclusion on blueprints. On-line help. 344 weather files for the U.S. and Canada. OS: DOS, Windows (95, NT). For California Users: Performs Title 24 compliance calculations; state-certified HVAC and DHW Equipment directories, Title 24 lighting calculations. Based on DOE-2.1E

Commercial Versions of DOE-2 -- Continued

<p>EZDOE (Bill Smith) Elite Software P.O. Box 1194 Bryan, TX 77806 Ph: 409-846-2340 / Fx: 846-4367</p>	<p>Provides full screen, fill-in-the-blank data entry, dynamic error checking, context-sensitive help, mouse support, graphic reports, a 750-page user manual, and extensive weather data. Full implementation of DOE-2 on DOS-based 386 and higher computers. On-line help. Some weather files. Based on DOE-2.1E. DOS</p>
<p>FTI/DOE2 (Scott Henderson) Finite Technologies Inc. 3763 Image Drive Anchorage, Alaska 99504 Ph: 907-333-8937 / Fx: 333-4482</p>	<p>Version 3.0 Release -- FTI/DOE is 100% compatible with LBNL version. Source code versions will compile with most F77-compliant compilers. On-line help: 344 weather files for the U.S. and Canada. Based on ESTSC DOE-2.1E. No demo, 30-day trial period OS: DOS, Windows (3.x, 95, NT) AIX, ULTRIX, VMS, Linux, NeXTStep,</p>
<p>VisualDOE 4.0 (Eric Kolderup) Architectural Energy Corporation 142 Minna Street (2nd floor) San Francisco, CA 94105 Ph: 415-957-1977 / Fax 1381</p>	<p>Fast construction of building geometry with pre-defined blocks and drawing interface. Import zone shapes from CADD file (dxf). Point+click to define zone properties and HVAC systems. Dynamic 3-D model views. Online help. LiveUpdate through internet. 400+ US, foreign weather files. OS: Windows 95/98/NT/ME/2000/XP</p>

Note: We list third-party DOE-2-related products and services for the convenience of program users, with the understanding that the Simulation Research Group does not have the resources to check the DOE-2 program adaptations and utilities for accuracy or reliability.

Support Tools for DOE-2

Program Name and Vendor	Description
<p>DOE-2 Parametric Study Tool The Deringer Group, Inc. 1250 Addison Street Berkeley, CA 94702 Ph: (510) 843-9000, Fx: 843-9300</p>	<p>DOE2PARM – is an MS Windows-based tool that permits you to run, edit and link all the related input and output files together in the same window.</p> <p>!</p>
<p>DoeRayMe (Jason Glazer, P.E.) GARD Analytics 1028 Busse Highway Park Ridge, Illinois 60068-1802</p>	<p>DoeRayMe is a simple and flexible user interface for DOE-2 “screening tool” applications. DoeRayMe uses a specially developed DOE-2 input template to change the user interface. This allows new “screening tools” to be developed by anyone with DOE-2 knowledge. Ph: 847-698-5690</p>

Support Tools for DOE-2 (continued)

Program Name and Vendor	Description
<p><u>DrawBDL</u> <u>Joe Huang & Associates</u> 31 Sarah Lane Moraga CA 94556-2563 Ph: 925-247-9180</p>	<p>DrawBDL, Version 3.0, is a graphic debugging and drawing tool for DOE-2 building geometry. DrawBDL reads your BDL input and makes a rotate-able 3-D drawing of your building with walls, windows, and building shades shown in different colors for easy identification. OS: DOS, Windows (3.1, 95, 98, NT) [Works with 2.1E] : joe@drawbdl.com</p>
<p><u>GreenBuildingStudio</u> John F. Kennedy 444 10th Street, Suite 300 Santa Rosa, CA 95401 707.569.7373 x100 v, fax 569.7313</p>	<p>Green Building Studio is a web-based service provided by GeoPraxis, Inc. It gives 3-D CAD users quick, reliable, and free estimates of a building's energy costs during the early stages of conceptual design using DOE-2.</p>
<p>RIUSKA (<u>Tuomas Laine</u>) <u>Olof Granlund Oy</u> P O Box 59 Helsinki, FIN-00701, Finland Ph: +358 (9) 351031 / Fx: 35103421</p>	<p>With RIUSKA user can add building envelope materials, internal loads and HVAC-system into the created 3D-model of the building and perform thermal calculations. RIUSKA can be used for space simulations to dimension cooling or heating equipments, or for energy calculations of the whole building. OS: Windows (95, 98, NT) [Works with 2.1E]</p>

Special Versions of DOE-2

Program Name and Vendor	Description
<p>Building Energy Analyzer InterEnergy Software 1700 South Mount Prospect Road Des Plaines, IL 60018 www.interenergysoftware.com</p>	<p><u>Building Energy Analyzer</u> - Easy to use software provides quick economic analysis for commercial and industrial building; allows users to compare energy options and to estimate energy loads and costs. <u>BinMaker PRO</u> - Weather data for engineering. <u>DesiCalc</u> - Software for screening desiccant dehumidification/cooling applications; allows users to easily run hour-by-hour simulations to compare the energy needs and costs of using desiccant-based equipment with those of competing electric air-conditioning equipment.</p>
<p><u>Energy Gauge USA</u> (D. Parker) Florida Solar Energy Center 1679 Clearlake Road Cocoa, FL 32922</p>	<p><i>Energy Gauge USA</i> allows the simple calculation and rating of residential building energy use in the US. The simulation calculates a six-zone model of the residence (conditioned zone, attic, crawlspace, basement, garage and sunspace) with the various buffered spaces linked to the interior as appropriate. TMY weather data for the program are available for 239 US locations.</p>
<p>Home Energy Saver (Residential DOE-2) hes.lbl.gov</p>	<p>Calculation of residential energy consumption using DOE-2.1E. In 10-20 seconds, the program performs a full annual simulation for a typical weather year (involving 8760 hourly calculations) from 239 locations around the United States.</p>
<p><u>RESFEN-3.1</u> Building Technologies, MS 90-3111 Lawrence Berkeley Laboratory Berkeley, CA 94720</p>	<p>RESFEN calculates the energy and cost implications of a building's windows and insulated walls. Also compares the relative energy and cost impacts of two different windows. RESFEN calculates the heating and cooling energy use and associated costs, also the peak heating and cooling demand for specific window products. [Based on DOE-2.1E] OS: Windows 95, 98, NT</p>

Special Versions of DOE-2 (continued)

Program Name and Vendor	Description
GeoPraxis P.O. Box 5 Sonoma, California 95476 (707) 280-1529, fax 933-8477 Thomas P. Conlon, President tconlon@geopraxis.com	Energy Checkup for Homes http://www.geopraxis.com/ EnergyCheckup, A Service Provided by GeoPraxis, Inc. , was developed in 1999 in partnership with one of the largest home inspection companies in the country, Inspectech , a Service of LandAmerica. In 2002, GeoPraxis took over management of EnergyCheckup, continuing to serve Inspectech and independent inspectors alike. Since inception, EnergyCheckup has performed over 27,000 inspections throughout California.
e-Calc http://ecalc.tamu.edu/ Texas A&M University	eCalc is a web based calculator allowing Government and Building industry users to design and evaluate a wide range of projects for energy savings and emissions reduction potential.

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