

Table of Contents

Welcome	3
EnergyGauge Summit	3
Introduction	5
Project Explorer	12
Working with Grids	14
Steps to Comply with Florida 2010 Building Code	16
Top Menus	17
File Menu	17
Edit Menu	18
View Menu	20
Calculate Menu	21
Reports Menu	28
Resources Menu	30
Tools Menu	31
Window Menu	33
Help Menu	34
Building Component Inputs	36
Project Data Input Form	36
Zone Data Input Form	43
Space Data Input Form	47
Wall Data Input Form	51
Window Data Input Form	57
Door Data Input Form	60
Roof Data Input Form	61
Skylight Data Input Form	62
Floor Data Input Form	63
System Data Input Form	65
Plant Data Input Form	69
Water Heater Data Input Form	71
External Lighting Data Input Form	72
Piping Data Input Form	73
LEED22 Additional Inputs Form	74
LEED Online Submission Instructions	78
District Thermal Energy Management for LEED	79
Profiles and Schedules	83
Master Library Information	87
Master Materials Library Form	87
Master Constructs Library Form	89
User Library Information	92
Project Materials & Constructs Library Form	92
Project Fenestraion Library Form	96
Reference Manuals	98
Florida Building Code	98
Technical Support	99
System Requirements	99
Activation and Support	100

<u>Welcome</u>

EnergyGauge Summit



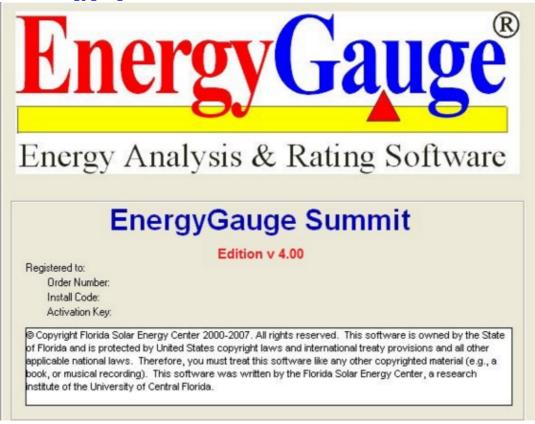
EnergyGauge Summit is the Energy Code compliance tool for commercial buildings in Florida and other states in the USA. It was developed by the Florida Solar Energy Center. EnergyGauge Summit is a Windows-based product and will operate under most Microsoft Windows® versions.

Total Building performance Compliance, Prescriptive Envelope Compliance for Shell Buildings, and Prescriptive Compliance for Renovations, Occupancy Change, etc. may be used to show compliance with 2010 Florida Building Code, Energy Conservation only when the following reference documents are readily available to the program user:

- 2010 Florida Building Code, Energy Conservation
- Energy Simulation Tool Approval: Technical Assistance Manual (TAM 2010-1.0)

If you are a new user, it is recommended that you start with the introduction.

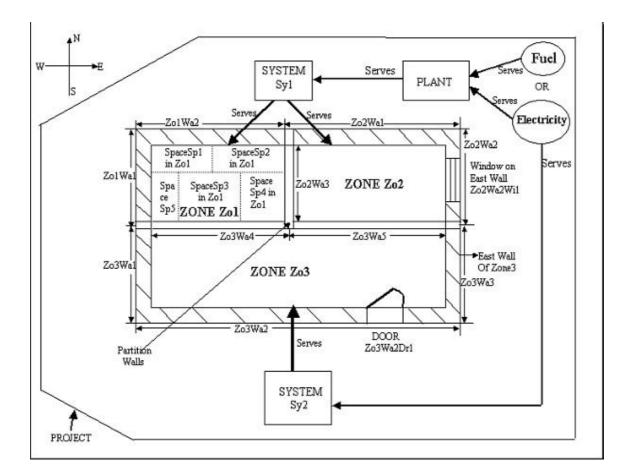
For the latest information, visit <u>www.energygauge.com</u>



Introduction

Project Hierarchy

A fundamental concept in EnergyGauge Summit is that it structures the building into a hierarchical collection of elements. For example, a building (sometimes referred to as Project) consists of multiple Zones which in turn may contain many Spaces, Walls, Floors, Roofs etc. Walls can further contain multiple Windows and Doors. The figure demonstrates the concept.



In the illustration, the Project is composed of the building, systems and the plant.

The project has a PLANT, that may include chillers and/or boilers that are served by the utility and/or other fuel sources.

The project has two systems, Sy1 and Sy2 System Sy1 is served by the PLANT System Sy2 is a packaged system type that is served directly by the utility.

The building consists of three zones: Zo1; Zo2; and Zo3. (A Zone is a unit of a building in which the air is assumed to be well mixed and where the temperature can be assumed to be uniform) System Sy1 serves the following Zones: Zo1 and Zo2 System Sy2 serves only Zone Zo3

Zone Zo1 consists of five spaces of various sizes: Sp1; Sp2; Sp3; Sp4; and Sp5. The sum of the areas and volumes of the five spaces constitute the area and volume of Zo1. (A space is a portion of a Zone having a distinct internal load characteristic, such as Lighting and Equipment loads) Zone Zo1 has two exterior walls: Zo1Wa1 (west) and Zo1Wa2 (north).

Zone Zo2 has two exterior walls: Zo2Wa1 (north) and Zo2Wa2 (East), and a partition wall Zo2Wa3 that is next to Zone Zo1.

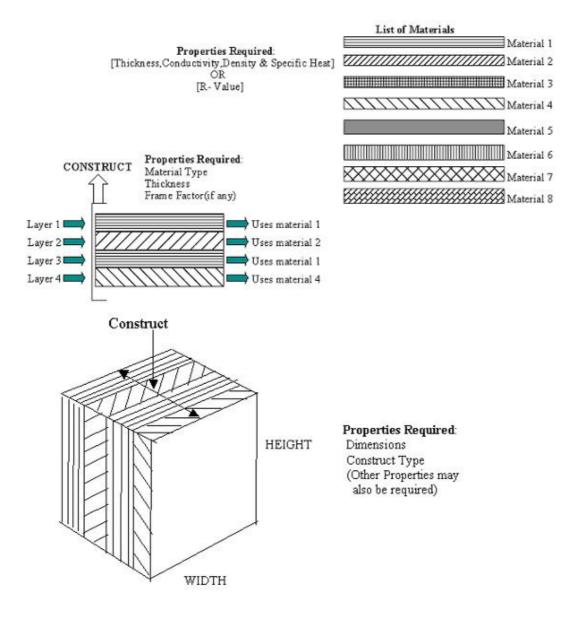
The east wall Zo2Wa2 in zone Zo2 contains a window Zo2Wa2Wi1. The orientation of windows need not be specified. It is inherited from the wall on which it is mounted.

Zone Zo3 has three exterior walls namely Zo3Wa1 (west), Zo3Wa2 (south), and Zo3Wa3 (east). Zone Zo3 has two partition walls: Zo3Wa4 which is next to Zone Zo1 and another Zo3Wa5 that is next to zone Zo2.

The south wall Zo3Wa2 in zone Zo3 contains a door Zo3Wa2Dr1. The orientation of door need not be specified. It is inherited from the wall on which it is mounted.

Materials and Constructs - Introductory Concepts

Unlike prior DOS versions of Summit where choices for construct (or envelope types) were mostly limited to prebuilt Wall or Roof types, EnergyGauge Summit gives the user virtually unlimited choices. First, the software provides the user with an extensive list of constructs for walls, roofs and floors. Second, the user has the option of creating their own constructs and using them repeatedly. Therefore an understanding of the basics behind constructs is crucial in being able to use the software effectively.



ENVELOPE UNIT

A building may contain several envelope units such as walls, roofs and floors.

Each envelope unit has associated dimensions (such as width and height) and a construct.

The construct specifies the physical make up of the envelope unit.

More than one envelope unit can have the same construct. Therefore, once a construct is developed or included in a project, it can be used to specify the make up of several envelope units.

A construct consists of one or more layers that make up the construct, except for a simple construct where layers do not exist and gross properties of the construct are used in the calculations

Each layer is a slice of the construct that has distinct characteristics that include the material it is made of, thickness and framing factor (if any).

The aggregate of each property of the layers constitutes the overall property of the construct. For example, the sum of the thickness of the layers is the total thickness of the construct.

Each layer must be associated with a material that must exist prior to building a construct.

A material has specific detailed thermal properties such as conductivity, density, specific heat and thickness. Alternatively, in lieu of these properties one can specify only the R-Value in which case the material is assumed to be mass less.

For details on how to build constructs, see the section on Project Materials and Constructs

Project

What is a project?

A project is your building input containing components such as zones, walls etc. When saved, the file has an extension .egc

Create a new project

You can open a project using the 'New' tool button or from the 'File' > 'New' menu.

Open an existing project

You can open a project using the **'Open'** tool button or from the '**File**' > '**Open**' menu.

Templates

What is a template?

A template is a file with preset information that can be used as a starting point for a new project. Templates contain preset project and resource information such as constructs, materials and fenestrations. Users may create and save as many templates as they need, and choose any template to create a new Project. Creating new projects from templates can save considerable time, especially if constructs, materials and fenestrations that are often used are saved in a template for repeated use. In addition, the user can also set the default fenestrations envelope constructs.

Create a template

From the main menu, Click 'File' > 'New' >'Template'. Make your modifications and save it.

Modify an existing template

Click '**Open**'. Then select a template (a file with .EGT extension) from the open dialog. Make your modifications and save it.

Create a new project using Templates

1. A template file must first exist. If not, create one. Or use the sample template provided with the software.

- 2. Click 'File' > 'New' > 'Project from Template'.
- 3. Select a template (a file with .EGT extension) from the open dialog.
- 3. This creates a new project based on the selected template.

How do I know if I have opened a template or a project file?.

A Project will have a Project Explorer (tree). A template does not have an explorer (tree). In addition, the form layout will be significantly different for each. See the figure below for an example of a template layout.

		III Tmpl Fenestrations
roject Info	rmation	Tmpl Materials and Construct
- Descriptio		î Tmpl New Prj
Acronym	New Prj	
Title	New Project	
Owner	Enter Owner's name here	
- Building In	10	
Туре	No Classification Class New Finished building]
Area From	Plans 0 No. of Stories 1 🖨 Profile: 0 No Classification	
Rotate Bu clockwise		
(degrees):	Calast Destile >>	
Location Inf	fo	
Address E	Inter Address here	
E	Inter Address here	
City Ente	er city here State Enter state Zip 0	
FL Jurisdic	tion ALACHUA COUNTY ALACHUA COUNTY	-
T E COMPUS		

To modify Fenestrations in the template click 'Tmpl Fenestrations' button located on the right. Make your modifications. An alternate access is through the main menu. Click 'Edit' > 'Template Fenestrations'.

To modify Materials and Constructs in the template click 'Tmpl Materials and Constructs' button located on the right. Make your modifications. See the section on <u>Materials and Constructs Library</u> for editing functions. An alternate access is through the main menu. Click 'Edit' > 'Template Materials and Constructs'.

To set or modify preferences, in the main menu click 'Edit' > 'Template Preferences'. and make your modifications.

Master Library

What is the Master Library?

The Master Library contains extensive resources on materials, fenestration and constructs. It serves as a repository from which you can draw into your individual project or template. Users cannot change information contained in the master library.

Accessing the Master Library

From the main menu, click 'Resources' --> 'Master Library'. Then click the library component you want to open.

Note: The Master Library can be accessed even if a project is not open.

Project Library:

What is a Project Library?

The project library is similar to the master library but unlike the Master Library is associated with a specific project and provides resources for the project. Each project has its own project library. Project Libraries may be edited.

Accessing the Project Library

First, a project must be open. You can access the Project Library by selecting the "**Prj Resources**" tab of the project explorer and then clicking the library button you want access. Alternatively, you can access it

from the main menu. To do this from the main menu click 'Edit'. Then click the project library component you want to open.

Note: The project library can be accessed only if a project is open.

Miscellaneous:

Some fields may be inactive, why?

Some fields are intentionally kept inactive or not editable. They usually represent the defaults used in calculations and are not user-editable.

What are tool tips? How do I get tool tips displayed?

In general, if you hover the mouse on any (non grid) field on any form, a tool tip appears giving more information about that field, such as data ranges and units.

What are the units of the various data?

Units are not written on the forms. Use the tool tip feature above to check input units.

Important note:

You must tab out of the field you are editing (or move to another field and click the mouse) before the change will take effect. If you switch screens or choose to calculate or save without first moving to another field, the change will not be saved or included in the calculation.

Getting Started

General Layout: Upon starting EnergyGauge Summit, the following window comes up.

😹 EnergyGauge Sumr			
File Edit View Calculat	e Reports Resources 1	Tools Window Help Menu	Bar
🗋 New 🚔 Open 💼	Close 🔚 Save 🚭 Print		r Working Space
		1	
		t a second a	
-			
		7/13/200	9 11:17 AM

To create a new project click the 'New' tool button.

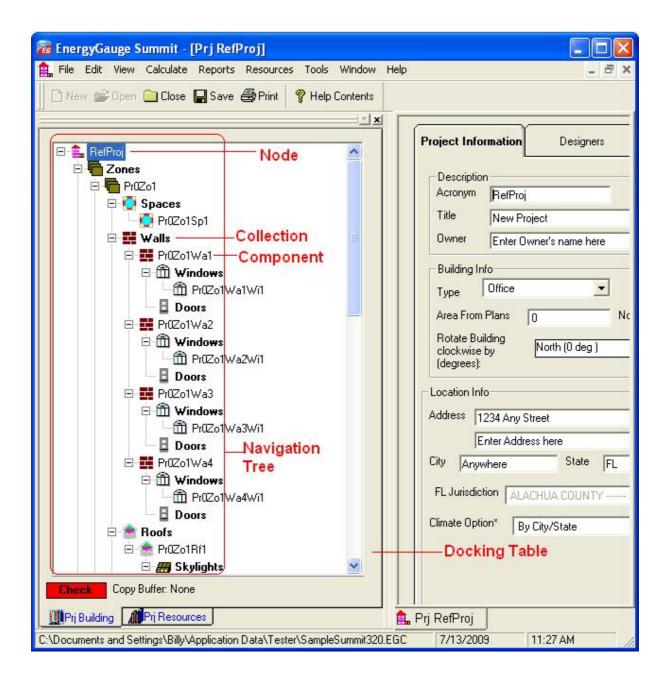
To open and work on an existing project, click the '**Open'** tool button.

You can also open an existing or new project from the 'File' menu.

If you require help, click on the 'Help Contents' button or use the 'Help' from the main menu.



Project Explorer



When a project is opened, the Project Explorer (sometimes called building tree) appears. It is a hierarchical representation of the entire building. It is through the Project Explorer that one navigates the various building components. It is also used to add and delete various building components.

In general, the Project Explorer (tree) consists of nodes representing Collections and Components. Collections are containers that appear in bold face and contain one or more components under them. Example: the 'Zones' Collection contains one or more individual zones. A component represents a physical element of a building such as a wall, door, or window etc.

Collections

A collection is a group of a particular type of component. All the components in a collection are of the same type. For example, a collection of Zones only consists of individual zones.

Individual Components

A component represents a single building element. One or more components of the same type together form a collection.

Adding a component

To add any new component of a particular type first highlight the collection by left-clicking it. Right-click on the selected collection and use the 'add' option from the pops-up menu. A new component of that type will be added and the input data form will appear (usually) on the right side of the screen.

Example: to add a new wall under Zone 1, first select 'Walls' under Zone 1. Keep the cursor on the 'Walls' and right click. Select the 'Add New' option from the pop-up menu to add a new wall. The data input form for the wall will show up on the right. You may now input your data for the new wall.

Selecting a component to edit

Just clicking on an individual component opens the data input form for that component, For example, clicking on the component labeled 'Zone 1' opens the data input form for Zone 1.

Deleting a component

Select (left-click) an individual component node. Right-click the component and choose 'Delete' from the pop-up menu.

Expanding and collapsing the Project Explorer tree

Click on the + or - sign on the tree node to expand or collapse the tree. Right-clicking on a selected node opens a pop-up menu with options to expand or collapse the tree.

Exceptions

'Plant', 'Water Heating', 'External Lighting' and 'Piping' are Collections whose components are placed on a form grid in a table format. As an example, click 'Water heating'. An input data form containing a grid with all water heaters in the project will appear.

Copying and Pasting

You can copy any component of a building, such as a Zone or Wall and paste it into the corresponding collection. For example a 'Wall' can be copied and then pasted into any **Walls**' collection.

Steps to Copy and Paste

1) Select (using the mouse) the component that is to be copied

2) Right-click on the selected component. A pop-up menu appears.

3) Select the copy option in the pop-up menu. (The component is now placed in a Copy buffer indicated by the label at the bottom of the Project Explorer)

4) Select (using the mouse) the corresponding Collection where you would like to paste the copied

component. For example, if you copied a Wall, select any Walls' collection.

5) Right-click on the selected collection. A pop-up menu appears.

6) Select the 'Paste' option in the pop-up menu. The component will be copied into the selected collection.



Working with Grids

Working with grids (or Data Tables) - General Procedures

Grids (or data tables) are extensively used in EnergyGauge Summit 2004. These spreadsheet like grids can display large amounts of data in a concise fashion in addition to providing the ability to edit displayed data. They appear on several forms, such as Project and Master Libraries, 'Water Heating', 'External Lighting', 'Piping', 'Space', etc. A clear understanding of how to work with Grids is critical in effectively using the software. The general actions that the user is likely to perform with grid are described in this section.

Constructs					Materials		
	Mat No	Desc	Conductivity [Btu/h.ft.F]	Density [lb/cf]	SpecificHeat [Btu/lb.F]	Thick [ft]	R-Value [h.sf.F/Btu]
1	264	ALUMINUM, 1/16 IN	26.0000	480.0000	0.1000	0.0050	0.0002
2	214	POLYSTYRENE, EXP., 1-1/4IN,	0.0200	1.8000	0.2900	0.1042	5.2100
3	187	GYP OR PLAS BOARD, 1/2IN	0.0920	50.0000	0.2000	0.0417	0.4533
4	178	CARPET W/RUBBER PAD	0.0000	0.0000	0.0000	0.0000	1.2300
5	265	Soil, 1 ft	0.5000	100.0000	0.2000	1.0000	2.0000
6	48	6 in. Heavyweight concrete	1.0000	140.0000	0.2000	0.5000	0.5000
7	267	0.75" stucco	0.4000	16.0000	0.2000	0.0625	0.1563
8	215	POLYSTYRENE, EXP., 2IN,	0.0200	1.8000	0.2900	0.1667	8.3350
9	105	CONC BLK HW, 8IN, HOLLOW	0.6060	69.0000	0.2000	0.6667	1.1002
10	256	W00D, S0FT, 1-1/2IN	0.0660	32.0000	0.3300	0.1250	1.8939
11	86	BRICK, COMMON, 4IN	0.4160	120.0000	0.2000	0.3333	0.8012
12	23	6 in. Insulation	0.0250	5.7000	0.2000	0.5000	20.0000
13	4	Steel siding	26.0000	480.0000	0.1000	0.0050	0.0002
14	271	2x4@24" oc + R11 Batt	0.0280	7.1100	0.2000	0.2917	10.4179
15	94	BUILT-UP ROOFING, 3/8IN	0.0930	70.0000	0.3500	0.0313	0.3366
16	21	4 in. Insulation	0.0250	5.7000	0.2000	0.3330	13.3200
17	9	Air space resistance	0.0000	0.0000	0.0000	0.0000	0.9100

A typical data grid

Add rows to grids

There are generally two ways to add rows to grids.

1) Select the grid (just click anywhere on the grid) using the mouse and then press the 'Insert' key on the keyboard. Follow the instructions that appear.

2) Right-click the mouse over the grid and then select the 'Add' option from the Pop up menu. Follow the instructions that appear.

Delete a rows on a grid

There are generally two ways to delete rows from a grids.

1) Select any cell on the row you want to delete using the mouse and then press the 'Delete' key on the keyboard. Follow the instructions that appear.

2) Right-click on the cell in the row you want to delete on the grid and then select 'Delete' from the Pop up menu. Follow the instructions that appear.

Move between cells on a grid

Use the mouse to click on a cell. Also, you can use the Tab key to move from cell to cell.

Edit individual grid cells

There are several types of grid cells.

Cells with numeric or text data

These are cells where numeric or text data can be entered. Double-clicking the cell puts it in edit mode. Pressing the F2 key also has the same effect. You can then enter the new value. To complete the edit, press the 'Enter' key on the keyboard or click elsewhere on the grid. If the cell is already active (as shown by a light focus rectangle), just begin typing the new value to edit the cell.

Cells where appears when selected

Cells where appears when selected

These cells require selection from the drop down. Click on the I button and make your selection.

Cells where appears when selected

Values in these cells can be changed up or down. Click on the up or down arrow depending on what you want to do.

<u>Cells where</u> □ <u>or</u> <u>appear</u>

These specify an unselected or selected option. Values in these cells can be toggled by clicking on the cell, or pressing your 'Space-Bar' key on your key board.

Note: Some grid cells may not allow any of the above. It is usually because the cells are temporarily or permanently non-editable.

Sorting Grids

Most grids can be sorted by clicking the column header. To sort a single column, click on that column header. Clicking a header on an already sorted column reverses the sort order and resorts. You can sort multiple columns (up to three) by holding down the 'CTRL' key and clicking up to three column headers one after another (while keeping then 'CTRL' key down).

Manually or automatically (Auto size) resize Grid Columns widths

In general, double clicking on a column header will auto size the column width to the largest entry in that column. To auto size all columns, double click the top left corner label that is common to both the column headers and row labels. You can manually resize column widths by moving your mouse between column headers until a resize cursor appears. Hold the left mouse down and move left or right.

Manually resize Grid Row heights

You can manually resize row height by moving the mouse between row labels until a resize cursor appears. Hold the left mouse down and move up or down.



Steps to Comply with Florida 2010 Building Code

FLORI DA ENERGY CODE COMPLIANCE FOR COMMERCIAL BUILDINGS

Compliance options

The three compliance procedures for the FLORIDA ENERGY CODE COMPLIANCE FOR COMMERCIAL BUILDINGS are:

- 1. Total Building Performance Compliance
- 2. Prescriptive Envelope Compliance for Shell Buildings
- 3. Prescriptive Compliance for Renovations, Occupancy Change, etc.
- 4.

These can be invoked by going to the appropriate items in the calculate menu as follows: Calculate -> 2010 Florida Code Compliance -> Total Building Performance Compliance or other options

Steps for compliance:

- 1. Open new file and enter data. The main user manual explains all the screens, input procedures and input details.
- 2. After entering inputs go to Calculate -> Error Check. Correct errors that are found
- 3. Run the appropriate compliance Calculate -> 2010 Florida Code Compliance -> Total Building Performance Compliance or other options
- 4. Check the reports generated to see if the building complies. See section on Appendix A on input and output reports.
- 5. Print the reports and look for elements that have failed. The reasons for failing will be given in the reports
- 6. Make changes to inputs that have failed and re run the calculations until you are able to comply.

Top Menus

File Menu

Edit View Calculate Reports Resources Tools Window Help	
New	Project (FL Code)
₽ Open	Project from Template (FL Code)
Close Ctrl+W	Template
Save	
Save As	
Print.	
C:\Documents and Settings\Billy\Application Data\Tester\SampleSummit320.EGC	
D:\Program Files\EnergyGauge\EnergyGaugeSummit\Samples\SampleSummit320.EGC	
C:\DOCUME~1\Billy\Desktop\505151~1.EGC	
C:\DOCUME~1\Billy\Desktop\09009.EGC	
D:\Program Files\EnergyGauge\EnergyGaugeSummit\Samples\Leed22SampleDTE.EGC	

The File menu consists of the following sub menus:

New - It consists of 3 sub menus.

Project(FL Code): Opens a new project for code compliance.

<u>Project From Template (FL Code</u>): Opens a new project for code compliance from a template. When this option is chosen, a dialog appears for selecting the template the new project is to be based on.

Template: Creates a new Template.

Open - Opens a file. Either a project (.EGC) file or a template (.EGT) file can be opened for data input.

- Close Closes the current file.
- Save Saves the changes made to the current file on to the hard disk.

Save as - Saves the current file under a new user specified filename.

Print - Prints the input data of a currently open project.

Exit - Closes the application.



Edit Menu

🛜 Ener	gyGa	uge Si	ummit - [Prj RefPi	oj]			
💼 File	Edit	View	Calculate	Reports	Resource:	s Tools	Window	He
	Pr	oject M	references laterials and enestration		ts	p Contents	ect Inforr	nati
	Pr	oject P	rofiles & Sc	- 1924 -			ectimon	nau
	265.855	oject D Iter LEI	ED NC2.2 A	dditional Ir	puts	10.0	escription cronym	Ref
	Ξ-	Wa	lls				itle	IN I

The 'Edit' menu has the following sub menus:

Project Preferences - This sub menu opens the dialog for settings defaults for the current project or template as shown below:

Project Preferences		
Default Constructs		
Wall Default: 5/8" stucco /8"CMU/3/4"ISO BTWN24"oc/.5" Gyp	Set Wall Def >>	
Roof Default: Conc Tile/1/2"WD Deck/WD Truss/9"Batt/Gyp	Set Roof Def >>	
Floor Default: 1 ft. soil, concrete floor, carpet and rubber pad	Set FloorDef >>	
Door Default: Aluminum door, 1.25 in. polystyrene	Set Door Def >>	
Wndo Default: ASH90.1 Unlabled Sgl Clear All frame types	Set Wndo Def >>	
Skyl Default: ASH90.1 Unlabled Skylight .125 in glass Al frm	Set SkyL Def >>	
ОК		Cancel

You can set the default type for each envelope component. Any new envelope component you add to the project will use these settings. You can change these setting at any time.

Project Materials and Constructs - This sub menu opens the Project Materials and Constructs Library for

editing.

Project Fenestration - This sub menu open the Project Fenestration Library for editing.

Project Data - This sub menu opens the Project Data Input Form for editing.

Enter LEED 2.2NC Additional Inputs - This sub menu opens the <u>LEED NC22 Additional Inputs Form</u> for editing.

Project Profiles & Schedules - This sub menu opens the Project Profiles & Schedules menu for editing.



View Menu

🔒 File Edit	View	Calculate Reports	Resources	Tools
🛛 🗋 New 💕	Tennen	roject Explorer tatus <u>B</u> ar	L	💡 Help
E-1 Ref	1 13	DOE Outputs View Temporary Files		P

The 'View' menu contains the following sub menus:

Project Explorer - shows or hides the Project Explorer as applicable.

Status Bar - displays an informational status bar at the bottom when checked.

DOE Outputs - sas the following sub menus:

- * Last Design Run
- * Last Run

The calculation engine, DOE-2.1E, produces text outputs that can be viewed for possible errors, warnings and cautions. The above two sub menus are provided only to be used for debugging should the need arise.



Calculate Menu

2008 Florida Code Compliance 2010 Florida Code Compliance	Total Building Performance Compliance		
Florida Commercial Building Rating	 Prescriptive Envelope Compliance for Shell Buildings Prescriptive Compliance for Renovations, Occupancy Change, 		
2001 ASHRAE 90.1 Compliance	•		
2004 ASHRAE 90.1 Compliance	leturn		
2007 ASHRAE 90.1 Compliance	,		
ASHRAE (Appendix G) Performance Rating	•		
LEED	·		
2005 Commercial Building Federal Tax Deduction	, m 🦉		
System Sizing	•		
Building Simulation	•		

The Calculate menu has the following sub menus:

Error Check

Displays the data errors in the project. It usually consists of the component being error-checked, an error message, possible cause, and possible resolution. It is recommended that an error check be performed before a compliance calculation is run.

You can also check for errors by clicking the red 'Check' label at the bottom of the Project Explorer. Nodes with errors appear in red. Hovering the mouse on the node with error displays a tool tip with the error message.

* Whole Building

Checks errors for the whole building.

* Envelope Only

Checks errors only for the building envelope namely the walls, floors and roof.

2004 Florida Code Compliance

Compliance reports will be displayed on the screen when Calculate -> Compliance and one of the following options is chosen. The Compliance sub menu has the following options:

* Method A - Energy Cost Budget Compliance

Runs the Method A (whole building) code calculation. This is a computer based annual energy performance calculation. Under this method energy performance is calculated for the entire building based on the envelope and major energy-consuming systems specified in the design, and simultaneously for a reference building of the same configuration but with reference features. Note that this runs and displays only the Whole Building Compliance Calculation.

* Method B - Envelope Trade-Off Compliance

Runs the Method B (component) code calculation. This is a computer based calculation. Under this method, each component of the building systems must meet minimum performance standards. Note that this runs and displays only the Envelope Compliance Calculation.

* Method C - Prescriptive Compliance

Runs Method C which checks for line by line compliance of each element in the building.

2008 Florida Code Compliance

Compliance reports will be displayed on the screen when Calculate -> Compliance and one of the following options is chosen. The Compliance sub menu has the following options:

* Method A - Energy Cost Budget Compliance

Runs the Method A (whole building) code calculation. This is a computer based annual energy performance calculation. Under this method, energy performance is calculated for the entire building based on the envelope and major energy-consuming systems specified in the design, and simultaneously for a reference building of the same configuration but with reference features. Note that this runs and displays only the Whole Building Compliance Calculation.

* Method B -Shell Building Compliance

Runs the Method B code calculation for shell buildings. Under this method, the building envelope must meet minimum prescriptive criteria. If the building is unable to meet any of the prescriptive criteria under this method, the building can be brought under code using Method A.

* Method B - Compliance for Renovations, Occupancy Change, etc.

Runs Method B code calculation for buildings that undergo renovations, occupancy changes etc. Under this method, each component of the building systems must meet minimum prescriptive standards. Only those building components that are being renovated should be entered. If the building is unable to meet any of the prescriptive criteria under this method, the building can be brought under code using Method A.

2010 Florida Code Compliance

Compliance reports will be displayed on the screen when Calculate -> Compliance and one of the following options is chosen. The Compliance sub menu has the following options:

* Total Building Performance Compliance

Runs the Method A (whole building) code calculation. This is a computer based annual energy performance calculation. Under this method, energy performance is calculated for the entire building based on the envelope and major energy-consuming systems specified in the design, and simultaneously for a reference building of the same configuration but with reference features. Note that this runs and displays only the Whole Building Compliance Calculation.

* Prescriptive Envelope Compliance for Shell Buildings

Runs the Method B code calculation for shell buildings. Under this method, the building envelope must meet minimum prescriptive criteria. If the building is unable to meet any of the prescriptive criteria under this method, the building can be brought under code using Method A.

* Prescriptive Compliance for Renovations, Occupancy Change, etc.

Runs Method B code calculation for buildings that undergo renovations, occupancy changes etc. Under this method, each component of the building systems must meet minimum prescriptive standards. Only those building components that are being renovated should be entered. If the building is unable to meet any of the prescriptive criteria under this method, the building can be brought under code using Method A.

Florida Commercial Building Rating

* 2004 FL Rating

Runs a simulation that compares the total energy use of the design building under consideration, with the reference building created using the ASHRAE 90.1 (2004, Appendix G) standard. The rating report gives an index called the EPI (Energy Performance Index) that indicates how much the building under consideration costs to run as compared to the baseline reference building.

2001 ASHRAE 90.1 Compliance

* Energy Cost Budget Method

Runs the whole building code calculation. This is a computer based annual energy performance calculation. Under this method, energy performance is calculated for the entire building based on the envelope and major energy-consuming systems specified in the design and simultaneously for a reference building of the same configuration, but with reference features. Note that this runs and displays only the Whole building compliance calculation.

* Envelope Trade-Off Option

Runs the component code calculation. This is a computer based calculation methodology. Under this method, each component of the building systems must meet minimum performance standards. Note that this runs and displays only the Envelope compliance calculation.

* Prescriptive Building Option

This option checks for line by line compliance of each element in the building.

2004 ASHRAE 90.1 Compliance

* Energy Cost Budget Method

Runs the whole building code calculation. This is a computer based annual energy performance calculation. Under this method, energy performance is calculated for the entire building based on the envelope and major energy-consuming systems specified in the design and simultaneously for a reference building of the same configuration, but with reference features. Note that this runs and displays only the Whole building compliance calculation.

* Envelope Trade-Off Option

Runs the component code calculation. This is a computer based calculation methodology. Under this method, each component of the building systems must meet minimum performance standards. Note that this runs and displays only the Envelope compliance calculation.

* Prescriptive Building Option

This option checks for line by line compliance of each element in the building.

ASHRAE (Appendix G) Performance Rating

This specifies a performance rating method and is a modification of the Energy Cost Budget Method specified in ASHRAE Standard 90.1. It is used for buildings that substantially exceed the requirements in Standard 90.1 but is not meant as an alternative to the Energy Cost Budget requirements stated in Standard 90.1. It is useful for evaluating all proposed designs, including alterations and additions to existing buildings, except designs with no mechanical systems.

* Version 2001

Runs an Appendix G rating for ASHRAE Standard 90.1 2001

* Version 2004

Runs an Appendix G rating for ASHRAE Standard 90.1 2004

LEED

LEED represents The Leadership in Energy and Environmental Design (LEED) a US Green Building Council (USGBC) Rating System, the nationally accepted benchmark for the design, construction and operation of high performance green buildings. This menu option runs the following simulations.

Detailed instructions for LEED online submittal

Calculate Reports Resources Tools	Window Help	-	8
Error Check		•	
2004 Florida Code Compliance		•	
2008 Florida Code Compliance		Designers Zone-Sys Assignment Summary & Settings	
s 2010 Florida Code Compliance		▶	_
Florida Commercial Building Rating		> i	
2001 ASHRAE 90.1 Compliance		> roject	
2004 ASHRAE 90.1 Compliance		Winer's name here	
2007 ASHRAE 90.1 Compliance		Class New Finished	build
ASHRAE (Appendix G) Performance F	\ating	Pro	file: 5
LEED		LEED NC 2.1	
2005 Commercial Building Federal Tax	< Deduction	LEED NC 2.2	k
System Sizing		LEED NC 2.2 - EA Credit 1 Online Submittal LEED NC 2.2 - EA Credit 1 Report (Acrobat Not Required)	
Building Simulation		LEED NC 2009	-
Pr0Zo1Wa4	City Anuwher	Ad LEED NC 2009 - EA Credit 1 Report (Acrobat Not Required)	

* LEED NC 2.1

Runs the LEED New Construction (NC) 2.1 simulation that reports the number of credit points in the LEED rating system that a building can earn for improved energy performance. This menu item should be used only for projects registered with USGBC before January 1, 2006.

* LEED NC 2.2

Runs the LEED New Construction (NC) 2.2 simulation that documents the number of LEED EA Credit 1 USGBC points for building energy use optimization that can be earned for the proposed building. The points are awarded on the percentage difference between the annual energy use of the proposed versus the reference building constructed according to the ASHRAE 90.1 2004 Appendix G standards. The EnergyGauge software automatically calculates these USGBC points and displays a detailed report of the proposed versus reference energy use.

* LEED NC 2.2 - EA Credit 1 Online Submittal

This menu option is specific to users wishing to submit their LEED NC 2.2 simulation data, in the official PDF template format required by USGBC, to the USGBC online website for LEED certification. The EnergyGauge Summit software will automatically create this LEED PDF form from user input taken via the LEED 22 NC Additional Inputs form and simulation results. The user can then submit this PDF form through the EnergyGauge interface to the USGBC website. Any changes made by the user directly in the PDF file shown in the EnergyGauge interface will not be saved or submitted to the USGBC LEED online website. Any changes required should be made from the LEED 22 NC Additional Inputs form and the building input data.

* LEED NC 2.2 - EA Credit 1 Report (Adobe not required)

Does the same calculation as the EA Credit 1 Online Submittal menu option but displays the output report in a format that is required for the LEED NC 2.2 EA Credit 1 PDF. This option does not require Adobe Acrobat Professional to be installed on the client computer. The user has the ability to print this report as a 'Microsoft XPS Document Writer' document and copy all the outputs in to the LEED PDF for submittal. The 'XPS' document can only be opened using Microsoft Internet Explorer.

* LEED NC 2009

This menu option will calculate the LEED EA Credit 1 points as per the LEED NC 2009 guidelines from the USGBC. EA Credit 1 points are awarded on the percentage difference between the annual energy use of the proposed versus the reference building constructed according to the

ASHRAE 90.1 2007 Appendix G standards. The EnergyGauge software automatically calculates these USGBC points and displays a detailed report of the proposed versus reference energy use.

* LEED NC 2009 - EA Credit 1 Report (Adobe not required)

This option does the same calculation as the LEED NC 2009 menu option but displays the output report in a format that is required for the LEED NC 2009 EA Credit 1 PDF. This option does not require Adobe Acrobat Professional to be installed on the client computer. The user has the ability to print this report as a 'Microsoft XPS Document Writer' document and copy all the outputs in to the LEED PDF for submittal. The 'XPS' document can only be opened using Microsoft Internet Explorer.

2005 Commercial Federal Tax Deduction

Provisions in the Energy Policy Act 2005 allow for a tax deduction for energy efficient commercial buildings that reduce annual energy and power consumption by 50% compared to the ASHRAE 2001 Standard 90.1. A special approval code must be provided to use this feature. Once this code is specified by the user under the Help menu, and verified by the software, it need not be entered again till the license is valid. Following are the options available.

Calculate Reports Resources	Tools Window Help	_ 8
Error Check		▶
2004 Florida Code Compliance		•
2008 Florida Code Compliance		Designers Zone-Sys Assignment Summary & Settings
2010 Florida Code Compliance		>
Florida Commercial Building Ra	ting	•
2001 ASHRAE 90.1 Compliance	e	, roject
2004 ASHRAE 90.1 Compliance	e	Iwner's name here
2007 ASHRAE 90.1 Compliance	e	Class New Finished built
ASHRAE (Appendix G) Perform	nance Rating	No. of Stories 1 + Norres
LEED		North (0 deg.) Permit No. 0
2005 Commercial Building Fede	eral Tax Deduction	 Full Deduction (IRS 2006-52, 1.80/SF)
System Sizing		Partial Lighting (IRS 2008-40, Interim Rule, upto \$0.60/SF)
Building Simulation		Partial Lighting (IRS 2006-52, Permanent Rule, \$0.60/SF)
Doors	Enter	Partial Envelope (IRS 2006-52, \$0.60/SF)
🖻 🏛 Windows 🔍	City Anywhere	Partial Lighting (IRS 2008-40, Permanent Rule, \$0.60/SF)
	FL Jurisdiction	A Partial System (IRS 2008-40, \$0.60/SF)
Buffer: None	Climate Option*	Partial Envelope (IRS 2008-40, \$0.60/SF)

* Full Deduction (IRS 2006-52, IRS 2008-40, \$1.80/SF)

The full deduction is applicable if the whole building calculation shows a 50% or greater efficiency than the corresponding reference building for the ASHRAE Standard 90.1. This deduction is a maximum of \$1.80 per square foot of the building.

* Partial Lighting (IRS 2008-40, Interim Rule, up to \$0.60/SF)

As per IRS guidelines documented in the notice IRS 2008-40, any commercial building with an improvement of over 25% in the lighting power density as compared to the ASHRAE 90.1 2001 requirements can qualify for a tax deduction. The deduction is scaled appropriately, as per IRS guidelines, in the 25% to 40% savings range and a deduction of \$0.60 /SF can be taken for savings over 40%.

* Partial Lighting Deduction (IRS 2006-52, IRS 2008-40, Permanent Rule, \$0.60/SF)

The partial deduction is applicable if the code calculation shows a 50% or greater efficiency of the building lighting than the corresponding reference building lighting for the ASHRAE Standard 90.1. This deduction is a maximum of \$0.60 per square foot of the building.

* Partial System Deduction (IRS 2006-52, IRS 2008-40, \$0.60/SF)

The partial deduction is applicable if the code calculation shows a 50% or greater efficiency of the building mechanical system than the corresponding reference building mechanical system for the ASHRAE Standard 90.1. This deduction is a maximum of \$0.60 per square foot of the building.

* Partial Envelope Deduction (IRS 2006-52, IRS 2008-40, \$0.60/SF)

The partial deduction is applicable if the code calculation shows a 50% or greater efficiency of the building envelope than the corresponding reference building envelope for the ASHRAE Standard 90.1. This deduction is a maximum of \$0.60 per square foot of the building.

Calculate Reports Resources Tools Window Help	
Error Check	▶ [
2004 Florida Code Compliance	•
2008 Florida Code Compliance	Designers Zone-Sys Assignment Summary & Set
⁸ 2010 Florida Code Compliance	•
Florida Commercial Building Rating	•
2001 ASHRAE 90.1 Compliance	roject
2004 ASHRAE 90.1 Compliance	Iwner's name here
2007 ASHRAE 90.1 Compliance	Class New Finis
ASHRAE (Appendix G) Performance Rating	► 0 No. of Stories 1 🖨
LEED	North (0 deg)
2005 Commercial Building Federal Tax Deduction	
System Sizing	 DOE 2.1E Based System Sizing (For Beta Testing Only)
Building Simulation	► Street

System Sizing

This is a beta feature that will size the user building using the DOE 2.1E simulation engine. The output report will provide the sized heating and cooling capacities for all system and plant components included in the building model.

Building Simulation

* Run DOE2.1E Simulation

This runs an energy (not code compliance) calculation on the design building using the DOE-2.1E simulation engine. It is not an option nor a requirement for code compliance. However, its output may be of useful to the designer.

** Some of the 'Calculate' menu options may or may not be visible based on the version of the program purchased



Reports Menu

🔒 File	Edit	View	Calculate	Reports	Resources	Tools	Window	Help
	N (11)	- Ünen	Close	Inpu	t Report	Help	Contents	

Input Report - This produces a detailed report of the project inputs.

Densist					
Description	RefProj				
Title	New Projec				
Owner					
Owner	Enter Uwne	er's name here			
Building In					
Туре	Office	•	CI	ass New Finisher	d building 🔄 🗾
Area From	Plans 0	N	o. of Stories 1 🚔		ofile: 1001 School ducational)
Rotate Bui	1 (1 (1 (1 (1 (1 (1 (1 (1 (1 ((0	addationaly
clockwise		orth (0 deg)	Permit No. 0		Select Profile >>
(degrees):					Jelec(1 Tohle //
- Location Inf	n				
	Input Rep	ort			
			led data on Profiles & Sche t be included in the Input F		de Compliance
This					do complianco.
City	ou want to in	clude Profiles & Scl	nedule data in Input Repor	t?	
City Do y		-	1 1	ancel	<u></u>
City		Vec	No L C		
City Do y		Yes		ancei	ance. tab
City Do y FL		Yes			ance. tab
City Do y FL		Yes			
Do y FL		Yes			

Before displaying the input report, the user is asked to select whether the Profiles & Schedules information should be included in the report. The Profiles & Schedules information is voluminous and is not required to be included for Florida Code Compliance but may be mandatory for other compliance calculations.

Note: In certain instances of renovation, addition or shell buildings, only some of the individual reports may be required. For example, if only a system is being replaced, only the system report may be required. Check your current energy code manual and local jurisdiction for specific requirements.



Resources Menu

		-		
Reports	Resources	Tools Window	Help	
Save	Master	Library 🕨 🕨	<u>M</u> aterials	Î
	inter t		<u>C</u> onstructs	1
		Project	Profiles and Schedules	f

Provides access to the following Master Library resources:

Materials - Displays the Master Library of Materials

Constructs - Displays the Master Library of Constructs

Profiles and Schedules - Displays the profiles and schedule data forms



Tools Menu

File Edit View Calcul	ate Reports	Resource	s	Tools	Window	Help
🗋 New 💣 Open 🧰 Cla	ose 🔛 Save	🖨 Print	9		istomize otions ttings	č.
RefProj RefProj Zones Pr0Zo1				AS	HRAE Sta	ndard 140 Test

The Tools menu has the following sub menus:

Customize - This menu allows the user to customize the Tool bars.

Options - This option allows the user to change the application user interface layout. Layout options include Tab location and style.

Settings - This allows the user to set, change or remove the default directory from which input files are initially opened.

Another option in the setting menu is for the feedback control when for users when entering building data. This feedback control when set to a particular form of calculation, for example should the user be running an ASHRAE 90.1-2001simulation, the feedback dropdown menu should be set to ASHRAE 90.1-2001, thus allowing a user to see whether individual data fields fail or pass according to the rules of the feedback standard selected, when entering data in the forms. This setting is shown below:

E	Settings		
ſ	General		
	Default Directory		
	Delete Def Dir		Set Def Dir >>
	Faadhaali Cawaa	-	
	Feedback Setting	No Feedback No Feedback	<u> </u>
		ASHRAE 2001	
		2005 Energy Tax Credit ASHRAE 2004	
		2004 Florida Code Compliance ASHRAE 90.1 2007	
		2008 Florida Energy Code Compliance 2010 Florida Energy Code Compliance	
L			
	ок		Cancel
1			



Window Menu

🚉 File Edit View Calculate Reports Resource	s Tools	Window Help	
E SefProj	Property	<u>A</u> rrange Icons	igne
		✓ 1 Prj RefProj Acronym RefProj	

The sub menus under the **Window** menu provide the user with the option of viewing multiple forms in several formats.

Cascade - Reduces the size of open window and places them on top of each other

Tile Horizontal - All open windows are tiled horizontally.

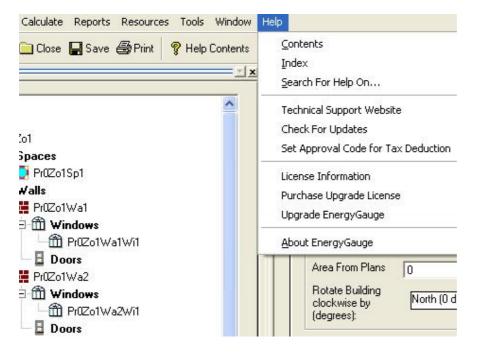
Tile Vertical - All open windows are tiled vertically.

Arrange lcons - The window icons are minimized and are arranged at the bottom of the screen.

Note: These menus are only for the visual convenience of the user. Window in this context does not refer to the 'Windows' or 'fenestrations'. in a building.



Help Menu



Sub Menus provides access to the Help system.

Contents - This sub menu opens the contents dialog of the Help system. The user can navigate to any topic from the contents. In addition the user can print any topic displayed or book from the contents dialog.

Index - Opens the searchable Index dialog of the help system.

Search For Help On - Opens a key word search of the help system.

Technical Support Website - Directs the user to the EnergyGauge Summit technical support website.

Check For Updates - Allows the user to automatically check for latest updates to the EnergyGauge software.

Set Approval Code for Tax Deduction - Allows the user to start using the tax deductions feature of the EnergyGauge software.

License Information - Provides the user with a table that lists all the features offered with the EnergyGauge Summit software and provides information on features for which license has been procured for that particular copy. The license table looks as follows:

	Feature Id	Short Description	Description
1	1	2004 Fla Comp - Method A	2004 Florida Code Compliance Method A - Energy Cost Budget Comp
2	2	2004 Fla Comp - Method B	2004 Florida Code Compliance Method B - Envelope Trade-Off Compli
3	3	2004 Fla Comp Method C	2004 Florida Code Compliance Method C - Prescriptive Compliance
4	7	2001 ASHRAE 90.1 - ECBM	2001 ASHRAE 90.1 Compliance Energy Cost Budget Compliance
5	8	2001 ASHRAE 90.1 - ETO	2001 ASHRAE 90.1 Compliance Envelope Trade-Off Compliance
6	9	2001 ASHRAE 90.1 - Prescriptive	2001 ASHRAE 90.1 Compliance Prescriptive Compliance
7	10	2004 ASHRAE 90.1 - ECBM	2004 ASHRAE 90.1 Compliance Energy Cost Budget Compliance
8	11	2004 ASHRAE 90.1 - ETO	2004 ASHRAE 90.1 Compliance Envelope Trade-Off Compliance
9	12	2004 ASHRAE 90.1 - Prescriptive	2004 ASHRAE 90.1 Compliance Prescriptive Compliance
10	13	2001 ASHRAE 90.1 - App G Rating	ASHRAE (Appendix G) Performance Rating Version 2001
11	14	2004 ASHRAE 90.1 - App G Rating	
12	15	IECC 2003 - TBPM	IECC 2003 Commercial Code Compliance Total Building Performance I
13	16	IECC 2003 - Prescriptive	IECC 2003 Commercail Code Compliance Prescriptive Compliance
14	17	LEED - 2001	LEED NC Version 2.1
15	18	LEED - 2004	LEED NC Version 2.2
16	19	FL Building Rating 2004	FL Rating 2004
17	20	2005 Federal Tax - Full Deduction	2005 Commercial Building Federal Tax Deduction Full Deduction (\$0.6
18	21	2005 Federal Tax - Lighting	2005 Commercial Building Federal Tax Deduction Partial Lighting Dedu
19	22	2005 Federal Tax - System	2005 Commercial Building Federal Tax Deduction Partial System Dedu
20 21 22 23 24	23	2005 Federal Tax - Envelope	2005 Commercial Building Federal Tax Deduction Partial Envelope De
21	24	Load Calcs - DOE 2.1E	Load Calculations DOE 2.1E Based Load Calculation
22	25	Load Calcs - Future	Load Calculations Load Calculations
23	26	System Sizing - DOE 2.1E	System Sizing DOE 2.1E Based System Sizing
24	27	Simulation - DOE21E	Building Simulation Run DOE21E Simulation
25	28	Simulation - EPlus	Building Simulation Run EnergyPlus Simulation
26	31	2008 Fla Comp - Method A	2008 Florida Code Compliance Method A - Energy Cost Budget Compl
25 26 27	32	2008 Fla Comp - Method B	2008 Florida Code Compliance Method B - Shell Building Compliance
28	33	2008 Fla Comp - Method C	2008 Florida Code Compliance Method B - Compliance for Renovation
29	34	2007 ASHRAE 90.1 - ECBM	2007 ASHRAE 90.1 Compliance Energy Cost Budget Compliance
30	35	2007 ASHRAE 90.1 - ETO	2007 ASHRAE 90.1 Compliance Envelope Trade-Off Compliance

Purchase Upgrade License - Allows the user to select and purchase online an upgraded license with extra features.

-0-

About EnergyGauge - Provides information about the installed version of EnergyGauge Summit.

Important Note: Pressing F1 key on your keyboard will provide context sensitive help.



Building Component Inputs

Project Data Input Form

Project Information Tab

	n								
Acronym	RefProj								
Title	New Projec	New Project							
Owner	Enter Owne	r's name here			-				
Building Ir	ofo								
Type	Office	•	CI	ass New F	Finished build	ding 💌			
Area From	Plans 0	N	Io. of Stories 👖 🜻		Profile: ! Nonres	501 ACM			
Rotate Bu clockwise (degrees):	by N	orth (0 deg)	Permit No. 0		Sel	lect Profile >>			
Location Ini	6				10				
	234 Any Stree								
E	Enter Address I	here	24000 2						
City Any	where	State FL	Zip 12345						
	tion ALACH	UA COUNTY	- ALACHUA COUNTY						
FL Jurisdic						and the second se			
FL Jurisdic			×Use "By	Florida Juriso	liction" for Fl	orida Compliance.			

Description

Acronym A short description (up to 20 characters). *Title* A fuller description (up to 50 characters). *Owner* The building owner information.

Location Info

Address

The address where the building is located. Two lines are available for this.

City

State

Zip

Jurisdiction

The city and/or county with authority to issue your building permit.

Climate Option

For Florida code compliance, this option must always be set to "By Florida Jurisdiction".

Building Info

Туре

The building classification based on use class from the <u>Type list</u>.

Class

The class building such as New or existing for which compliance is being calculated.

Area from Plans

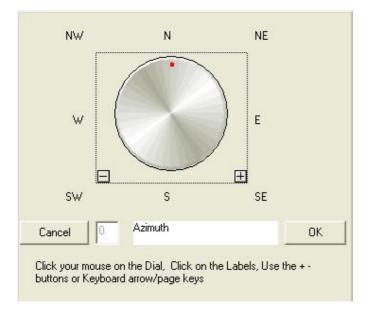
The total building square footage as indicated on the plans.

No of Stories

The number of the separate floors in this building project. The default is 1.

Rotate Building clockwise by (or Azimuth)

The orientation of the building is relative to true north. It is expressed in degrees from 0 to 360. The default is 0.0. Changing this angle has the effect of rotating the building about its z-axis (vertical axis). The default value is 0 and usually does not require modification. Clicking will open the <u>Azimuth Dial</u> window. Common values are: North = 0; South = 180; West = 270; East = 90.



There are 3 ways to enter the value

i) Click on the minus e or plus button to select the value and then click on 'OK'.

ii) Click on the E or W or N or S or NE or NW or SW or SE to enter the selected value and then click 'OK'.

iii) Click on the wheel to select the desired value and then click 'OK'.

NOTE: Orientation of Walls, Roofs and Floors are relative to the building orientation. Any value

other than zero for the building orientation will rotate all Walls, Roofs and Floors correspondingly during calculation.

Select Profile

Use the button to load a profile for the zone. The profile will include all the schedules for internal loads and gains in the building. For non-code purposes, the profiles and schedules can be entered and modified by the user. All code related simulations will use default values for profiles and building internal loads and gains schedules.

Designer Tab

Designers -	Na	me	Registration/L	icense No.
Prepared By	John Doe		1234567	
Owner/Agent				
Architect				
Electrical Designer			_	
Lighting Designer				
Mechanical Designer			_	
Plumbing Designer				

Enter names of individuals and Registration as applicable. (up to 50 characters)

Zone-Sys Assignment Tab

Project Information	Design	ners	Zone-Sys Assignment	Summary & Settings	Climate & Utility Rates
System\ Zone	System: Pr0Sy2	System: Pr0Sy4			
Zone: Pr0Zo1	v	Г			
Zone: Pr0Zo2	Г	~			

For Method A Compliance all zones in the project must be assigned to systems by checking the appropriate box.

A system can have more than one zone assigned to it. However, multiple systems cannot be assigned to a single zone.

Summary & Settings Tab

				p
Building Internal Load	l Summary			
Area: 50000 Volume: 500000				E
Equipment: 25000				
Equipment Sensible:	1			
Equipment Latent: 0	•			
Lighting: 7500				
People: 2500				
People Gain: 350	25			
People Gain Sensible				
People Gain Latent: (Source: 0	J			
Source: 0 Source Sensible: 1				
Source Latent: 0				
0.0.0.0.0000000000000				
Conditioned Zone Int	ernal Load Summary			
Conditioned Zone Int	ernal Load Summary			
Conditioned Zone Int	ernal Load Summary			-
	-	D	0	-
	ernal Load Summary .oads 🦵 Auto Size	Proposed Building 🦷	Override Unmet Hours	
│ │ Override Internal L	.oads 🥅 Auto Size			
│ │ Override Internal L Baseline Cooling	.oads 🦵 Auto Size	Heating	Baseline Fan -	1
│ │ Override Internal L	.oads 🦵 Auto Size			-
│ │ Override Internal L Baseline Cooling	.oads 🦵 Auto Size	Heating	Baseline Fan -	1
│ │ Override Internal L Baseline Cooling	.oads 🦵 Auto Size	Heating	Baseline Fan -	1
│ │ Override Internal L Baseline Cooling	.oads 🦵 Auto Size	Heating	Baseline Fan -	1
│ │ Override Internal L Baseline Cooling	.oads 🦵 Auto Size	Heating Multiplier	Baseline Fan -	1
Override Internal L Baseline Cooling Capacity Multiplier	.oads 「 Auto Size 1 Baseline Capacity 「 Use One Unit f	Heating Multiplier 1	Baseline Fan Capacity Multiplier ∏	
Override Internal L Baseline Cooling Capacity Multiplier Draft Run [×] Note: These entries a	.oads Auto Size 1 Baseline Capacity Use One Unit f re ignored for code c	Heating Multiplier 1	Baseline Fan Capacity Multiplier [plicable only for ratings	calculations
Override Internal L Baseline Cooling Capacity Multiplier Draft Run [×] Note: These entries a	.oads Auto Size 1 Baseline Capacity Use One Unit f re ignored for code c	Heating Multiplier 1	Baseline Fan Capacity Multiplier [plicable only for ratings	calculations

The summary window presents all the information entered by the user for the particular project. Below the summary window are a few check-box and text box inputs. The 'Override Internal Loads' check box if selected, allows the user to modify the internal loads in the space from the 'Loads' tab on the 'Space Data Input Form'. Leaving this box unchecked will allow the program to use default values for the internal loads.

The 'Draft Run' check box is especially useful in saving time when running the LEED or ASHRAE Appendix G 2004 simulations. The user can quickly run a single orientation for the reference building instead of all 4 orientations to figure out how much of savings they can get for the annual proposed energy use over the reference energy use. Once the acceptable level of percentage savings has been reached, this box can be unchecked to run all 4 orientations to get the final results. Reports generated when the 'Draft Run' option is checked will have a note saying that it was a draft run and a full run needs to be completed for final report submission. Users should be aware that the single run in the 'Draft Run' mode may not necessarily be the worst orientation for the reference building.

The 'Use one unit per zone' check box can be checked to help reduce the heating and cooling unmet hours if they are too high for the baseline building model for non-code (LEED, ASHRAE Appendix G) simulation runs. When the box is checked, and the proposed building model contains a single system assigned to multiple zones, each of those multiple zones will be assigned their own system in the baseline model. This will help reduce the unmet hours for the baseline run in the case where a single zone system is forced to serve multiple zones due to equipment selection as required by ASHRAE Appendix G.

Override Internal Loads: If checked, internal loads specified in the Space and Zone Table will be used rather than the defaults. Not applicable for the 2004 and 2008 Florida codes.

Auto Size Proposed Building: If checked, the proposed building will be internally auto-sized so that the unmet hours for heating and cooling are minimized. This should be used only when user-entered system

capacity is unable to meet loads within bounds of unmet hours. This would happen if the schedules and internal loads are not well established for the proposed building and therefore the system capacity is unable to meet loads. First check your input system capacities before using this option.

Baseline Cooling, Capacity Multiplier, and 'Baseline Heating Capacity Multiplier: If the unmet hours for the baseline (or reference building) needs adjusting to meet the unmet hour rule, (see ASHRAE 90.1 or 2010 Florida Code for details) these three parameters serve as capacity multiplier for the baseline building to adjust system/plant capacity.

Override Unmet Hours: If checked, this will completely override the unmet hour rule. Do not use this until all other options and inputs have been verified. Use of this option will require justification to the authority having jurisdiction.

Climate & Utility Rates Tab

Project Information		Designers	Zone-S	ys Assignment	Summary & Se	ettings 📔 (Climate & Utility Rates
		All these da	ata not require	d for Florida Cod	le Compliance		
+ Alabama				- Select by L	ocation Data —		
+-Alaska				Latitude 🔽	1	Longitude	0
+ Arizona				Cooling	,	Heating	10
				Degree 0		Degree	0
+-Arkansas				Days		Days	10
+-California				Summer		Winter	
+ Colorado				Design [0		Design	0
+ Connecticut				Temp		Temp	
+-Delaware				Altitude	1		
+-District of Colum	hia			Times It	Verify TMY 9	a. 1	
I +-Elorida			-	<u></u>	veniy i mi s	one	
Choose County, if Broward	d .		Vea Date		neteorological ye	ar data set 2	2 💌
County, if Broward listed here:	Clir	ata\EnergyG	Date In: ALACHUA iaugeCom\Eg	Set Typical n COUNTY, ALAC c2004A\\DOE2	neteorological ye CHUA COUNTY, 1E\Weather\JA Instead of Defa	FL CKSONVILL	
County, if Broward listed here: Weather fi Utility Rates	Clir ile: D:\Da I	ata\EnergyG	Date In: ALACHUA iaugeCom\Eg	Set Typical n COUNTY, ALAO c2004A\\DOE2 010 Florida Code	CHUA COUNTY, 1E\Weather\JA	FL CKSONVILL ults	.E.TMY
County, if Broward listed here: Weather fi Utility Rates	Clir	ata\EnergyG Use thes Monthly	Date in: ALACHUA iaugeCom\Eg e Rates for 20	Set Typical n COUNTY, ALA(c2004A\\DOE2)10 Florida Code Energy	CHUA COUNTY, 1E\Weather\JA Instead of Defa	FL CKSONVILL ults	.E.TMY
County, if Broward listed here: Weather fi Utility Rates Fuel Type	Clir ile: D:\Da I Desi	ata\EnergyG Use thes Monthly Charge	Date in: ALACHUA iaugeCom\Eg e Rates for 20 Energy Charge (\$)	Set Typical n COUNTY, ALA(c2004A\\DOE2)10 Florida Code Energy Charge Unit	CHUA COUNTY, 1E\Weather\JA Instead of Defa Demand Charge (\$/U	FL CKSONVILL ults TOU Schedule	.E.TMY
County, if Broward listed here: Weather fi Utility Rates	Clir ile: D:\Da I Desi Res1	ata\EnergyG Use thes Monthly	Date in: ALACHUA iaugeCom\Eg e Rates for 20	Set Typical n COUNTY, ALA(c2004A\\DOE2)10 Florida Code Energy	CHUA COUNTY, 1E\Weather\JA Instead of Defa	FL CKSONVILL ults TOU Schedule	.E.TMY Use TOU Schedule?

Allows the user to choose the climate location for the design building and to enter local utility rates for fuel charges.

TMY3 (Typical Metrological Year) weather data files are now used by default for all code simulation runs in EnergyGauge Summit. For all non-code simulation runs (LEED, ASHRAE Appendix G etc.), the user has the option to use the older TMY2 weather data set. TMY3 weather data sets are derived from more accurate and more recent weather data and are recommended to be used for greater simulation accuracy. These data sets are now available for over 1000 locations in the United States.

To use time-of-use- rates, first check the "Use TOU Schedule?" column. Clicking the button on

the "TOU Schedule" column will lead the user to the TOU schedule used. The user may choose to use another TOU schedule or create one under the main menu Edit -> Profiles and Schedules, and then invoke the newly created schedule here. Note that TOU schedules are applicable only for electric rates and not for other fuels.

Use these Rates for 2010 Florida Code Instead of Defaults

If checked, this entry tells the program to use user entered utility rates and time of use rates instead of internal default rates for the 2010 Florida code compliance. This entry has no effect on 2008 and 2004 Florida code compliance and ratings. For other calculations always the user entered rates are used.

Related Topics



Zone Data Input Form

Zone	e Load Data 🛛 👔	Summary	
Acronym	Desc		Туре
Pr0Zo1	Zone 1		Conditioned Zone
Select Category >>>	Classroom/Lecture Ha	3II	
Dimensions-			g Load Profile OR Select Profile >> : 501 ACM Nonres
Total Space Effective Zor Area not incl	Area = 10000.0 SF Volume = 100000.0 CF ne Height = 10.0 ft uded in Spaces (SF) 0 ones like this one 1	Equipment Total: = 5000.0 W Sen Frac: = 1.0 Lat Frac: = 0.0	Thermostat Type Proportional Range 4
-	ad from Spaces = 1500.0 ^v mpact Fluorescent	W Numb	ipants per of people = 500.0
		Elec Tot: = Sen F	etric Source

Zone Load Data

Acronym

A short description (up to 20 characters).

Description

Enter a detailed description (up to 50 characters).

Туре

Specifies the type of zone:

Conditioned - maintains zone air at desired conditions.

Unconditioned - Zone is not conditioned.

Plenum - Zones that act as conduits for return air.

Zone Category

Select the category of the zone from a pre-defined list. This is required as for example, the building type may be an assembly, but may have a zone that serves as an office located in it. The building type selected on the project form will then be an assembly, but the category selected for this zone will be of type 'Office'.

Dimensions

NOTE: The area and volume of the zone are automatically calculated by summing the individual values for the spaces under the zone. This occurs any time a change is made to space dimensions or spaces are added or deleted. There is, however, a limitation on the per Zone Area and Volume thus calculated. Maximum Zone area is limited to 100,000 SF and maximum Zone Volume is limited to 1,000,000 CF. However, these can be overcome by defining additional Zones or using the Zone Multiplier for multiple zones that are exactly the same.

Area not included in spaces [SF]

Represents extraneous area that has not been included under spaces. This is added to the total space area under the zone. If none, set to 0.

Number of Zones

Specifies the number of identical zones in the building to the current one. If two or more zones are identical, use this entry rather that creating additional zones.

Thermostat

The thermostat will control the zone to the particular set-point as specified in the zone set point schedule for heating or cooling. It will be responsible for turning the HVAC system on or off based on zone heating or cooling load requirements. The user should input the type of thermostat (eg. proportional etc.) and the range or the dead band in which the thermostat should control the zone temperature to.

Lighting Type

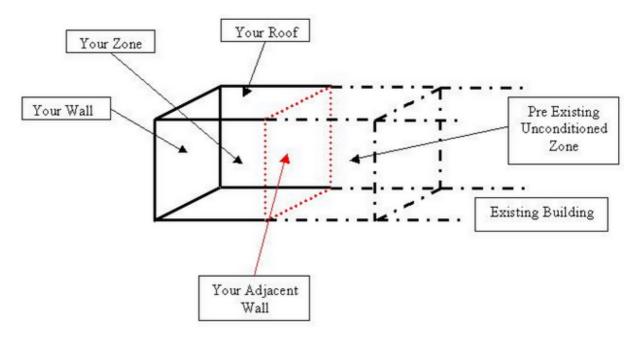
Specifies the predominant type of overhead lighting used in the zone. Note that lighting power and type is specified in the space forms.

Source

Specifies internal source type due to sources other than people, lights, or equipment. Note that the source rates rate is specified in the space forms.

HOW TO HANDLE A PRE-EXISTING UNCONDITIONED ZONE THAT IS NOT PART OF YOUR DESIGN BUT HAS YOUR ENVELOPE NEXT TO IT

In some instances, you may have to account for a zone that pre-exists and is not part of your design. Since the calculation requires a physical zone whenever an adjacent envelope is specified next to it, the following procedure suggests how to accomplish it with minimal input and effort.



Steps to account for an Zone that pre-exists.

1) Add a Zone. You may choose to label it as 'PRE-EXIST'.

2) Set the Zone to 'Unconditioned'.

3) Add a Space under this new Zone.

4) Set Space category to 'Unlisted'.

5) Set the width and height of the space equal to the width and height, respectively, of your adjacent wall.

6) Set the depth of the space to a minimum value, say 1 ft.

7) Set No. of Task locations to zero.

8) Add a lighting to the space. Use minimum Watts (equal to what is indicated by the Budget, or say 5 Watts).

9) Set Control Type to 'Security Lighting'.

10) Set No. of Controls to Zero.

11) You can now set your adjacent wall next to this new 'PRE-EXIST' zone.

12) If you are running Method A, you will have to assign the 'PRE-EXIST' zone to some system in the project. As long the PRE-EXIST zone is set to 'Unconditioned', there will be no energy impact.

Zone Load Data	Summary	
, A s	Summary Cone Air ssigned upply Air Dutside Air Off per person	

Zone Summary

Assigned Supply Air

Total quantity of supply air assigned to the zone from the system.

Outside Air

The total outside air supplied to the zone. This will be calculated either based on ASHRAE 62.1 if defaulted, or can be supplied by the user for non-code (LEED, ASHRAE Appendix G) simulation runs.

Related Topics



Space Data Input Form

Acronym	ighting		Lo	iads			
	25/02			Description			
Pr0Zo1Sp	1 Zo	0Sp1					
Select Sp Category	Dace	c No: 14 Class	room/Lectur	e Hall			
Dimensio		2 2 V					
Width 1	00	Depth 10) He	ight 10	Multiplie	er 1 🛟	
Area = 10	0000 (1000	0 Gross)		Vo	lume = 100	000 (100000 Gro	ss)
	10000						
- Lighting -							
Lighting	; Total = 15	i00 (1500 Gross)					
	Туре		Category	No. of Luminaires	Watts per Luminaire	Control Type	No. c Contr
1	Compact	Fluorescent 👱	General	1	1500.00	DayLgt with cor	4
2		Fluorescent	General	1	0.00	Manual On/Off	1

Lighting Tab

Acronym

A short description (up to 20 characters).

Description

A detailed description (up to 50 characters).

Category

Select a space type from the list. For space type not listed select the one most representative from the list. This is a key selection that will affect the lighting allowance.

Dimensions

Width

Specify the space width in feet.

Depth

Specify the space depth in feet.

Height

Specify the space height in feet.

Multiplier

Used to specify the number of identical spaces. Use this input for spaces that are exactly the same, instead

of adding a new space under the zone.

NOTE: The area and volume of the zone to which the space belongs are automatically calculated by summing the individual values for all spaces under the zone. This occurs any time a change is made to space dimensions or spaces are added or deleted. Maximum Zone area is limited to 100,000 SF and maximum Zone Volume is limited to 1,000,000 CF. Space dimensions specified here should conform to this limitation.

Lighting

Туре

This field describes the various lighting types. They are available in the drop down box. Click here for <u>details</u>.

Category

Classified the use of the lighting.

No. of Luminaires

Specify the number of light fittings in that space.

Watts per Luminaire

Specify the lighting wattage per fitting.

Control type

This field describes the type of control used for the particular lighting. A value of "None" is not allowed for this field.

No. of Controls

This field shows the number of control points for the particular lighting.

Area Lighted

For a few categories of the lighting type (for example: category 22 - Specific Retail Display), this extra field requires the user to enter the area lighted. This field is automatically unlocked for the categories for which this values is required.

See the section on Working With Grids to Add, Delete and Modify the Lighting data.

Equipment W/SqF 0.5 Kw 0 Total	Lighting Loads W/SqFt 1.4 Light KW 0 Task Lt W/SqFt 0 Task Lt KW 0	Occupants Number of People Area/Person Heat Gain (Total) Heat Gain (Sensible)	0 20 350
Sensible 1	Source Btu/Hr	Heat Gain (Latent) Occp.Load	
'Source' loads will be co other Rating calculation Note: User specified loo	npact zone 'heating/cooling' loads. punted as miscellaneous (electric) en ns). ads will not apply unless the 'Override ab of the main Project interface.		

Loads Tab

For code calculations, the Loads tab on the Space form is provided for information only. Default values are set by the program based on the space type selected. All inputs on the space loads form <u>will be used</u> in case of non-code simulation (LEED, Federal Tax Deduction Calculations etc.) <u>only</u> <u>when</u> the 'Override Internal Loads' box on the 'Summary&Settings' tab is checked.

Equipment

Equipment loads should be entered in either 'W/sq ft' or 'kW'. If both values are entered, they are added together for a combined load in each space. All the space equipment loads are summed up as the total equipment load on every zone. Equipment load is purely sensible in nature and contributes to the heating or cooling loads in the zone. The 'Equipment' schedule from the associated Zone Profile will control the amount of equipment load on the zone for every hour in the annual simulation. The equipment load is typically the thermal (heat load) fraction of all the plug loads in that space.

Source

The source load is entered in Btu/hr and is the sum of all the plug loads in the space. Source loads do not contribute to the heating or cooling loads in the space and zone.

Occupants

The maximum number of 'Occupants' in the space should be entered as either a value of 'Number of People' <u>or</u> as a value of 'Area per person' <u>or</u> as a combination of the two. The people load on the space will be modified as per the 'People' schedule specified in the profile associated with the zone that contains the space. Occupant load will affect the outside (fresh) air fraction required for the zone during an annual simulation unless a fixed value of outside air has been specified at the zone level.

Related Topics



Wall Data Input Form

Wall Info	1		
Wall Info			
Acronym Pr0Zo1Wa1			
Description Pr0Zo1Wa1			
Construct (U=0.0920		x4@24''+R11Bat n=19.3824 HCap Construct)	
Location: Exterior	<u> </u>	1	Sel Adj Zone >
ASHRAE Category:	Metal Building I	Exterior Wall	
Dimensions			
Shape Type: Rectang	le		-
Dimension1: 100 Dimension2: 10	□ □ □ □ □ □ □ □ □ □ □ □ □	Multiplier: 1	÷
Tilt 90	Orienta	tion North (0 de	g)
Area: 1000 Window Area incl Frame: 8 Door Area : 0 per Unit; (0 G			
Misc	1000 j		
	e Vis Refl 0.5	Outside Em	iss 0.9
Gnd Refl 0.2 Insid	e visition [0.0]	- stores -	0.0.

Wall info

Acronym

A short description (up to 20 characters)

Description

A detailed description (up to 50 characters)

Select Construct

Allows selection of the construct (sometimes called wall type or envelope type) for the wall. Clicking this button opens a list of all constructs in the Project. You can then select a construct for the wall from the list. If a suitable construct is not available in the list, you must first add (or build) the construct in <u>Project</u> <u>Resources</u> before being able to select that construct for the wall.

ASHRAE Category

Allows the user to select the appropriate ASHRAE category for the building component. This determines the maximum allowable assembly U-value for that component in the baseline (reference) building

Dimensions

Shape Type

There are various shape types that can be entered. Note that the required number of dimensions will become active and should be entered upon selecting a shape type. The various shape types are:

i) Square

. N		
	fultiplier: 1	-
D1		
	D1	D1→

ii) Rectangle

Shape Type: Re	ectangle		•
Dimension1: 100		Multiplier:	1 😫
Dimension2: 10	D	2	
	⊢ D1 →	I	
	L.	entation North (0	

iii) Triangle

Shape Type: Triangle	3	Multiplier: 1	
Dimension1: 100			-
)imension2: 10	D2		
	⊢D1⊣		
		tation North (0 deg	

iv) Semicircle

Shape Type: Semicir	
imension1: 100	Multiplier: 1

v) Trapezoid

			A 40 BOL Date To	1.1
imension1:	100	. 02 .	Multiplier: 1	÷
imension2:	10	+D3 +		
imension3:	0	D2		
imensions: j	U			

vi) Rectangle with Semicircle

hape Type:	Rectangle	with Semicircle	в	_
mension1:	100		Multiplier: 1	-
imension2:	10			
	1	- D1		

vii) Rectangle with Triangle

Dimension1: Dimension2: Dimension3:	100 10 0		Multiplier: 1	ŧ
---	----------------	--	---------------	---

If the shape selected is a **Rectangle with Triangle** or **Trapezoid** then the user has to enter **3 dimensions** in the dimension boxes.

If the shape selected is a **square** then the user has to enter 1 dimension.

For rest of the shapes only 2 dimensions have to be specified.

Dimensions [ft]

The required dimensions based on the particular shape selected.

Multiplier

Used to specify the total number of identical wall panels located in the same plane. If two or more walls are identical, use this entry rather than adding more walls to your project.

Location

The explanation given here applies to Walls, Roofs and Floors.

Exterior - Implies that the surface is exposed to the outside (eg. Exterior Walls, Exterior Roofs, Floor that are raised above grade and exposed to the outside).

Underground - Implies that the surface is on or below ground (eg. basement walls, on-grade and below grade floors).

Adjacent to another zone - Implies that the surface is adjacent to another previously defined zone

(eg. partition walls and ceiling between Stories). In this, case the zone to which this is adjacent to must be selected using the selection button.

The note below applies ONLY to version 1.21 and below.

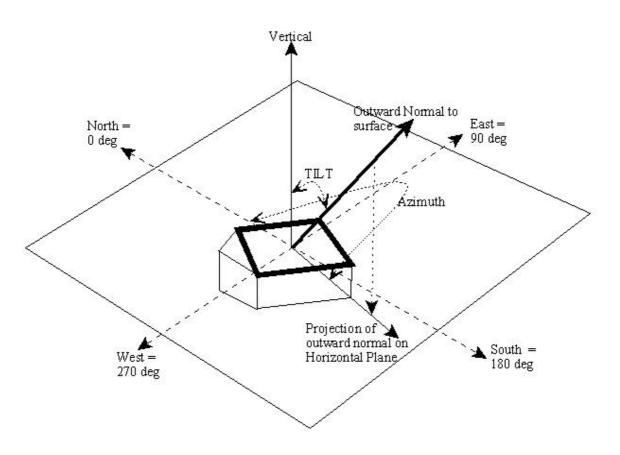
Important Note: The Adjacent zone selected here must always be a previously defined zone in the project hierarchy. It cannot be a succeeding zone in the project hierarchy. So the first zone in the project cannot have adjacent surfaces defined. But the second zone in the project can have surfaces that is adjacent to the first zone. However it cannot have surfaces defined that are adjacent to a third zone which comes after this one in the hierarchy.

Beginning Version 1.22, the above restriction does not apply and the user is not required to order the zones as above. The program automatically attempts to reorder zones as required and issues an error message when circular references in adjacent envelopes are discovered. A circular reference is one in which, for example, an envelope in Zone A is adjacent to Zone B, and another envelope in Zone B is adjacent to Zone A.

If the location above is *adjacent to another zone,* then the name of the adjacent zone must be selected by

clicking on the Select Adjacent Zone button

Placement

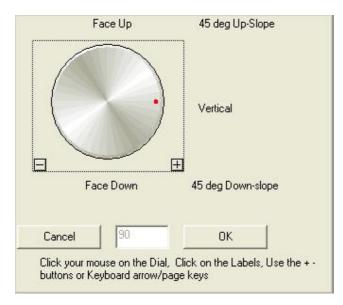


The figure above gives the general principles of determining the Tilt and Azimuth angles. An outward normal is first drawn from the exterior side of the surface. An outward normal is a line that is perpendicular to the plane of the surface in question. The tilt angle is the angle made by the outward normal with the vertical axis as shown in figure.

The azimuth is the direction the surfaces faces. For vertical surfaces, it is the direction the outward normal faces. To obtain the direction for a non vertical surface, first project the outward normal to the horizontal plane. The direction the projected line faces is the Azimuth, with North = 0, East = 90, South = 180 and West = 270.

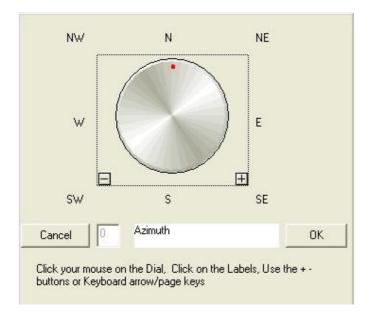
Tilt

Surface tilt. Vertical = 90 (eg. Vertical Wall); Horizontal facing up = 0 (eg. Flat roof); Horizontal facing down = 180 (eg. floor). <u>Click</u> cell to set value. The following dialog opens:



Orientation (Azimuth)

Surface orientation (North = 0, South = 180, West = 270, East = 90). <u>Click</u> cell to set value. The following dialog opens:



NOTE: Orientation of Walls, Roofs and Floors are relative to the building orientation. Any value other than zero for the building orientation will rotate all Walls, Roofs and Floors correspondingly during calculation.

Miscellaneous

The following are not user editable and are provided for information only. The defaults are set by the Application.

Gnd Refl

Ground Reflectance is the solar reflectance of the ground.

Infl Coef

Infiltration Coefficient is the infiltration flow coefficient used to compute the infiltration resulting from cracks in a wall.

Outside Emiss

Outside Emissivity is the Emissivity of the exterior side of the wall.

Inside Vis Refl

Inside Visible Reflection is the fraction of light reflected by the interior side of the surface.

Inside Sol Abs

Inside Solar Absorbance is the fraction of radiation absorbed by the interior side of the surface. Radiation may fall on an interior surface through fenestration placed on other surfaces (eg. Sunshine falling on floors through a window or skylight).

Related Topics



Window Data Input Form

Acronym:	Pr0Zo1Wa	a1Wi1				
Desc:	Pr0Zo1Wa	a1Wi1				
Select Glass	Desc: ApLI Glass type:	oWnd277 User Defined	Panes=1 SHGC	=0.2 U=2 VLT=	1	
Type>>	Fixed (0	Otherwise oper	able) Usage	Regular Wind	low	
	C - 10	-1. [0]	au voinar lo	15 60.000	0.42	
			side Vis Refl 0.	15 Infl Coel	0.42	
Int	ernally shade	d 🥅 with	None		~	
			101			
Dimensions —					8	
Shape 🛛	Rectangle			👻 Mu	ultiplier: 1	-
Dimension1:	10	-				
Dimension2:	8	I	Are	ea: 80		
D'INCHSIONZ.	10	D2				
		- D1 [*]		Total Area	~ 00	
				TUGIARE	3. 00	
🗸 Shading	Projection I	Factor = 0.000				
Shading Data	a					
Di	imension A	Dimension B	Dimension W	Dimension H	Dimension D	Angle
Overhang	0	0	0		0	90
Left Fin	0	0		0	0	
	2 Ht			0	0	

Window Info

Acronym

A short description (up to 20 characters)

Description

A detailed description (up to 50 characters)

Select Glass Type

Select the fenestration type for the window. Clicking this button opens a list of all fenestration in the Project. User can then select a fenestration for the window from the list. If a suitable fenestration is not available in the list, you must first add (or build) the fenestration to your <u>Project Resources</u> before being able to select that fenestration for the window.

Usage

Selects window usage type.

SetBack

Distance that the window is recessed into the wall in feet.

Inside Vis Refl

Inside Visible Reflection is the amount of light reflected from the interior side of the window. Not user editable.

Infl Coef

Infiltration Coefficient specifies an infiltration flow coefficient used to compute the infiltration resulting from cracks in the window. Not user editable.

Internal Shading

Checking the box for Internal Shading will allow the user to specify the type of internal shading from a drop down box.

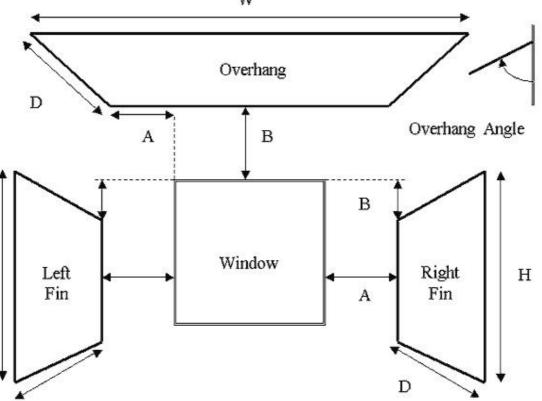
Dimensions

Similar to Wall Data Input Form.

Shading

Shading (external) for windows is activated by checking the shading check box. A set of data input cells become visible where shading parameters can be entered. Shading surfaces include Overhangs, Left and Right Fins. Enter all data that is applicable.

The figure shown below is a basic representation of a window and shading as seen from outside. The dimensions are labeled on the figure and defined below:



W

Overhang A

Distance from left window edge to left corner of overhang. Units are in feet, 0.0 is the default, and there are no limits.

Overhang B

Distance from top of window to back edge of overhang. Units are in feet, 0.0 is the default, and there are no limits.

Overhang W

Width of overhang. Units are in feet, 0.0 is the default, and the range is 0.0 to no limits.

Overhang D

Depth of overhang. Units are in feet, 0.0 is the default, and the range is 0.0 to no limits.

Overhang Angle

Angle in degrees between overhang and window. When set at 90 degrees, the overhang is perpendicular to the window; if less than 90 degrees, it is tilted downward; if greater than 90 degrees, it is tilted upward. The range is 0 to 180 degrees.

Left/Right Fin A

Distance from left/right window edge to fin back edge. Units are in feet, 0.0 is the default, and there are no limits.

Left/Right Fin B

Distance that top of fin is below top of window. Units are in feet, 0.0 is the default, and there are no limits.

Left/Right Fin H

Height of fin. Units are in feet, 0.0 is the default, and the range is 0.0 to no limits.

Left/Right Fin D

Depth of fin. Units are in feet, 0.0 is the default, and the range is 0.0 to no limits.

Related Topics



Door Data Input Form

Door Info Acronym	Pr0Zo1Wa4	4Dr1				
Desc	Pr0Zo1Wa	4Dr1			_	
Select Construct>>	R=5.2104 D	Aluminum doo)en=43.6739 H td Construct)	r, 1.25 in. polys ICapPerSF=0.5	tyrene (U=0.19 344 Abs=0.70	119 00	
SetBack 0	Infl Co	ef 0.42 Non-swinging I	Inside Vis Re	eff J 0.5		
Dimensions	Category	Non-swinging (
Shape	Rectangle			-		Area: 0
Dimension1:		T			Multiplier	1 🖨
Dimension2:	0	 D2 			To	otal Area: 0
Shading						
Shading Data - Di	imension A	Dimension B	Dimension W	Dimension H	Dimension D	Angle
Overhang	0	0	0		0	90
Left Fin	0	0		0	0	
Right Fin	0	0		0	0	

Data inputs are very similar to the Wall Data Input Form.

Data on placement and location, etc, are not required.

Shading

Shading for doors is activated by checking the shading check box. A set of data input cells become visible where shading parameters can be entered. Enter all data that is applicable.

For a detailed account of shading parameters see the Window Data Input Form.

Related Topics



Roof Data Input Form

Description Pr02	2o1Rf1	
Construct Der		9 Batt (U=0.0261 R=38.3366 99 Abs=0.2000 Emm=0.2 Std
ASHRAE	Category Metal Building R	oof 📃
Dimensions		
Shape F	Rectangle	-
Dimension1: 1	00 T	Area: 10000
Dimension2:	IOO D2	Multiplier: 1
	T	Total Area: 10000
	⊢ D1 →	
Skylight Area inc	l Frame: 100 per Unit; (100 0	iross J
Placement		
Tilt Angle: 0	Horizontal R	oof
Location: Exte	erior 🔹	Sel Adj Zone >>
1.00		
Misc		
		Outside Emiss 0,9

Roof Info

Data inputs are very similar to the <u>Wall Data Input Form</u>.

Related Topics



Skylight Data Input Form

kylight Info Acronym:	Pr0Zo1Rf1Sk1		
Desc:	Pr0Zo1Rf1Sk1		
Select Glass Type>>	Desc: ApLbWnd305 T Glass type: User Defined VLT=1	11B1C61SK:NC: Panes=1 SHGC=0.49 U=0.6	9
	T Has Curb T	Material Plastic (Otherwise assumed Glass) Infl Coef 0.42 Inside	Vis Refl 0.15
)imensions hape	Rectangle		
riaue	ricolarigio		
imension1:		Multiplier:	Area: 100

Skylight info

Data inputs are similar to <u>Window Data Input Form</u>, except shading is not available for skylights.

Related Topics



-	0	-
	~	

Floor Data Input Form

Acronym Pr0Zo1FI1	
Description Pr0Zo1FI1	
Select Construct>> Cons1005 - 1 ft. soil, concret (U=0.2681 R=3.7300 Den=1 Abs=0.7000 Emm=0.9 Std Co	te floor, carpet and rubber pad 13.3333 HCapPerSF=34.0000 onstruct)
Dimensions	
Shape Type: Rectangle	•
Dimension1: 100	Area: 10000
Dimension2: 100 D2	Multiplier: 1
, ioo ⊥ ⊢D1 →	Total Area: 10000
Placement Tilt Angle: 180 Horizontal Flo Location: Underground	Sel Adj Zone >>
Tilt Angle: 180 Horizontal Flo	Slab-On-Grade
Tilt Angle: 180 Horizontal Flo Location: Underground Underground Underground	Sel AdjZone >>
Tilt Angle: 180 Horizontal Flo Location: Underground Use F Value Underground Floor Type	Sel Adj Zone >>
Tilt Angle: 180 Horizontal Flo Location: Underground Use F Value Underground Enter F Value 0.6 Slab Type	Sel Adj Zone >>

Floor Info

Data inputs are very similar to Wall Data Input Form

Some additional inputs associated with underground floor types are:

Underground Floor Type

When the location is chosen as 'Underground', the user should specify the 'Underground Floor Type'.

Slab Type

Specify insulation and geometric characteristics of underground floor type.

Carpeted

Select if the interior floor surface is carpet.

Heated

Select if the slab is heated.

Use F-value

The use F-value check box allows the user to directly enter the perimeter heat loss coefficient for underground floors. In case the F-value of the floor is not known, the user can choose the slab type and

default F-values will be assigned to the floor construct by the program.

Related Topics



System Data Input Form

(Cooling System		<u> </u>
Cooling Capacity [Btu/h]	600000		-
Cooling EER or SEER	15		
Cooling Efficiency Type	EER		
Integrated Part Load Value	11.2		
Reheat Type	None		
	Air Cooled		
Condensor Type	Water Cooled		
2. 7	Evaporatively Cooled		
H	Heating System		
Heating Capacity (Btu/h)	500000	- 19 er - 19 e	

<u>Acronym</u>

A short description (up to 20 characters).

Description

A detailed description (up to 50 characters).

No of Units

Enter the number of such units (Use this to input multiple systems serving one or more Zones).

1. Component Name

	Cooling System
Cooling Capacity [Btu/h]	50000
Integrated Part Load Value Cooling EER or SEER	12
Condensor Type	Air Cooled
an a	Evaporatively Cooled

The type of the component (whether cooling, heating etc) is displayed. If a check box appears near the name

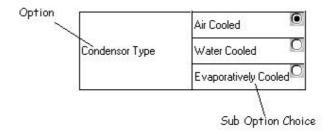
of the component, it indicates that the component is optional and user decided whether to select it or not.

2. Input Parameter

Parameter ——	Cooling Capacity [Btu/h]	50000
	Integrated Part Load Value	12
	Cooling EER or	15
	SEER	

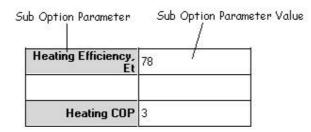
Shows the different required parameters (like capacity, EER, IPLV etc.) for the respective component.

3. Options



Describes the option type for the component. Any sub-option may be selected by clicking on the sub option.

4. Sub Option Parameter



If parameter field appears next to a selected sub option, the value of the parameter must be selected.

Steps for entering the data

To select an optional component click on the check box to select it.

Click on the corresponding column. A pop up window will appear (for example: the figure below displays the selection of fan control type). Enter or select the value and then click OK.

To choose a particular option in a component click on the radio button.

	Acronym Des	scription Variable A	ir Volume Built-up System
	Pr0Sy4 Syste	em 4	
🖻 Form1	g Capacity (Btu/h)	500000	
VARIABLE SPEED / FREQUENCY		Electric Resistance 🔎	
CYCLING CONSTANT-VOLUME	e	Heating From Plant	
	Air Har	ndling System -S	upply
	upply CFM	1 - 2 / 2 C - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	
	Fan Power (W/cfm)		
	CONTROL	VARIABLE SPEED / FREQUENCY	
	FM-RATIO	0.4	
OK Cano			
	Air Har	dling System - F	Return
	Return CFM		
	Return Fan Power (W/cfm)	0.8	

ronym De:	cription Constant Volume Package	ed System	10
DSy2 Syste	em 2	No. of Units	1
Return Fan Power (W/cfm)	0.8		
Fan Power Option	Allowable Name Plate HP		
Fan Power Allowance	0		
Air Dist	ribution System (Sup)		
Air Distribution Location	Conditioned		
ADS Rvalue	0		
Air Dis	tribution System (Ret)		
Air Distribution Location	Conditioned		
ADS Rvalue (Ret)	0		
Ene	ergy Recovery Unit		
		\$2	

Air distribution system: If checked, compliance for this component will be checked. Required

inputs are "Location" and "R-Value".

Energy Recovery Unit: If checked, ERV credit will be applied. Applicable only for the 2010 Florida Code (see the 2010 Florida code for details of credit).

Related Topics



Plant Data Input Form

	Туре	Use	Equipment	Capacity	Qty	Efficiency	IPLV	Compl	Non-Standard?
1	Cooling Equipment	1	Open centrifugal, chiller	4.00 [Tons]	1	5.000 [COP]	5.250 (COP)	Failed	~
2	Cooling Equipment		Open reciprocating chiller	4.00 [Tons]	1	2.800 [COP]	3.050 [COP]	Passe	
3	Cooling Equipment		Hermetic Centrifugal chiller						~
4	Cooling Equipment		Hermetic screw or scroll chiller						F
5	Cooling Equipment		Thermal Storage						F
6	Cooling Equipment		Cooling Tower		1			Failed	Г
7	Heating Equipment		Steam Boiler (Fuel)		1944				Г
8	Heating Equipment		Hot Water Boiler (Fuel)					-	Г
9	Heating Equipment		Electric Steam Boiler						Г
10	Heating Equipment		Electric Hot Water Boiler		1.1	C 1			Г
11	Heating Equipment		Furnace						
12	Water Heating Equipment		Domestic hot-water heater						
13	Water Heating Equipment		Electric domestic hot-water heater						

	Parameter	Value	
	Chilled water pump type, fixed or variable speed	Fixed Speed	
5	Cooling Tower Performance [gpm/hp]	7 gpm/hp	
E	Open Centrifugal Chiller Flow/ton	3 gpm/ton	
	Open Chiller LIFT in (F)	25 [F]	
i	Cooling Tower Fan Type	Propeller Fan	
	Cooling Tower Type	Closed Circuit	
5	Condenser type, open centrifugal chiller	Tower	
1	Condenser type, open reciprocating chiller	Air	
1	Fan electric power to centrifugal chiller capacity ratio	0.03	
0	Ean electric power to reciprocating chiller capacity ratio	0.03	

A plant is added or removed from the project by checking or unchecking the appropriate 'Use' check box. Data that must be entered appears. Based on the plant selected, additional parameters that must be input appears in the parameter grid below.

Туре

Shows the type of equipment.

Equipment

Displays the name of the equipment.

Capacity

Specifies the capacity of the selected equipment. The units in which the data is to be entered is also shown.

Quantity

Specifies how many units are installed.

Efficiency

Specifies the efficiency of the equipment. The units in which the data is to be entered is also shown.

IPLV

Specifies Integrated Part Load Value, if required.

Non-Standard?

Applies only to Open Centrifugal Chillers and Hermetic Centrifugal chillers. If checked, the corresponding plant equipment is considered non-standard and the efficiency requirement for non-standard chillers apply (see ASHRAE 90.1 or 2010 Florida code for details). Non-standard chillers require additional parameters to be input such as Flow/ton in gpm; LIFT in o F;

Note for Cooling Tower

The cooling tower requires the following input parameters: Performance gpm/hp; Fan type[Propeller or Axial or Centrifugal]; Tower Type[Open or Closed circuit]

Related Topics



Water Heater Data Input Form

0.0000
0.0000

Note: Inputs for "Include in Simulation" and "Draw-Gallons per Minute" fields may be ignored for Florida code

Water Heater Category

This field describes the various Water Heater categories available. They are available in the drop down box. Select one from the <u>list</u>.

Description

You can type your own description here.

Capacity

The capacity of the water heater. Units are displayed in the cell.

Input Rate

The power rating of the water heater in the appropriate units displayed.

Efficiency

The efficiency of the water heater between 0% and 100%, entered as a decimal (between 0 and 1).

Loss

The loss in the appropriate unit displayed.

Compliance

Shows whether water heater complies with code or not.

Note: Not all inputs may be required for all water heater types.

See the <u>Section on Working with Grids</u> to Add, Delete and Modify data.

Related Topics



External Lighting Data Input Form

sternal Lighting Zone	All other areas				•		
	All other areas						
Category		Desc	Number of Luminaires	Watts per Luminaire	Lumin Eff [Im/Watt]	Area or Length	Control Type
Parking Lots and Exit Signs	Drives (Uncovered)	Ext Light 1 Ext Light 2	1	40.00 Watts 35.00 Watts	60.00 60.00	1000.00 SF of Area 8.00 Total No. of faces	Astronomical Timer Control Other Independent Control
Ext signs		Ext Light 2	1	30.00 Watts	160.00	10.00 Total No. of faces	Other Independent Control
Complicance che	ck includes a excess	/Base allow	ance of 9.50(w)			
	ed Total: 75 (W)				∞ 159.5 (W)		

External Light Category

External lighting category. Select one from the list.

Description

You can type your own description or comment here.

No. of Luminaires

Specify the number of light fittings in that space.

Watts per Luminaire

Specify the lighting wattage per fitting.

Luminaire Efficiency

Specify the efficiency of each luminaire.

Area or Length

Input depends on the category selected. Enter length or area. Required units will be shown.

Control Type

Specify the type of control for the luminaire from a drop down list.

See the section on Working with Grids to Add, Delete and Modify data.

Related Topics



Piping Data Input Form

	Туре	Operating Temperature	Insulation Conductivity [Btu-in/(h.ft2.	Nominal Pipe Diameter [in]	Insulation Thickness [in	Check if Runout upto 4 ft	Compliance
1	Heat Sys Piping 🗸 👻	105.00	0.28	0.25	0.60	Г	Passed (Calc N
1	Heat Svs Piping : 👻	105.00	0.28	0.25	0.60		Passed

Type Specify the Piping application.

Operating Temperature

The operating temperature at which the pipe will operate.

Insulation Conductivity

Specify the conductivity of the insulation around the pipe.

Nominal Pipe Diameter

Specifies the diameter of the pipe.

Insulation Thickness

Specify the thickness of the insulation around the pipe.

Check if Runout up to 4 ft

Specific if the pipe is a runout.

Note: Units are shown on the form.

See the section on Working with Grids to Add, Delete and Modify data





LEED NC22 Additional Inputs Form

The LEED NC22 additional inputs form is only required to be filled up by users planning to run the LEED 2.2 New Construction (NC) calculation on the proposed (design) building. The results from the LEED 2.2 NC simulation can be submitted, via an existing PDF template, to the US Green Building Council (USGBC) website for documentation of the EA Credit 1 (EA C1) USGBC points that can be claimed by users when completing the LEED certification process. The required empty PDF template needs to be downloaded by the user from the USGBC website prior to running the LEED 2.2 NC simulation. The path for the location of this empty PDF template is to be given in the form as shown in the figure below.

Once this additional information has been entered by the user for a particular project/building, it will be stored as part of that EGC file. The remaining information for filling the USGBC simulation data PDF template will be automatically generated by the EnergyGauge Summit software and pulled into the PDF template every time the LEED simulation is run. The PDF template should be downloaded from the USGBC website as shown in the figure.

USGBC website PDF Template Download:

CREDIT TEMPLATE

Displays information on credit template status and documents uploaded. Only the team member associated with credit can upload information.

?

Template Status:	Last Updated on 11/4/2007
Manage Template:	
	DOWNLOAD TEMPLATE
	Note: LEED-Online requires Acrobat Reader or Professional 7.0.9 or newer. To allow any Template Download, pop-up blockers must be turned off for the LEED-Online web site. <u>Click here</u> for instructions on how to turn off pop-up blockers.

The EnergyGauge form is explained below.

General Info Tab:

Ŀ	ieneral Info	0n Site	Renewable	Exceptional Ca	lculation
First Name	John	Last Name	Doe	Date 12/2	29/2008
User Name	john_doe@doe.com	Password			
Company	John Doe & Associates LLI	C			
Seeking Al	ternate Compliance Points			Target Score Finder	0
e e e e e e e e e e e e e e e e e e e	contace compliance r ollitis				
	pliance Points	•			
Alternate Com		Cocument(s)	🔽 Supportin	g Documentation listed below	,
Alternate Com	pliance Points	Document(s)	Supporting		,
Alternate Com	pliance Points	Cocument(s)	-		
Alternate Com	pliance Points	Cocument(s)	-		
Alternate Com	pliance Points	Pocument(s)	SupportingD		
Alternate Com	pliance Points	Pocument(s)	-		

The menu item Edit --> LEED 22NC Additional Inputs brings up the LEED 22 additional information form. The first tab to be filled out is the General Information tab. This requires the user, wanting to run the LEED 22 NC simulation and submit their EA Credit 1 data to the online USGBC web service, to enter the information like their user name, password and so on. This information is required to populate the PDF file that is submitted to claim USGBC credit points for energy optimization of the proposed building.

On Site Renewable Tab:

	General Info On Site Renewable Exceptional Cal								
	l⊽ Inc	□ On site Renewable Calculation Method □ Includes On Site Renewable Energy □ Auto Calc							
B 🖬 Walls		Item	Renewable Source	Energy	Rated	Renewable	Backup	1	
B Walls B Pi0Zo1Wa1 B Mindows		-	Solat	Generated 2000.0	Capacity 200.0	Energy Cost	Energy Type Electricity		

The on-site renewable energy generation and cost information is also required to calculate USGBC credit points and this information is provided by the user in this form. The information provided here is automatically inserted in the PDF file that should be submitted to the USGBC web service. Clicking the 'Include On Site Renewable Energy' check-box will allow the user to enter details about the renewable energy sources in the proposed building.

Exceptional Calculation Tab:

err 💕 Open 🦳 Close 🔛 Save 🎒 Print	Help Contents					
<u></u>	Ger	ieral Info	γ		On Site Renewable	Exceptional Calculation
RelPto: Cones Co	F Includes Ex Calculation		[nal Calculation Method omatic Calculation C Sepa	ate Analysis
Pr0Zo1Sp1	Exceptional Calo	And in case of the local division of the loc	utes			
B Walls		Short	Narrative			
🖻 🗱 Pr0Zo1Wa1		Description ECM1	Narrative	_		
⊡ m Windows - m Pr@zo1Wa1		LUMI	shanaove	2		
E E Pr0Zo1Wa2						
🖻 🏛 Windows						
Pi0Zo1Wa2						
Doors						
E Pr0Zo1Wa3						
E 🛱 Windows	Exceptional Calo	ulation Mean	ure Details			
D m Windows	Exceptional Calo			1.1		
Di Windows Di Pr02o1Wa: Doors	Exceptional Calo Measure			Cost	Energy Tupe	
Doors Pr(Zo1Wa: Doors Pr(Zo1Wa: Pr(Zo1Wa: Pr(Zo1Wa: Pr(Zo1Wa4		e Item	Energy Savings	Cost Savings	Type	
Doors Prtt2o1Wo3 Prtt2o1Wo4 Prtt2o1Wo4 Doors Mindows		e Item	Energy Savings	Cost Savings 0.00	Energy Type Electricity	
		e Item	Energy Savings		Type	-
Doors Pr02o1Wa: Doors Pr02o1Wa: Doors Pr02o1Wa4 Doors Mindows		e Item	Energy Savings		Type	-
		e Item	Energy Savings		Type	

This tab is used to document any exceptional calculation methods that may have been used by the user as defined in the ASHRAE 90.1 2004 Appendix G. The information provided here is automatically inserted in the PDF file that should be submitted to the USGBC web service. Clicking the 'Include Exceptional Calculation Methods' check-box will allow the user to enter details about the exceptional calculation methods used in modeling the proposed building as allowed in ASHRAE 90.1 2004 Appendix G.

Related Topics



LEED Online Submission Instructions

Please take a minute to review these instructions before running and submitting a LEED calculation using EnergyGauge Summit v 3.22.

Pre-submittal tasks

EnergyGauge is about to enter all your data in your LEED EA Credit 1 template. Please review all the information on the template before submission.

NOTE: Do not edit the PDF template displayed by the software as that data is not saved. Display is for review purposes only

If you need to make any changes to the inputs, please close the template and make the changes in the EnergyGauge inputs screens

Post-submittal tasks

Once you have submitted your LEED EA Credit 1 data through the EnergyGauge software, please download your EAc1 PDF template for that project from the LEEDOnline website. If your submission was successful, this template should now contain all the outputs from the LEED simulation runs.

Review the template for any incorrect entries and <u>enter all additional entries</u> not handled by EnergyGauge. These include, but are not limited to:

• External Lighting Data:

Annual external lighting energy use must be added for both proposed and baseline buildings as new entries in tables 1.8.1 and 1.8.2. This value should generally be the same for both the proposed and baseline buildings unless otherwise justified.

• Water Heating Data:

EnergyGauge does not currently simulate annual energy use for certain water heaters. If an entry for domestic hot water use is missing from table 1.8.1 and 1.8.2, then such an entry must be added at this point.

 Any other missing data that may be required by the USGBC should be added into the template at this point.

The PDF template should now be re-submitted manually (not through EnergyGauge) for final review of the project by the USGBC.

Any changes/additions made to the template after its submission through the EnergyGauge software will have to be repeated should you require to re-run the calculations using the EnergyGauge software.



District Thermal Energy Management for LEED

EnergyGauge Summit allows users to perform the steps required to incorporate district heating and cooling in their proposed building as per requirements from USGBC. Since EnergyGauge will automatically create the ASHRAE Appendix G baseline building against which the proposed building is evaluated to calculate LEED points, the baseline building requirements when the proposed building has district cooling and heating are also handled automatically by the software.

Calculating LEED district heating and cooling is a two step process as outlined in the documentation provided on the USGBC website.

District Thermal Energy Management - STEP 1:

If the user's proposed building contains district heat **and** cooling, the first step requires the user to create a proposed building in EnergyGauge using any of the 3 available systems that allow purchased heating and cooling to be specified. The three systems are:

Two pipe fan coil system (system ID 201) Four pipe fan coil system (system ID 202) Variable volume built-up system (system ID 904)

The user must also add the purchased heating and cooling cost in the utilities and climate tab as shown in figure below.

Project Info	rmation	Designers	Zone-	Sys Assignme	nt Summar	y & Settings	Climate 8 Rat	
		All these data	not require	ed for Florida C	ode Complia	nce		
. ■ Alabam	All the Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District of Columbia Florida Georgia Guam hoose punty, if FL-General ed here: Weather file: c:\D-Drive\Ener		~	- Select by	Location Dat	۵		
E Alaska	All these of Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District of Columbia Florida Georgia Guam toose unty, if FL-General ed here: Weather file: c:\D-Drive\Energy(Latituda	20.42	Longitud	e 81.33	
E Arizona	All these data Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District of Columbia Florida Georgia Guam Choose Dunty, if FL-General ted here: Cli Weather file: c:\D-Drive\EnergyGaug					· [01.33		
Arkans	as		_			0.00		
E Californ	ia				8325		580	
E Colorad	ob			Days		Days		
E Connec	ticut			Summer		Winter		
. Delawa	are			-		42		
E District	of Columbia			Temp		Temp		
. Florida				Altitude	91			
🗷 Georgia	a				Verify	TMY Site	1	
Guam	Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District of Columbia Florida Georgia Guam hoose punty, if FL-General ed here: Weather file: c:\D-Drive\EnergyGau				veniy	nwn one		
Choose	Arkansas California Colorado Connecticut Delaware District of Columbia Florida Georgia Guam Dose Inty, if FL-General d here:		We	ather	C			-
	Connecticut Delaware District of Columbia Florida Georgia Guam Dose Inty, if FL-General d here:	- Dat	te Set Typica	al meteorolog	ical year data s	et 2	-	
Wea	Arkansas California Colorado Connecticut Delaware District of Columbia Florida Georgia Guam oose unty, if FL-General d here: Weather file: c:\D-Drive\EnergyG					FL_DAYTONA	BEACH.TM	Y
				Utility Rat	tes			
Fu	10	Description	Monthly Charge			Demand Charge (\$/Un	it)	
1 1	a Arizona California Cooling Heating b Arkansas Cooling Degree B325 Degree 5 c Cooling Degree B325 Degree 5 c Cooling Degree B325 Degree 5 c Cooling Degree B325 Degree 5 d Coonecticut Summer Design 93 Design 4 d Coorado Verify TMY Site Design 93 Design 4 d Georgia Guam Verify TMY Site Verify TMY Site 1 Electricity Res Verify TMY Site 1 Electricity Res1 \$ 0.0000 \$ 0.1000 kWh \$ 0.0000 1 1 Electricity Res1 \$ 0.0000 \$ 0.1000 kWh \$ 0.0000 1 1 Electricity Res2 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.0000 \$ 0.00							
	District of Columbia Florida Georgia Guam oose unty, if FL-General d here: Weather file: c:\D-Drive\EnergyGaugu Weather file: c:\D-Drive\EnergyGaugu Type Fuel Type 1 Electricity Res1 s 2 Natural-Gas Res2 s	\$ 0.0000		therm				
3 3	All these data no All the data no Al	\$ 0.0000	\$ 1.0000	gal				
				Add Ne				

Once the utilities have been included, the user needs to specify the proposed building features including all the HVAC systems, building envelope components, internal equipment and other proposed building inputs including user entered profiles and schedules as applicable to the proposed building. When all other additional input LEED requirements have been entered, the user should run the 'LEED EAc1 Online Submittal' menu from the 'Calculate' menu option. This will run the LEED EAc1 simulation for the proposed building. The software will automatically create the baseline building for Step 1 of the LEED simulation. The baseline building will also use the same systems and purchased heating and cooling utility rates as specified for the proposed building.

The user should also include in the proposed model of the building an on-site local plant that will act as a virtual substitute for the district thermal heating and cooling plant. The efficiencies of this on-site virtual plant should match that of the district heating and cooling set-up as per official USGBC requirements.

District Thermal Energy Management - STEP 2:

USGBC requires that the Step 2 of simulation be run only if the user's proposed building model is able to meet and exceed a minimum of 2 EAc1 LEED points as compared to the Appendix G baseline building energy use. If this requirement is satisfied when the first step of the simulation is

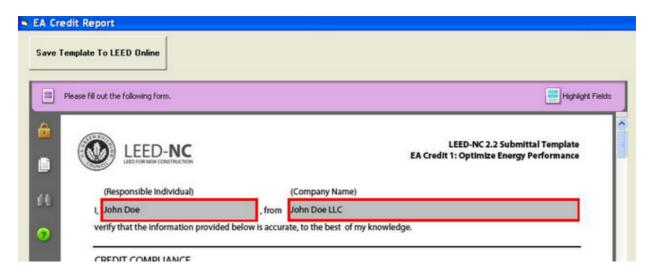
run, the LEED EAc1 PDF output for the can be saved by the user as shown in figure below.

se fill out the	e following form.	4					= Hg
۲	LEED-I	NC		E			ıbmittal Templa ergy Performan
	NARRATIV	/E (Optional)					
		vide any additional 's credit approach.		regarding special circ	umstances o	or considera	tions regarding
🗌 re	ferences to an	y applicable Credit In	nterpretation Rulings	mate compliance appro is fully documented in ocumented" field below).	the narrative		
🗌 re	ferences to an plints document	y applicable Credit In	nterpretation Rulings Compliance Points D	is fully documented in	the narrative		
0	ferences to an bints document Alternative C	y applicable Credit In ted in the "Alternative	nterpretation Rulings Compliance Points D	is fully documented in	the narrative		
0	ferences to an oints document Alternative C t Name: Phy	y applicable Credit Ir ted in the "Alternative Compliance Points Do	nterpretation Ruling: Compliance Points D ocumented	is fully documented in	the narrative	above. (Indi	
0 Projec Credit	ferences to an oints document Alternative C t Name: Phy : EA C Y TO SAVE TH	y applicable Credit In ted in the "Alternative Compliance Points De sical Science Credit 1: Optimize En IS TEMPLATE TO LE	nterpretation Rulings Compliance Points D ocumented hergy Performance	is fully documented in	the narrative	Points Do	cate the number of
0 Projec Credit	ferences to an oints document Alternative C t Name: Phy : EA C Y TO SAVE TH	y applicable Credit In ted in the "Alternative Compliance Points De sical Science Credit 1: Optimize En IS TEMPLATE TO LE	nterpretation Rulings Compliance Points D ocumented hergy Performance	is fully documented in ocumented" field below). nter your first name, last n	the narrative	Points Do	cate the number of curvented: 10

The saved output from Step 1 is required as supporting documentation for the Step 2 results when the final submission for the LEED points is done. Once the Step 1 output is saved, a button to run Step 2 of the LEED simulation will become visible as shown in the figure below. Running Step 2 will then create a new proposed building model with modified HVAC systems running of the local virtual plant that is entered before Step 1 is initiated. The baseline building model for Step 2 is calculated as per ASHRAE Appendix G requirements.

S EA Credit Report	
	Run Step 2: LEED EAc1 District Thermal Energy Calculation
Please fill out the following form.	Highlight Fields
	LEED-NC 2.2 Submittal Template EA Credit 1: Optimize Energy Performance
(Responsible Individual)	(Company Name)
I, John Doe	, from John Doe LLC
verify that the information provided below CREDIT COMPLIANCE	
(Please complete the color coded criteria(s	based on the option path selected)

The EnergyGauge software will then display the LEED EAc1 PDF output for Step 2 as shown in figure below. The output can directly be uploaded to the LEEDOnline website by clicking the 'Save template to LEEDOnline' button on the interface.



The user is required to submit all other supporting documentation to the LEEDOnline website as per USGBC requirements.

Related Topics



Profiles and Schedules

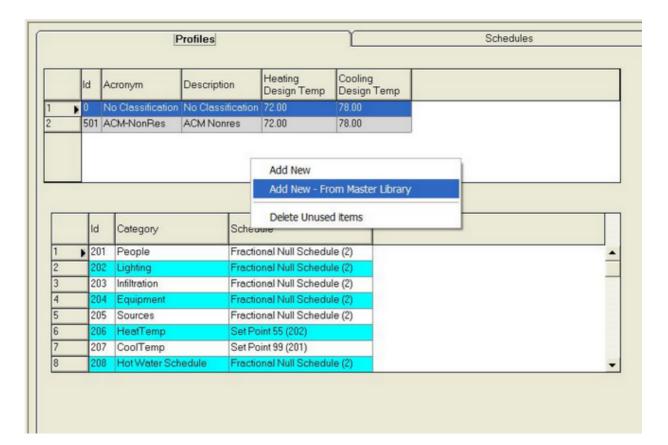
EnergyGauge Summit allows user created profiles and schedules for all non-code type simulations. For code calculations, default schedules and profiles, as required by the particular standard will be used.

Profiles are assigned directly to zones or the building and they consist of individual annual schedules for all the following inputs:

People Lighting Infiltration Equipment Sources Heating Set-point Cooling Set-point Hot Water schedule Heating Schedule Cooling Schedule Fan operation Schedule

There is a Master library for profiles and schedules and a Project library for each individual project. The Master library can be accessed from the 'Resources' whereas the Project library can be accessed from the 'Edit' menu option. A user can add a profile or a schedule from the Master library to the Project library of a new profile or schedule can be specified by the user in the Project library. The Master and Project libraries are shows in figures 1 and 2 below.

			Profi	les		1	Schedules
1	d A	cronym	Descripti	on	Heating Design Temp	Cooling Design Temp	
	D N	lo Classification	No Class	ification	72.00	72.00	A
	2 0	ffice (Business)	Office (B	usiness)	72.00	72.00	=
1	5 S	chool (educational)	School (e	educational)	72.00	72.00	
1	6 Retail Ret	Retail		72.00	72.00		
		FlaCom	Assembly	72.00	72.00	-	
1	Id Category 201 People 202 Lighting			actional Null Schedul			
2 3	<mark>202</mark> 203	Infiltration	Fr	actional Null Schedu actional Null Schedu	le (2)		
2	202		Fra Fra		le (2) le (2)		
2 3 4	202 203 204	Infiltration Equipment	Fra Fra Fra	actional Null Schedu actional Null Schedu	le (2) le (2)		
2 3 4 5	202 203 204 205	Infiltration Equipment Sources	Fra Fra Fra Se	actional Null Schedu actional Null Schedu actional Null Schedu	le (2) le (2)		



Right clicking in the first input box as shown in figure 2 allows the addition of a new profile to the Project library. If this profile is from the Master library, all the default annual schedules for that

profile for the sub-categories mentioned above will be added to the Project library. The user can then assign this profile to a particular zone or to the entire building. The user can also choose to make changes to this profile by replacing or modifying the annual schedules from the selected profile.

	Id	Acronym	Description	Heating Design Temp	Cooling Design Temp	
	0	No Classification	No Classification	72.00	78.00	
2	501	ACM-NonRes	ACM Nonres	72.00	78.00	
3	1001	School (educational)	School (educational)	10,000,000	72.00	
	ld	Category	Schedule			
•	ld 201	Category People	Schedule Fractional Null Sc	hedule (2)		
2			Fractional Null Sc Fractional Null Sc	hedule (2)		
2	201 <mark>202</mark> 203	People Lighting Infiltration	Fractional Null Sc Fractional Null Sc Fractional Null Sc	hedule (2) hedule (2)		
2	201 202 203 204	People Lighting Infiltration Equipment	Fractional Null Sc Fractional Null Sc Fractional Null Sc Fractional Null Sc	hedule (2) hedule (2) hedule (2)		
2 3 1	201 202 203 204 205	People Lighting Infiltration Equipment Sources	Fractional Null Sc Fractional Null Sc Fractional Null Sc Fractional Null Sc Fractional Null Sc	hedule (2) hedule (2) hedule (2) hedule (2)		
2	201 202 203 204	People Lighting Infiltration Equipment	Fractional Null Sc Fractional Null Sc Fractional Null Sc Fractional Null Sc	hedule (2) hedule (2) hedule (2) hedule (2)		

Use the Profiles and Schedules for 2010 Florida Code instead of defaults:

If checked, this entry tells the program to use these Profiles and Schedules instead of internal defaults for the 2010 Florida code compliance. This entry has no effect on 2008 and 2004 Florida code compliance and ratings which use internal default profiles and schedules. For other calculations always these profiles and schedules are used. Profiles and schedules can be created or modified by going to the main menu Edit ? Profiles and Schedules.

Annual Schedules:

Each annual schedule for people or lighting or equipment or other sub-categories mentioned above, consists of periods for a single year. The user can have as many periods in the year as required, so long as there is no duplication or overlapping and the starting date of one period is January 1 and the end date is December 31. Figure 3 below shows the addition of periods to an annual schedule.

Periods:

2 31-Dec-1988 31-Dec 1 All year Fraction #										
alute SetF178 alute Set Park Off ON-OFF alute Absolute	71 Null Schedi null schedu	ule								
2. Treston Protonol Tull Scheckie 44 Absolute SeP178 45 Absolute SeP178 46 Absolute Cer Point 70 1 On/Off One Point 31 3 Absolute Absolute and Schedule 413 On/Off Aways Ofe Thru Date Throug Id Penic Descripte House's Sele										
44 Absolute SetF178 45 Absolute SetF178 45 Absolute SetF178 1 On/Off OnDEF Null Schedule 3 Absolute Absolute ind schedule 413 On/Off Aways ON										
45 Absolute SetPoint 70 1 On/Off ON-OFF Nul Schedule 3 Absolute Absolute rul schedule										
Absolute Sof Point 70 On/Off ON-OFF Nal Schedule Absolute Absolute mil schedule Hi3 Civi/Off Assegue CNI										
Off Alwayse (NI I									
		м — — К	8	135	80	182	/1	X	×	×
Date Throug	Id Peric	Cescriptic	Monday Housty Selvesiu	Tuesday Houty Coltanta	Wednesday Hourly Salvidu	Thursday Heady Scheeke	Friday Hourly Schedu	Seturday Hearly Schoola	Sunday Heady Schools	Holicey Heary Selved
ic-1968 31-Dec	1	Allyear	Fraction Nul Schedule	Fraction Null Schedule	Frection Null Schedule	Frection Null Schedule	Frection Null Schedule	Fraction Null Schedule	Fraction Null Schedule	Fraction Null Schedule
Type Description Fractional Hull Schedule Absolute Set-F78 Absolute Set-F78 Absolute Market Schedule Absolute Absolute mil Schedule Sty/Oft Alwayse Chil mu Date Date One Date Date I Throas, d Penc Descriptic Montey, Heady Schedule Date-1988 31-Dec 1 Allyear Fraction Null Fraction Null										
d Type Description Absolve SetP178 Absolve SetP178 Absolve SetP178 Absolve SetP178 Absolve SetP178 Absolve SetP178 Absolve SetP178 Absolve SetP178 Absolve All Schedule Througe Cell Througe Cell										
	Description In Fractorish Null-Schedule IS per Paint 76 OP-OFF: Nill Schedule IS Absolve mit schedule Xwaya CHe									
	Date Date	Date Date	ale Date Date Date	c-1968 31-Doc 1 All year Fraction Nul	C-1968 31-Dec 1 Allyear Fraction Null Fraction Null	C-1988 31-Dec 1 All year Fraction Null Fraction Null	Compare Determine Lescoper Heavy Schools Heavy Schools Heavy Schools Heavy Schools C1989 31-Dec 1 Allyser Fraction Null Fraction Null Fraction Null Fraction Null	Open Open Lettern Values Schools Hearty Hearty Schools Hearty Hearty Schools Hearty Schools Hearty Hearty Schools Hearty Hearty Schools Hearty Hea		Deter Deter Lescophi HaurtySchealu Haur

Each period in an annual schedule consists of an hourly schedule for each day of the week and a holiday that might be included in that year. Figure 4 below, shows the addition of an hourly schedule to the Project Profiles and Schedules library.

Hourly Schedules:

			Prot	kas.				T				Sche	dules								Hourh	/ Sche	dules	
	lid	Type		Short Name		Descr	iption					ten	3	201	n	34	m		4en		5em		6ar	n.
21	510	Frecto	3	SN-151	0.	ACMI	Voinreis B	guigm	ent We	ekdey/		0.150	0	0.1	500	0.	1500	111	0.1500		0.150	8	0.2	03
22	511	Frecto	1	ShH451	1		Voltres B					0.150	0	0.5	500	0.1	1500		0.1500		0.150	8.2	0.11	00
23.	512	Fraction	1	ShH451	2		lonnes 8					0.150	0	0.15	500	0.	1500		0.1500	_	D.150	P	0.1	00
24	117	De/Of		RN-451	3		dimensio P					0.001	n	0.00	100	n	0010		0.0010		0.000	B	1.0	00
25	514	01/01		Shi-h51	4	ACM	Abore a P	Forni Se	furdin-	0		0.000	0	0.00	000	0	0000		0.0030		0.000	0	1.0	00
26	516			Shi-h51	5		Vonreie F					0.000	0	0.10	100	0.	0000		0.0030		0.000	B-	0.0	100
27	516			ShH-161			Vonres I			kelwir -		1.000		1.10			0000		1.0030	_	1.000		0.0	
20	511			314-1-51			4.mes l					1.000		1.6		1	0000		1.0000		1.000		0.0	
20 29	518	Fractor	1	Shi-151	8		Vonire's I					1.000	0	1.8	000	1.	0000	_	1.0000		1.000	1	1.0	00
30	519			ShH451			Vonres P					0.000		0.10	100	0	0000		0.0008	2	0.050		0.11	00
31	120			ShH452			Vonne s P					0.000		0.10		0	0000		D 003D	_	D.000		0.0	
2	121			SN-452			Annes?					0.000		0.00			0030		0.0000	8	0.000		0.0	
33	42	Encla	1	ShH+52	2		Vanreis h					0.000	0	0.80	000	0.	0000		0.0030	0	D100	0	0.1	00
34	121	Finchs		Shi-952	3		Vanres h					0.000	0	0.00	100	0.	0000		0.0030		0.000	8 C	0.0	08
35	1 22			5hi-162			Vonresh					0.000		0.80			0000		0.0030		0.000		0.0	
									01720		185		8										10.535	
	10 -										524	ACMIN	lorres)	lot Wex	er Sunda	av.								
	05		-																					
0	00 +	1am 2ar	1 3am		Sam	6am	7an	San	9am	10am	1140	Noon	fpm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	1000	11pm	Mid
		19111 . 53	- San	4.000	- Quality	Dan	1 altri	odli	MARTI	TU-SETT.	1 Idit	SATION.	1010	white .	opin.	442411	- opti	opm	chu .	ohill	shun .	10pm	a straine	No.

An hourly schedule consists of a fractional, on-off or absolute value for every hour of a 24 hour period that forms part of the period which is included in the annual schedule. If the profile is added from the Master library, the user can change the values of the hourly schedules and the start and end dates of the periods for the annual schedules in the Project Library or may add their own profiles and annual and hourly schedules for those profiles and assign them to their respective zones or the building.



Master Library Information

Master Materials Library Form

The master Materials Library is a list of over 300 materials used in building construction. This serves as a resource from which selected materials can be inserted into the project

The user is not allowed to make any changes

• 8	ection Show All	C Show By Material Use C	Show By Materia	I Category 318 out of 3	18 Materials	
	ld	Desc	Thick [ft]	Conductivity [Btu/h.ft.F]	Density [lb/cf]	Sp. He [Btu/lb
1	1	Outside surface resistance	0.000	0.000	0.00	0.00
2	2	1 in. Stucco	0.083	0.400	16.00	0.20 🚞
3	3	4 in. Face brick	0.333	0.770	125.00	0.22
4	4	Steel siding	0.005	26.000	480.00	0.10
5	5	1/2 in. Slag	0.042	0.110	70.00	0.40
6	6	Outside surface resistance	0.000	0.000	0.00	0.00
7	7	Gyp or Plaster Finish	0.042	0.240	78.00	0.26
8	8	4 in. Face brick	0.333	0.770	125.00	0.22
9	9	Air space resistance	0.000	0.000	0.00	0.00
10	10	1 in. Insulation	0.083	0.025	2.00	0.20
11	11	2 in. Insulation	0.167	0.025	2.00	0.20
12	12	3 in. Insulation	0.250	0.025	2.00	0.20
13	13	1 in. Insulation	0.083	0.025	5.70	0.20
14	14	2 in. Insulation	0.167	0.025	5.70	0.20
15	15	1 in. Wood	0.083	0.070	37.00	0.39
16	16	2.5 in. Wood	0.208	0.070	37.00	0.39
17	17	4 in. Wood	0.333	0.070	37.00	0.39
18	18	2 in Wood	0.167	0.070	37.00	0.39

See the section on Working with Grids to Add, Delete and Modify data

Viewing Selected materials

You can view selected materials by using the short-list radio buttons provided on the form.

Show All

Clicking this radio button will display all materials in the library.

Show by Material Use

Clicking this radio button will allow materials to be short-listed by general use of the material. After clicking this radio button, you must also select the appropriate use category from the Combo box below the radio button.

Show by Material Category

Clicking this radio button will allow materials to be short-listed by general type of the material. After clicking this radio button, you must also select the appropriate type from the Combo box below the radio button.

Description

Is the description about the material.

Thick

Specifies the thickness of the material in feet.

Conductivity

Specifies the thermal conductivity of the material.

Density

Specifies the material density.

Specific Heat

Specifies the specific heat of the material.

Use

Specifies the general use for the material.

Category Specifies the material type.

Fixed Thickness

Currently not used.

Use R-Val

Two possible specification for a material are possible:

1) Specify valid thickness and all thermal properties. In this case, valid conductivity, density and specific heat must be specified and the 'Use RVal' check box must be unchecked. This option is used for materials that are likely to have mass effects or when these properties are accurately known. The program will use the thermal properties and ignore the R-Value.

2) For light and thin materials, or for those materials for which the thermal properties are not available, the second option is to specify only the R-Value. In this case the 'Use R-Value' box must be checked. The program will ignore the thermal properties, and use only the R-Value and treat the material as having no mass.

-0-

R-Value

Specifies the thermal resistance of the material.

The user is not allowed to make any changes.





Master Constructs Library Form

The master Constructs Library is a list of over 300 constructs used in building construction. The serves as a resource from which selected constructs can be inserted into the project.

The user is not allowed to make any changes

i i i i i i i i i i i i i i i i i i i	tion how All	C Show By Use C By C	Conductance	C By Heat Range	Capacity	C ByDensity ⊂ F 334 out of 5	3y Added R-Value 334 constructs	e
	Id	Construct			Use	Conductance [Btu/h.sf.F]	Heat Capacit [Btu/SF.F]	l
	1	Stone, 3.33 in. insul, steel decl	<		Roof	0.0874	2.3504	214
	2	Stone, 5 in. insul, steel deck			Roof	0.0588	2.5092	-
	3	Stone, 2 in. h.w. conc. deck, 9			Roof	0.3042	6.8448	1
2	4	1 in. wood, Susp Ceil,6 in. insu)	Roof	0.0448	3.0220	-
	5	Stone, 2 in. h. w. conc. deck, !			Roof	0.0582	6.9452	6
5	6	Stone, 0.3 in. insul, 4 in. h.w. c			Roof	0.5967	11.1465	
	7	2 in. h.w. conc. RTS, stone, 2	in. h.w. conc	, 1.67 in. insul.	Roof	0.1608	11.3040	5
}	8	Stone, 6 in. h.w. conc. deck, 0).15 in. insul.		Roof	0.7469	15.8082	14
	- -	Channel dies Lande ander die die die die			ID4		1= 1130	•
	Id Mat	Material	Thickness [ft]	Framing Factor		More Construct I No. Layers: 5 Thickness: 0.3		
	58	1/2 in. Slag or stone	0.0417	0.0000		Density/SF: 29.	7395	
Ľ.	59	3/8 in. Felt and membrane	0.0313	0.0000		Heat Cap/lb: 0.2		
0	47	2 in. Heavyweight concrete	0.1670	0.0000		Heat Cap/CF: 2	2.62744	
}	60	Ceiling air space	0.0000	0.0000		AD		
5	61	Acoustic tile	0.0625	0.0000				_
							Clos	e

See the general section on Working with Grids to see how to size and sort the grid

Viewing Selected Constructs

You can view selected materials by using the short-list radio buttons provided on the form.

Show All

Clicking this radio button will display all materials in the library.

Show by Use

Clicking this radio button will allow the list to be short-listed by general use of the construct. After clicking this radio button, you must also select the appropriate use category from the Combo box below the radio button.

By Conductance

Clicking this radio button will allow short-listing by a range of conductance. After clicking this radio button, you must also select the appropriate range from the Combo box below the radio button to get the requested short-list.

By Heat Capacity

Clicking this radio button will allow short-listing by a range of heat capacity. After clicking this radio button, you must also select the appropriate range from the Combo box below the radio button to get the requested short-list.

By Density

Clicking this radio button will allow short-listing by a range of Density. After clicking this radio button, you must also select the appropriate range from the Combo box below the radio button to get the requested short-list.

By Added R-Value

Clicking this radio button will allow short-listing by a range of R-Value. After clicking this radio button, you must also select the appropriate range from the Combo box below the radio button to get the requested short-list.

Fields

Use

Specifies the possible use for the construct.

Conductance

Specifies the thermal conductance of the construct.

Heat Capacity

Specifies the heat capacity of the construct.

Density

Specifies the density of the construct.

Thickness

Specifies the total thickness of the construct.

R-Value Specifies the thermal resistance of the construct.

Simple Construct

See explanation under Project Materials and constructs.

No-Mass Construct

See explanation under Project Materials and constructs.

Constructs Library Layers Table

This sub table provides the details of the layers in the selected construct. The layers are specified starting from the outside layer to the inside layer. That is, the outermost layer is the first layer.

ID

Specifies the ID of the material the layer is made of. It corresponds to a valid material number from the <u>Master Material Library</u>.

Material

Specifies the name of the material the layer is made of. It corresponds to a valid material name from the <u>Master Material Library</u>.

Thickness

Specifies the thickness of the layer. When a layer is added the thickness of the material as specified in the material library is used. However, an overriding thickness can be entered here, in which case the original thickness in the material library is ignored and the value entered is used.

Framing Factor

Specifies the framing, if any, on the layer. Framing Factor is the ratio of the framing area on the layer to the total area of the layer.

The user cannot make any changes to the Master library database.

Related Topics



User Library Information

Project Materials & Constructs Library Form

Constructs Tab

The Project Constructs Library is very similar to the Master Constructs Library except that it is associated with a specific Project that is currently open or created. This library stays with the Project and changes made here are applicable only to the current project.

The user may make any modification as required.

		Constructs	Ľ		Materia	le						
	ld /	Construct	Conduct [Btu/h.sf	"Heat Ca (Btu/sf.F)		*Thickr [R]	Outside Absorpta	Inside- Emittar	Ins RA [h.sf.F.	Simple Construct?	No-Mass Construct?	Π
	1001	Wood door, 2 in.	0.4192	2.4098	37.0000	0.1670	0.7000	0.9000	0.0000	E F		4
	1002	Aluminum door, 1.25 in. polystyrer	0.1919	0.5344	43,6739	0.1142	0.7000	0.9000	5.2100			-
		Ceiling, exposed to attic, R-20 cel		0.8707	6,9198	0.5000	0.7000	0.9000	20.8318			
		Concrete floor, carpet and rubber		9.3324	140.0000	0.3333	0.7000	0.9000	0.0000			
		1 ft. soil, concrete floor, carpet an		54.0000	108.0000	2,5000	0.7000	0.9000	4.0000			
_		Underground wall in basement, 8		7.0670	53.0000	0.6667	0.7000	0.9000	8.3343	Г		
_		Underground wall in basement, 4		9.3324	140.0000	0.3333	0.7000	0.9000	0.0000			
_		Partition wall, 0.75 in. gyp, airspac		2.5800	100.0000	0.1250	0.7000	0.9000	0.0000			
_		0.75 in. stucco, 2x4x16" oc, R11I		1.1829	14.9394	0.3959	0.7000	0.9000	8.3343	E 17		
1		0.75 in. stucco, 2"styro,8"CMU,1:		11.2245	50.2422	1.0626	0.7000	0.9000	8.3350		L F	
-		5/8" stucco /8"CMU/3/4"ISO B		5.7314	34,6492	0.8233	0.7000	0.9000	2.2321			
2	1012	4" Brick /2x4@16" oc+R11Batt/	0.1043	8.9821	67.3624	0.6667	0.7000	0.9000	0.0000	<u> </u>	<u> </u>	*
-	IdMa	terial Material	ţ,	Thickness ftt]	Frame Type		Π					
-	82	ASPHALT-SHINGLE AND SI	DING	0.0000	None							
	244	PLYW00D, 1/2IN		0.0417	None							
	12	3 in. Insulation		0.2500	None				- 20			
	187	GYP OR PLAS BOARD,1/28	N	0.0417	None		La la					
_					140		No. Las	onstruct De	tails:			
_	•				•			ess: 0.333	4			
		Note: Maximum 8 Layers allowed.	First layer	is outside su	inface		Density	/SF: 4.002	8			
ese	t All	Last laver is inside surface						ap/lb: 0.231				

The following columns may be edited by the user:

Construct Grid

Constructs may be added or removed by following the general procedures for adding and deleting rows from grids.

Simple Construct

Beginning version 1.22, the 'Simple Construct' option is available to the user when the user decides to enter gross properties of the construct rather that through individual layers. Only when the 'Simple construct' is checked for a particular construct, all layers, if any, for that construct are ignored. The user will now be able to enter the gross properties (Conductance, Heat capacity, Density and Thickness) for that construct in the construct grid.

No Mass Construct

Beginning version 1.22, the 'No-Mass Construct' option is available to the user when the user decides that the wall is too thin or too light for the thermal mass have any impact on compliance calculations. When the 'No-Mass construct' option is checked for a particular construct, only the U-Value is considered in the calculation. This option should be used if most materials that make up the construct are defined only using R-Value for the materials or if the gross thickness of the construct is less that an inch (0.084 ft). In general, use this option if mass-related properties are not available for the gross construct or the materials that constitute the layers of the construct.

User may change the entries under the 'Construct' column of the grid. Type a name that makes most sense for the construct.

All other fields in this grid are not editable, except when the construct is declared 'Simple' They are

automatically recalculated and updated based on changes to layers and or materials when 'Simple Construct' is unchecked.

Conductance

Conductance may be entered if you check the Simple Construct option. Otherwise the field is non editable and is automatically calculated from the layer data.

Heat Capacity

Heat Capacity may be entered if you check the Simple Construct option and uncheck the No-Mass construct option. Otherwise the field is not editable and is automatically calculated from the layer data.

Density

Density may be entered if you check the Simple Construct option and uncheck the No-Mass construct option. Otherwise the field is not editable and is automatically calculated from the layer data.

Thickness

Thickness may be entered if you check the Simple Construct option and uncheck the No-Mass construct option. Otherwise the field is not editable and is automatically calculated from the layer data.

R-Value

This field is not editable and is calculated based on other inputs

NOTE: Constructs that may be problematic are flagged as shown for Construct No. 1011 above. If this construct is used in a project envelope component, running Calculate > Error Check will provide error information possible resolution.

Layer Grid

Layers may be added or removed by following the general procedures for adding and deleting rows from grids.

User may **change the material** of any layer by clicking on the cell button that appears when any cell under the material column in the layer grid is selected.

When a layer is added, the thickness defaults to the thickness of the material selected for the layer. User may override the **thickness** by typing a different value.

User may change the **framing factor** by typing the desired value. Framing factor is the area-fraction of the framing in a layer. That is, it is the ratio of the area of framing to the total area of the wall. It should be entered for those layers mounted on framing. For example, insulation that is mounted on framing.

User may reorder the layers in the layer grid by holding left mouse button down on the label cell (the cells in the left most column) of the layer to be moved, and dragging it up or down. A drag icon appears during the dragging process.

See the section on <u>Working with Grids</u> to Add, Delete, and Modify data.

Materials Tab

The Project Materials Library is very similar to the Master Materials Library except that it is associated with a specific Project that is currently open or created. This library stays with the Project and changes made here are applicable only to the current project.

The user may make any modification as required.

		Constructs	Materia	ls.	L				
	Mat No	Desc	Conductivity [Btu/h.ft.F]	Density [lb/cf]	SpecificHeat [Btu/lb.F]	Thick [ft]	R-Value [h.sf.F/Btu]	Use R-Value	
1	18	2 in Wood	0.0700	37.0000	0.3900	0.1670	2 3857		- A
2	264	ALUMINUM, 1/16 IN	26.0000	480.0000	0.1000	0.0050	0.0002	1 1 1 1 1 1	-
3	214	POLYSTYRENE, EXP., 1-1/4IN,	0.0200	1.8000	0.2900	0.1042	5.2100	F	
4	187	GYP OR PLAS BOARD,1/2IN	0.0920	50.0000	0.2000	0.0417	0.4533		
5	206	CELLULOSE, FILL, 5.5IN, R-20	0.0220	3.0000	0.3300	0.4583	20.8318	Г	
6	151	CONC HW, DRD, 140LB, 4IN	0.7570	140.0000	0.2000	0.3333	0.4403		
7	178	CARPET W/RUBBER PAD	0.0000	0.0000	0.0000	0.0000	1.2300	~	
8	265	Soil, 1 ft	0.5000	100.0000	0.2000	1.0000	2.0000		
9	48	6 in. Heavyweight concrete	1.0000	140.0000	0.2000	0.5000	0.5000		
10	123	CONC BLOCK MW, 8IN, HOLLOW	0.3870	53.0000	0.2000	0.6667	1.7227		
11	159	CONC HW-UNDRD-140LB-4IN	1.0410	140.0000	0.2000	0.3333	0.3202		
12	57	3/4 in. Plaster or gypsum	0.4200	100.0000	0.2000	0.0625	0.1488		
13	72	AIR LAYER, 3/4IN OR LESS, VERT, WALLS	0.0000	0.0000	0.0000	0.0000	0.9000	V	
14	267	0.75" stucco	0.4000	16.0000	0.2000	0.0625	0.1563		
15	266	2x4@16" oc + R11 Batt	0.0350	9.7000	0.2000	0.2917	8.3343	Г	
16	215	POLYSTYRENE, EXP., 2IN,	0.0200	1.8000	0.2900	0.1667	8.3350		
17	105	CONC BLK HW, SIN, HOLLOW	0.6060	69.0000	0.2000	0.6667	1.1002		
18	256	W00D, S0FT, 1-1/2IN	0.0660	32.0000	0.3300	0.1250	1.8939		
19	268	0.625" stucco	0.4000	16.0000	0.2000	0.0521	0.1302		
20 21	42	8 in. Lightweight concrete block	0.3300	38.0000	0.2000	0.6670	2.0212		
21	269	.75" ISO BTWN24" ac	0.0280	4.1880	0.3000	0.0625	2,2321		
22 23	86	BRICK, COMMON, 4IN	0.4160	120.0000		0.3333	0.8012		
23	211	POLYSTYRENE, EXP., 1/2IN,	0.0200	1.8000	0.2900	0.0417	2.0850	Г	
24	12	3 in Insulation	0.0250	2.0000	0.2000	0.2500	10.0000		*

Materials may be added, removed and changed by following the general procedures on working with grids.

All fields in the grid except 'Mat No' can be changed by the user.

Conductivity

Specifies the thermal conductivity of the material.

Density

Specifies the material density.

Specific Heat

Specifies the specific heat of the material.

Thick

Specifies the thickness of the material in feet.

Use R-Val

Two possible specification for a material are possible:

1) Specify valid thickness and all thermal properties. In this case, valid conductivity, density and specific heat must be specified and the' Use RVal' check box must be unchecked. This option is used for materials that are likely to have mass effects or when these properties are accurately known. The program will use the thermal properties and ignore the R-Value

2) For light and thin materials, or for those materials for which the thermal properties are not available, the second option is to specify only the R-Value. In this case the 'Use R-Value' box must be checked. The program will ignore the thermal properties, and use only the R-Value and treat the material as having no mass.

R-Value

Specifies the thermal resistance of the material.

IMPORTANT CAUTIONARY NOTE: It is critical to note that any change to the material properties, will affect the properties of all constructs that use this material as a layer. In general changes to Project Library of materials, constructs or fenestration, will propagate throughout the entire project which use this library component.

NOTE: Materials that may be problematic are flagged as shown for Material No. 7 above. If this material is used in a construct that is then used in a project envelope component, running Calculate > Error Check will

provide error information possible resolution.

See the section on $\underline{\text{Working with Grids}}$ to Add, Delete and Modify data

Related Topics

Project Fenestration Library Form

The project fenestration library allows the user to add Fenestration to the project which can then be selected by a project window or skylight as the fenestration type.

🐱 EnergyGauge S								
File Edit View			NETWORK AND SHOP		1	elp Developer Tools		- 8 ×
📗 🗅 New 😂 Open	Close	Save Save	Print ?	Help Conte	ents			
X		In at			-	In	1	
🖂 🔓 F 🛆		No of Panes	Glass Cond [Btu/h.SF.F]	SHGC	VLT	Frame Type		
	1	1	1.250	0.820		Non-Metal Frame (Generic)		
	2	1	1.980			ne (Generic)	Metal Frame (Generic)	-
	4	1	0.670	0.390	1.000	Frame (Generic) Metal Frame (Generic)	Non-Metal Frame (Generi	G
	5	1	0.690	0.490		Metal Frame (Generic)		
								1
✓								
< >								
Check Cop								
IIIPri Building	🔔 Prj R	efProj	Window:	🖽 Pi	j Fene:	st 🔽 Floor: Pr 🗿 Zo	one: Pr 🐼 Space: P	
Zone Form 3	/24/2008		D6 AM					

Name

Specifies a name for the fenestration. User can type any convenient short description.

Description

A detailed description (up to 50 characters)

No. of Panes

Specifies the number of glass panes for the user defined fenestration.

Glass Conductance

Specifies the conductance of glass panes for the user defined fenestration.

SHGC

Specifies the solar heat gain coefficient of the glass panes for the user defined fenestration.

VLT

Specifies the Visible Light Transmittance.

Frame Type

Describes the type of frame used.

See the Section on Working with Grids to Add, Delete and Modify data

Related Topics



Reference Manuals

Florida Building Code

The code manuals are copyrighted by a separate entity and must be ordered separately. For more information on how to obtain code manuals, CDs, contact:

International Code Council:

Address:

500 New Jersey Avenue, NW, 6th Floor,

Washington, DC 20001-2070

USA.

Telephone: 1-888-422-7233

Web site http://www.iccsafe.org/

Also, the following web site has links to online documentation and downloads (including forms) for the Florida Building Code

http://www.floridabuilding.org/BCISOId/bc/default.asp



Technical Support

System Requirements

To run EnergyGauge Summit, your system must meet the following minimum requirements:

- At least Intel® Celeron® Processor 1.2 GHz recommended.
- At least 40 MB of free hard-disk space (depending on installation type)
- Desktop Screen setting of 800 by 600 pixels or larger.
- Mouse
- CD-ROM drive (Optional. Only required to install software from CD)
- Internet access for activating license.
- Microsoft Windows 2000/XP:

128 MB of RAM minimum with Internet Explorer 6.0 or higher.

Based on your specific OS version and other software installed on your machine, it is possible that some conflicts may arise. These have to resolved on a case-by-case basis. Please report any problem you encounter promptly to EnergyGauge Technical Support office.



Activation and Support

Activation:

EnergyGauge Summit has to be activated either through the Internet or by phone after installation to be able to use it.

Technical Support:

Software Support - EnergyGauge Summit is only the first of a suite of software products for commercial building energy analysis to be developed by the Florida Solar Energy Center. Follow-up versions will offer continuous improvement of features and customized results to meet user needs.

Support Website - Please visit our Technical Support Website at <u>http://www.energygauge.com/support.htm</u> to check for updates, FAQs, downloads and knowledge base articles.

Training Support - Training in a variety of renewable energy and energy-efficiency subject areas is available through the Florida Solar Energy Center at their <u>Education & Training</u> page(<u>http://www.fsec.ucf.edu/en/education/cont_ed/index.htm</u>).

E-mail Support - You may contact the Energy Gauge Support Office by e-mail at techsupport@energygauge.com Please include your phone number in case we need to call you and be sure to include your full software version number in the subject line of all e-mail questions (see main Help>About screen in your software for your full version number).

Phone Support - If all else fails or you have what you consider to be an emergency, the EnergyGauge Support Office may be reached by phone at (321) 638-1492.

The mailing address for the Energy Gauge Support Office is:

1679 Clearlake Road, Cocoa, FL 32922-5703.



Appendix A. Input and Output Reports for Florida 2010 Building Code

EnergyGauge Summit® v4.00

INPUT DATA REPORT

		Project Information	
Project Name:	RefProj	Orientation:	North
Project Title:	New Project	Building Type:	Office
Address:	1234 Any Street	Building Classification:	Renovation to existing building
	Enter Address here		
State:	FL	No.of Stories:	1
Zip:	12345	GrossArea:	10000 SF
Owner:	Enter Owner's name here		

			Zones					
No Acronym	Description	Туре			Area [sf]	Multiplier	Total Area [sf]	
1 Pr0Zo1	Zone 1	CONDITIONED			10000.0	1	10000.0	
			Spaces					
No Acronym	Description	Туре	Depth [ft]	Width [ft]	Height Mult [ft] plier		Total Volume [cf]	

In Zor 1	ne: Pr0Zo1 Pr0Zo1Sp1	Zo0Sp1	Classroom/Lecture I	Hall	100.00	100.0	00 1	0.00	1 1	0000.0	100	000.0	
				L	ighting								
	No	Туре	Category		No. of iminaires	Watts po Luminai		Power [W]	Contro	l Туре		o.of rl pts	
In Zor 1	ne: Pr0Zo1 In Space: Pr0Z 1 2	Zo1Sp1 Compact Fluorescen Compact Fluorescen	0 0		1 1	15	500 0	1500 0	Daylight continuo Manual (us		4 1	
					Walls								
No	Description	Туре	Width H [ft]	(Effec) [ft]	Multi plier	Area [sf]	Direc		ductance /hr. sf. F]	Heat Capacity [Btu/sf.F]	Dens. [lb/cf]	R-Valuo [h.sf.F/Bt	
In Z 1	Jone: Pr Pr0Zo1Wa1	0 Zo1 4" Brick /8"CMU/ BTWN24		10.00	1	1000.0	No	orth (0.0248	18.700	46.94	40.4	
2	Pr0Zo1Wa2	Gyp 4" Brick /8"CMU/ BTWN24 Gyp		10.00	1	1000.0	No	orth (0.0248	18.700	46.94	40.4	
3	Pr0Zo1Wa3	4" Brick /8"CMU/ BTWN24 Gyp		10.00	1	1000.0	So	uth (0.0248	18.700	46.94	40.4	
4	Pr0Zo1Wa4	4" Brick /8"CMU/ BTWN24 Gyp		10.00	1	1000.0	W	lest (0.0248	18.700	46.94	40.4	

Windows													
	No	Description	Туре	Shaded	U [Btu/hr sf F]	SHGC	Vis.Tra	W [f	· · · ·	ec) Multi plier	Total / [sf]		
In Zone: 1													
In Wall	: Pr0Z	o 1Wa1 Pr0Zo1Wa1Wi1	User Defined	No	2.0000	0.20	1.00	10	.00 8.00	1	8	0.0	
In Wall	-		User Defined	INU	2.0000	0.20	1.00	10	.00 8.00	1	0	0.0	
III wan	1	Pr0Zo1Wa2Wi1	User Defined	No	2.0000	0.20	1.00	50	.00 8.00	1	4(0.0	
In Wall	: Pr0Z	o1Wa3											
	1	Pr0Zo1Wa3Wi1	User Defined	No	0.6700	0.39	1.00	10	.00 8.00	1	8	0.0	
In Wall	: Pr0Z												
	1	Pr0Zo1Wa4Wi1	User Defined	No	0.6700	0.39	1.00	10	.00 8.00	1	8	0.0	
	Doors No Description Type Shaded? Width H (Effec) Multi Area Cond. Dens. Heat Cap. R-Value [ft] [ft] [ft] plier [sf] [Btu/hr. sf. F] [b/cf] [Btu/sf. F] [h.sf.F/Btu]												
a Zone: In Wa	all:												
					Root	fs							
No	Descri	ption Typ	De	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Tilt [deg] [Cond. Btu/hr. Sf. F		ap Dens. F] [lb/cf] [R-Value h.sf.F/Btu]	

			Sky	lights								
	No Description	on Type	U [Btu/hr sf F]	SHGC	Vis.	Frans	W [ft]	H (Effec) M [ft]	lultiplier	Area [Sf]	Total Area [Sf]	l
In Zone: Pr In Roof:	DZo1 Pr0Zo1Rf1 1 Pr0Zo1Rf1S	Sk1 User Defined	0.69	0.49		1.00	10.00	10.00	1	100.0	100.0	
			F	loors								
No	Description	Туре	Width I [ft]	H (Effec) [ft]	Multi plier		Cond. Btu/hr. sf.	Heat Ca F] [Btu/sf.]			·Value f.F/Btu]	
	0Zo1 Pr0Zo1F11	1 ft. soil, concrete floor, carpet and rubber pad	100.00	100.00	1	10000	0.0 0.268	1 34.00	113.33	3	3.73	
			S	Syster	ns							
Pr0Sy2	System	n 2		Const	tant Vo	olume P	Packaged	System	N	o. Of U	nits 1	
Componen	t Category			Capacit	y	Effic	ciency	IPL	V			
1	Cooling System			600000.0	00	1.	5.00					
2	Heating System			500000.0			5.00					
3	Air Handling Syst	em -Supply		9000.00)	0).50					
				Plant								
Equi	pment	Catego	y	Size			Inst.No	Eff.			IPLV	

			Water	Hea	ters					
W-Heater	Description	CapacityCap	.Unit	I/P R	t.	Efficiency		Loss		
 Electric wat Electric wat 		[Gal [Gal			[kW] [kW]		[Ef] [Ef]	-	Btu/h] Btu/h]	
			Ext-	Ligh	ting					
Descrip	tion	Category	No. Lumina		Watts per Luminaire	Area/Len/No [sf/ft/N		Control Type	Wattage [W]	
1 Ext Light	t 1	Uncovered Parking A Parking lots and Driv		1	40	1000.	00 Astro	onomical Timer C	Co: 40.00	
2 Ext Light	t 2	Internally illuminated		1	35	8.00) Othe	er Independent Co	ont 35.00	
3 Ext Light	t 3	Uncovered Parking A Parking lots and Driv		1	0	0.00) Man	ual control	0.00	
			Pi	ping						
No Туро	e		Operating Temperature [F]		Insulation Conductivity [Btu-in/h.sf.F	D	ional pipe iameter [in]	Insulation Thickness [in]	Is Runout?	
	ting System (Steam, Water)	Steam Condensate, &	105.00		0.28		0.25	0.00	No	
			Fenest	ratio	on Used					
	Glass Type	No. of	Glass Conductance		SHGC	VLT				
Name		Panes	[Btu/h.sf.F]							

ApLbWnd278	User Defined	1	0.6700	0.3900	1.0000	
ApLbWnd305	User Defined	1	0.6900	0.4900	1.0000	

Materials Used											
Mat No	Acronym	Description		Only R-Value Used	RValue [h.sf.F/Btu]	Thickness [ft]	Conductivity [Btu/h.ft.F]	Density [lb/cf]	SpecificHeat [Btu/lb.F]	t	
187 Matl187		GYP OR PLAS BOARD,1/2IN		No	0.4533	0.0417	0.0920	50.00	0.2000		
178	Matl178	,	W/RUBBER PAD	Yes	1.2300						
265	Matl265	Soil, 1 ft		No	2.0000	1.0000	0.5000	100.00	0.2000		
48	Matl48	6 in. Heavyweight concrete		No	0.5000	0.5000	1.0000	140.00	0.2000		
105	Matl105		K HW, 8IN,	No	1.1002	0.6667	0.6060	69.00	0.2000		
86	Matl86		BRICK, COMMON, 4IN		0.8012	0.3333	0.4160	120.00	0.2000		
23	Matl23	6 in. Insula	ation	No	20.0000	0.5000	0.0250	5.70	0.2000		
94	Matl94	BUILT-UF 3/8IN	BUILT-UP ROOFING, 3/8IN		0.3366	0.0313	0.0930	70.00	0.3500		
				Con	structs Us	sed					
No	Name			Simple Construct	Massless Construct	Conductance [Btu/h.sf.F]	Heat Capacity [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]		
1005	1 ft. soil, concrete floor, carpet and rubber pad			No	No	0.27	34.00	113.33	3.7		
	Layer	Material Material No.			Thick [ft		Framing Factor				
	1	265	Soil, 1 ft		1.00	00	0.000				
	2	48 6 in. Heavyweigl		t concrete	0.50	00	0.000				
	2	10		BBER PAD			0.000				

No	Name			Simple Construct	Massless Construct		Conductance [Btu/h.sf.F]		Heat Capacity [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]	
1013	4" Brick /8"CM Gyp	IU/3/4"ISO E	3TWN24" oc/.5"	No	No		0.02		18.70	46.94	40.4	
	Layer	Material No.	Material			Thickne [ft]	SS	Framing Factor				
	1	86	BRICK, COMMC	N, 4IN	0.3333			0.000				
	2	105	CONC BLK HW,	8IN, HOLLOW		0.6667		0.000				
	3	23	6 in. Insulation			0.9500		0.000				
	4	187	GYP OR PLAS B	OARD,1/2IN		0.0417		0.000				
No	Name			Simple Construct	Massless Construct		Conductance [Btu/h.sf.F]		eat Capacity [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]	
1047	Mtl Bldg Roof/I	R-19 Batt		No	No		0.03		1.85	7.75	38.3	
	Layer	Material No.	Material			Thickne [ft]	SS	Framing Factor				
	1	94	BUILT-UP ROOF	FING, 3/8IN		0.0313		0.000				
	2	23	6 in. Insulation		0.9500			0.000				

Florida Energy Efficiency Code For Building Construction

EnergyGauge Summit® Fla/Com-2010, Effective Date: March 15, 2012 -- Form 506-2010 Total Building Performance Method for Commercial Buildings

	PROJECT SUMMARY				
	FNC	JECT SOMMARY			
Short Dogo	PofDroi	Description:	New Project		
Short Desc:	Enter Owner's name here	-	New Hoject		
			A 1		
	1234 Any Street	•	Anywhere		
Address2:	Enter Address here	State:	FL		
		Zip:	12345		
Туре:	Office	Class:	New Finished building		
Jurisdiction:	ALACHUA COUNTY, A	ALACHUA COUNTY, FL (111000)			
Conditioned Area:	10000 SF	Conditioned & UnConditioned Area:	10000 SF		
No of Stories:	1	Area entered from Plans	0 SF		
Permit No:	0	Max Tonnage	50		
		If different, write in:			

Compliance Summary				
Component	Design	Criteria	Result	
Gross Energy Cost (in \$)	9,568.0	17,169.0	PASSED	
System Unmet Hours		42.0	PASSED	
LIGHTING CONTROLS			PASSES	
EXTERNAL LIGHTING			FAILS	
HVAC SYSTEM			FAILS	
PLANT			None Entered	
WATER HEATING SYSTEMS			Not Checked	
PIPING SYSTEMS			FAILS	
Met all required compliance from Check List?			Yes/No/NA	
IMPORTANT MESSAGE Info 5009 An input report of this design Compliance Report	building must	be submitted	along with this	

CERTIFICATIONS				
I hereby certify that the plans and specifications of Florida Energy Code	covered by this calculation are in compliance with the			
Prepared By: John Doe	Building Official:			
Date:	Date:			
I certify that this building is in compliance with the FLorida Energy Efficiency Code				
Owner Agent:	Date:			
If Required by Florida law, I hereby certify (*) that Energy Efficiency Code	t the system design is in compliance with the Florida			
Architect:	Reg No:			
Electrical Designer:	Reg No:			
Lighting Designer:	Reg No:			
Mechanical Designer:	Reg No:			
Plumbing Designer:	Reg No:			
(*) Signature is required where Florida Law requ professionals.	ires design to be performed by registered design			

VEA File: FL_GAINESVILLE_REGIONAL_AP.tm3) Building End Uses			
tal	363.00	732.40	
	\$9,569	\$21,461	
ELECTRICITY(MBtu/kWh/\$)	319.10 93490 \$9,349	732.40 214612 \$21,461	
AREA LIGHTS	15.70 4594 \$459	146.30 42873 \$4,287	
MISC EQUIPMT	100.00 29302 \$2,930	100.00 29302 \$2,930	
PUMPS & MISC	0.20 46 \$5	0.10 40 \$4	
SPACE COOL	40266 \$4,027	226.00 66224 \$6,622	
VENT FANS	65.80 19282 \$1,928	260.00 76173 \$7,617	
NATURAL-GAS(MBtu/therm/\$)	43.90 439 \$220	0 \$0	
SPACE HEAT	43.90 439 \$220	0.00 0 \$0	
ng requires Proposed Building cost to		PASSES	

	AINESVILLE_REGIONAL_A	l Lighting (Complia	nce		
Description	Category	Tradable?		Area or Length or No. of Units (Sqft or ft)		CLP (W)
Ext Light 1	Uncovered Parking Ar		0.15	1,000.0	150	4
Ext Light 2 Ext Light 3	Parking lots and Drive Internally illuminated Uncovered Parking Ar	exit signs No reas Yes	5.00 0.15	8.0	40	3
All External Lig Complicance ch	Parking lots and Drive ces: 40 (W) Allowance for ghting: 75 (W) eck includes a excess/Ba oes not meet control req	or Tradable: { se allowance	of 750.00()		FA	ILS
All External Li Complicance ch Ext Light 3 D Project: RefProj Citle: New Project Type: Office	ces: 40 (W) Allowance fo ghting: 75 (W) eck includes a excess/Ba	or Tradable: { se allowance uirements of	of 750.00()		FA	ILS
All External Li Complicance ch Ext Light 3 D Project: RefProj Citle: New Project Type: Office	ces: 40 (W) Allowance fo ghting: 75 (W) eck includes a excess/Ba oes not meet control req INESVILLE_REGIONAL_A	or Tradable: { se allowance uirements of	of 750.00(Type: <2>	<3>	FA	ILS
All External Li Complicance ch Ext Light 3 D Project: RefProj Citle: New Project Type: Office	ces: 40 (W) Allowance fo ghting: 75 (W) eck includes a excess/Ba oes not meet control req INESVILLE_REGIONAL_A	or Tradable: 8 se allowance uirements of ' AP.tm3)	of 750.00(Type: <2>	<3>	Min C	ILS ompli- ance

Project: RefProj Title: New Project Type: Office (WEA File: FL G	AINESVILLE_REGION	AL AP.tm3)					
(()		stem Repo	ort Cor	npliand	e		
Pr0Sy2 Sy	stem 2			- tant Volur		ged No	o. of Units 1
Component	Category	Capacity	Design Eff	Eff Criteria	Design IPLV	IPLV Criteria	Comp- liance
Cooling System	Air Conditioners Air Cc 240000 to 760000 Btu/h Cooling Capacity		15.00	10.00		10.10	FAILS
Heating System	Warm Air Gas Furnace	>=	95.00	80.00			PASSES
Air Handling System -Supply	225000 Btu/h Air Handler (Supply) - Constant Volume		0.50	0.82			PASSES
						FAILS	5
		Plant Comp					0
Description	Installed Size I No	Design Min Eff Eff	Design IPLV	Min (IPLV	Category		Comj liance
						None	
Project: RefProj Title: New Project Type: Office (WEA File: FL_G4	AINESVILLE_REGIONA	AL_AP.tm3)					
	Wat	er Heater C	omplia	nce			
Description	Туре	Category		esign Min Eff Eff		Max Con Loss lian	
Water Heater 2	Electric water heater	Unknown				Not	Checked
Water Heater 3	Electric water heater	Unknown				Not	Checked
						Not Ch	ecked

Project: RefProj Title: New Project Type: Office (WEA File: FL_GAINESVILLE_RI		,	ystem C	omplian	ce		
Category	Pipe Dia [inches]	Is Runout?	• 0	Ins Cond [Btu-in/hr .SF.F]	Ins Thick [in]	-	Compliance
Heating System (Steam, Steam Condensate, & Hot Water)	0.25	False	105.00	0.28	0.00	0.50	FAILS
					F	TAILS	

Category	Section	Requirement (write N/A in box if not applicable)	Check
Report	506.4.2	Input Report Print-Out from EnergyGauge FlaCom attached	
Operations Manual	303.3.1, 503.2.9.3, 505.7.4.2	Operations manual provided to owner	
Windows & Doors	502.3.2	Glazed swinging entrance & revolving doors: max. 1.0 cfm/ft ² ; all other products: 0.3 cfm/ft ²	
Joints/Cracks	502.3.3	To be caulked, gasketed, weather-stripped or otherwise sealed	
Dropped Ceiling Cavity	502.3	Vented: seal & insulated ceiling. Unvented seal & insulate roof & side walls	
HVAC Efficiency	503.2.3	Minimum efficiencies: Tables 503.2.3(1)-(8)	
HVAC Controls	503.2.4	Zone controls prevent reheat (exceptions); separate thermostatic control per zone;	
Ventilation	503.2.5	Outdoor air supply & exhaust ducts shall have dampers that automatically shut when systems or spaces served are not in use. Exhaust air energy recovery required for cooling systems (Exceptions).	
ADS	503.2.7.5	Duct sizing and Design have been performed	
HVAC Ducts	503.2.7	Air ducts, fittings, mechanical equipment & plenum chambers shall be mechanically attached, sealed, insulated & installed per Table 503.2.7.2. Fan power limitations.	
Balancing	503.2.9.1	HVAC distribution system(s) tested & balanced. Report in construction documents.	
Piping Insulation	503.2.8	HAC and service hot water. In accordance with Table 503.2.8.	
Water Heaters	504	Performance requirements in accordance with Table 504.2. Heat trap required.	
Swimming Pools	504.7	Vapor-retardant or liquid cover or other means proven to reduce heat loss on heated pools; Time switch (exceptions); readily accessible on/off switch.	
Motors	505.7.5	Motor efficiency criteria have been met	
Lighting Controls	505.2, 502.3	Automatic control required for interior lighting in buildings >5,000 s.f.; Space control; Exterior photo sensor; Tandom wiring with 1 or 3 linear fluorescent lamps>30W	

Other Required Compliance

Project: RefProj			
Title: New Project			
Type: Office			
(WEA File:			
FL_GAINESVILLE_REGIONAL_AP.1			
m3)			
	Unmet Hours	Report	
	Baseline B	uilding	
System: Pr0Sy3			
Zone:Pr0Zo1		Hours Under Heated	Hours Under Cooled
	Jan	20	0
	Feb	5	0
		_	
	Aug	0	2
		_	2 0

Florida Energy Efficiency Code For Building Construction

EnergyGauge Summit® Fla/Com-2010, Effective Date: March 15, 2012 -- Form 506-2010 Prescriptive Envelope Compliance for Shell Buildings

	PROJECT SUMMARY			
Short Desc:	RefProj	Description:	New Project	
Owner:	Enter Owner's name here			
Address1:	1234 Any Street	City:	Anywhere	
Address2:	Enter Address here	State:	FL	
		Zip:	12345	
Туре:	Office	Class:	New Shell building	
Jurisdiction:	ALACHUA COUNTY, A	LACHUA COUNTY, FL (111000)		
Conditioned Area:	10000 SF	Conditioned & UnConditioned Area:	10000 SF	
No of Stories:	1	Area entered from Plans	0 SF	
Permit No:	0	Max Tonnage	50	
		If different, write in:		

Compliance Summary				
Component	Design	Criteria	Result	
SHELL ENVELOPE PRESCRIPTIVE			FAILS	
Met all required compliance from Check List?			Yes/No/NA	
IMPORTANT MESSAGE				
Info 5009 An input report of this design b Compliance Report	uilding must	be submitted	d along with this	

CERTIFICATIONS				
I hereby certify that the plans and specifications cov Florida Energy Code	ered by this calculation are in compliance with the			
Prepared By: John Doe	Building Official:			
Date:	Date:			
I certify that this building is in compliance with the FLorida Energy Efficiency Code				
Owner Agent:	Date:			
If Required by Florida law, I hereby certify (*) that th Energy Efficiency Code	e system design is in compliance with the Florida			
Architect:	Reg No:			
Electrical Designer:	Reg No:			
Lighting Designer:	Reg No:			
Mechanical Designer:	Reg No:			
Plumbing Designer:	Reg No:			
(*) Signature is required where Florida Law requires professionals.	s design to be performed by registered design			

Project: RefProj Title: New Project Type: Office (WEA File: FL_GAINESVILLE_REGIONAL_AP.tm3)

Item	Zone	Description	Design	Criteria Meet Req.
Glass	Pr0Zo1	Percent glass Max allowed	16.000	50.000 Yes
Pr0Zo1Wa1	Pr0Zo1	Exterior Wall: UValue Max allowed	.025	0.032 Yes
Pr0Zo1Wa1	Pr0Zo1	Exterior Wall: Absorptance Max allowed	.200	0.300 Yes
Pr0Zo1Wa1Wi	Pr0Zo1Wa1	Exterior Window: SHGC Max allowed	.200	0.250 Yes
Pr0Zo1Wa1Wi	Pr0Zo1Wa1	Exterior Window: UValue Max allowed	2.000	0.450 No
Pr0Zo1Wa2	Pr0Zo1	Exterior Wall: UValue Max allowed	.025	0.032 Yes
Pr0Zo1Wa2	Pr0Zo1	Exterior Wall: Absorptance Max allowed	.200	0.300 Yes
Pr0Zo1Wa2Wi	Pr0Zo1Wa2	Exterior Window: SHGC Max allowed	.200	0.250 Yes
Pr0Zo1Wa2Wi	Pr0Zo1Wa2	Exterior Window: UValue Max allowed	2.000	0.450 No
Pr0Zo1Wa3	Pr0Zo1	Exterior Wall: UValue Max allowed	.025	0.032 Yes
Pr0Zo1Wa3	Pr0Zo1	Exterior Wall: Absorptance Max allowed	.200	0.300 Yes
Pr0Zo1Wa3Wi	Pr0Zo1Wa3	Exterior Window: SHGC Max allowed	.390	0.250 No
Pr0Zo1Wa3Wi	Pr0Zo1Wa3	Exterior Window: UValue Max allowed	.670	0.450 No
Pr0Zo1Wa4	Pr0Zo1	Exterior Wall: UValue Max allowed	.025	0.032 Yes
Pr0Zo1Wa4	Pr0Zo1	Exterior Wall: Absorptance Max allowed	.200	0.300 Yes
Pr0Zo1Wa4Wi	Pr0Zo1Wa4	Exterior Window: SHGC Max allowed	.390	0.250 No
Pr0Zo1Wa4Wi	Pr0Zo1Wa4	Exterior Window: UValue Max allowed	.670	0.450 No
Skylights	Pr0Zo1	Percent Skylight Max allowed	1.000	5.000 Yes
Pr0Zo1Rf1	Pr0Zo1	Exterior Roof UValue Max allowed	.026	0.025 No
Pr0Zo1Rf1	Pr0Zo1	Exterior Roof: Absorptance Max allowed	.200	0.220 Yes
Pr0Zo1Rf1Sk1	Pr0Zo1Rf1	Skylight: SHGC Max allowed	.490	0.190 No
Pr0Zo1Rf1Sk1	Pr0Zo1Rf1Sk1	Skylight: UValue Max allowed	.690	1.360 Yes

Prescriptive Envelope Compliance

DOES NOT meet Shell Envelope Requirements -- FAILS

Info 5017 -- -- Important Warning: Total Building Performance calculation will still be required upon build out of the spaces. It is highly recommended that the shell be built keeping in mind the stringency of the Total Building Performance Compliance Method at the final stage. Running a trial of the Total Building Performance calculation is encouraged.

Florida Energy Efficiency Code For Building Construction

EnergyGauge Summit® Fla/Com-2010, Effective Date: March 15, 2012 -- Form 506-2010 Prescriptive Compliance for Renovations, Occupancy Change, etc.

	PRC	DJECT SUMMARY	
Short Desc:	RefProj	Description:	New Project
Owner:	Enter Owner's name here		
Address1:	1234 Any Street	City:	Anywhere
Address2:	Enter Address here	State:	FL
		Zip:	12345
Туре:	Office	Class:	Renovation to existing buildi
Jurisdiction:	ALACHUA COUNTY, A	ALACHUA COUNTY, FL (111000)	
Conditioned Area:	10000 SF	Conditioned & UnConditioned Area:	10000 SF
No of Stories:	1	Area entered from Plans	0 SF
Permit No:	0	Max Tonnage	50
		If different, write in:	

Compliance Summary								
Component	Design	Criteria	Result					
RENOVATED ENVELOPE PRESCRIPTIVE			FAILS					
LIGHTING POWER	1,500.0	14,000.0	PASSES					
LIGHTING CONTROLS			PASSES					
EXTERNAL LIGHTING			FAILS					
HVAC SYSTEM			FAILS					
PLANT			None Entered					
WATER HEATING SYSTEMS			Not Checked					
PIPING SYSTEMS			FAILS					
Met all required compliance from Check List?			Yes/No/NA					
IMPORTANT MESSAGE								

Compliance Report

CERTIFICATIONS						
I hereby certify that the plans and specifications c Florida Energy Code	overed by this calculation are in compliance with the					
Prepared By: John Doe	Building Official:					
Date:	Date:					
I certify that this building is in compliance with the	FLorida Energy Efficiency Code					
Owner Agent:	Date:					
If Required by Florida law, I hereby certify (*) that Energy Efficiency Code	the system design is in compliance with the Florida					
Architect:	Reg No:					
Electrical Designer:	Reg No:					
Lighting Designer:	Reg No:					
Mechanical Designer:	Reg No:					
Plumbing Designer:	Reg No:					
(*) Signature is required where Florida Law requi professionals.	res design to be performed by registered design					

Project: RefProj Title: New Project Type: Office (WEA File: FL_GAINESVILLE_REGIONAL_AP.tm3)

Item	Zone	Description	Design	Criteria Meet Req
Glass	Pr0Zo1	Percent glass Max allowed	16.000	50.000 Yes
Pr0Zo1Wa1	Pr0Zo1	Exterior Wall: UValue Max allowed	.025	0.052 Yes
Pr0Zo1Wa1	Pr0Zo1	Exterior Wall: Absorptance Max allowed	.200	0.300 Yes
Pr0Zo1Wa1Wi	Pr0Zo1Wa1	Exterior Window: SHGC Max allowed	.200	0.250 Yes
Pr0Zo1Wa1Wi	Pr0Zo1Wa1	Exterior Window: UValue Max allowed	2.000	0.450 No
Pr0Zo1Wa2	Pr0Zo1	Exterior Wall: UValue Max allowed	.025	0.052 Yes
Pr0Zo1Wa2	Pr0Zo1	Exterior Wall: Absorptance Max allowed	.200	0.300 Yes
Pr0Zo1Wa2Wi	Pr0Zo1Wa2	Exterior Window: SHGC Max allowed	.200	0.250 Yes
Pr0Zo1Wa2Wi	Pr0Zo1Wa2	Exterior Window: UValue Max allowed	2.000	0.450 No
Pr0Zo1Wa3	Pr0Zo1	Exterior Wall: UValue Max allowed	.025	0.052 Yes
Pr0Zo1Wa3	Pr0Zo1	Exterior Wall: Absorptance Max allowed	.200	0.300 Yes
Pr0Zo1Wa3Wi	Pr0Zo1Wa3	Exterior Window: SHGC Max allowed	.390	0.250 No
Pr0Zo1Wa3Wi	Pr0Zo1Wa3	Exterior Window: UValue Max allowed	.670	0.450 No
Pr0Zo1Wa4	Pr0Zo1	Exterior Wall: UValue Max allowed	.025	0.052 Yes
Pr0Zo1Wa4	Pr0Zo1	Exterior Wall: Absorptance Max allowed	.200	0.300 Yes
Pr0Zo1Wa4Wi	Pr0Zo1Wa4	Exterior Window: SHGC Max allowed	.390	0.250 No
Pr0Zo1Wa4Wi	Pr0Zo1Wa4	Exterior Window: UValue Max allowed	.670	0.450 No
Skylights	Pr0Zo1	Percent Skylight Max allowed	1.000	5.000 Yes
Pr0Zo1Rf1	Pr0Zo1	Exterior Roof UValue Max allowed	.026	0.033 Yes
Pr0Zo1Rf1	Pr0Zo1	Exterior Roof: Absorptance Max allowed	.200	0.220 Yes
Pr0Zo1Rf1Sk1	Pr0Zo1Rf1	Skylight: SHGC Max allowed	.490	0.190 No
Pr0Zo1Rf1Sk1	Pr0Zo1Rf1Sk1	Skylight: UValue Max allowed	.690	1.360 Yes
DOES NOT	meet Shell Er	velope Requirements FAILS		
Project: RefPro				
Title: New Proj	ect			
Type: Office				
WEA File: FL	_GAINESVILLE	C_REGIONAL_AP.tm3)		
		External Lighting Complian	ce	
Description	Categ	· •	Area or Length I or No. of Units	

Prescriptive Envelope Compliance

(Sqft or ft) Ext Light 1 Uncovered Parking Areas --Yes 0.15 1,000.0 150 Parking lots and Drives Ext Light 2 Internally illuminated exit signs No 5.00 8.0 40 Ext Light 3 Uncovered Parking Areas --Yes 0.15 Parking lots and Drives

Tradable Surfaces: 40 (W) Allowance for Tradable: 850 (W) All External Lighting: 75 (W) Complicance check includes a excess/Base allowance of 750.00(W) Ext Light 3 - Does not most control requirements of Type: <2><3>

FAILS

Ext Light 3 -- Does not meet control requirements of Type: <2><3>

EnergyGauge Summit® Fla/Com-2010. Section 506.4 Compliant Software. Effective Date: March 15, 2012

40

35

Project: RefPro Title: New Proj Type: Office (WEA File: FL		IAL AP.tm3)					
<u>(()</u>		hting Powe	er Co	nplianc	e		
Space Ashra ID	ae Description	Area (sq.ft)	Height (ft)	No. of Spaces	Design (W)	Effective (W)	Allowance (W)
Pr0Zo1Sp1 1	4 Classroom/Lecture Hall	10,000	10.0	1	1500	1500	14,000
Design : Effective: Allowance: Passing requi	1500 (W) 1500 (W) 14000 (W) ires Design to be at mos	st 100% of C	riteria	1		PASS	ES
Project: RefProj Title: New Proje Type: Office (WEA File: FL_		AL_AP.tm3)					
	Lightin	ng Controls	s Com	pliance	1		
Acronym	Ashrae Description ID			Area sq.ft)	Design CP	-	mpli- nce
Pr0Zo1Sp1	14 Classroom/Lect	ure Hall		10,000	5	4 PASS	SES
				Γ	PAS	SES	

Project: RefProj Title: New Project Type: Office (WEA File: FL G	AINESVILLE_REGION	AL AP.tm3)						
(()		stem Repo	ort Cor	nplianc	e			
Pr0Sy2 Sy					Constant Volume Packaged No. of System			
Component	Category	Capacity	Design Eff	Eff Criteria	Design IPLV	IPLV Criteria	Comp- liance	
Cooling System	Air Conditioners Air Co 240000 to 760000 Btu/h Cooling Capacity		15.00	10.00		10.10	FAILS	
Heating System	Warm Air Gas Furnace 225000 Btu/h	>=	95.00	80.00			PASSES	
Air Handling System -Supply	Air Handler (Supply) - Constant Volume		0.50	0.82			PASSES	
						FAILS	5	
Description		Plant Comp Design Min	liance Design	Min C	Category		Com	
Description	No	Eff Eff	IPLV	IPLV	alegol y		liance	
						None		
Project: RefProj Title: New Project Type: Office (WEA File: FL_G4	AINESVILLE_REGION/	AL_AP.tm3)						
	Wat	er Heater C	omplia	nce				
Description	Туре	Category		esign Min Eff Eff		Max Con Loss lian		
Water Heater 2	Electric water heater	Unknown				Not	Checked	
Water Heater 3	Electric water heater	Unknown				Not	Checked	
						Not Ch	ecked	

Project: RefProj Title: New Project Type: Office (WEA File: FL_GAINESVILLE_REGIONAL_AP.tm3) Piping System Compliance							
Category	Pipe Dia [inches]	Is Runout?	• 0	Ins Cond [Btu-in/hr .SF.F]	Ins Thick [in]	-	Compliance
Heating System (Steam, Steam Condensate, & Hot Water)	0.25	False	105.00	0.28	0.00	0.50	FAILS
					F	TAILS	

Category	Section	Requirement (write N/A in box if not applicable)	Check
Report	506.4.2	Input Report Print-Out from EnergyGauge FlaCom attached	
Operations Manual	303.3.1, 503.2.9.3, 505.7.4.2	Operations manual provided to owner	
Windows & Doors	502.3.2	Glazed swinging entrance & revolving doors: max. 1.0 cfm/ft ² ; all other products: 0.3 cfm/ft ²	
Joints/Cracks	502.3.3	To be caulked, gasketed, weather-stripped or otherwise sealed	
Dropped Ceiling Cavity	502.3	Vented: seal & insulated ceiling. Unvented seal & insulate roof & side walls	
HVAC Efficiency	503.2.3	Minimum efficiencies: Tables 503.2.3(1)-(8)	
HVAC Controls	503.2.4	Zone controls prevent reheat (exceptions); separate thermostatic control per zone;	
Ventilation	503.2.5	Outdoor air supply & exhaust ducts shall have dampers that automatically shut when systems or spaces served are not in use. Exhaust air energy recovery required for cooling systems (Exceptions).	
ADS	503.2.7.5	Duct sizing and Design have been performed	
HVAC Ducts	503.2.7	Air ducts, fittings, mechanical equipment & plenum chambers shall be mechanically attached, sealed, insulated & installed per Table 503.2.7.2. Fan power limitations.	
Balancing	503.2.9.1	HVAC distribution system(s) tested & balanced. Report in construction documents.	
Piping Insulation	503.2.8	HAC and service hot water. In accordance with Table 503.2.8.	
Water Heaters	504	Performance requirements in accordance with Table 504.2. Heat trap required.	
Swimming Pools	504.7	Vapor-retardant or liquid cover or other means proven to reduce heat loss on heated pools; Time switch (exceptions); readily accessible on/off switch.	
Motors	505.7.5	Motor efficiency criteria have been met	
Lighting Controls	505.2, 502.3	Automatic control required for interior lighting in buildings >5,000 s.f.; Space control; Exterior photo sensor; Tandom wiring with 1 or 3 linear fluorescent lamps>30W	

Other Required Compliance

Index

- A -

acronym 63 Added R-Value Table address 36 altitude 36 angle 60 area 72 assignment 36 Azimuth 63

- B -

Building Forms Building Type

- C -

capacity 69 category 71 city 36 class 36 Column Size conductance table construct by use Construct Library 89 Customising the User Library

- D -

Density Table description 71 detail dimension 63 Dimensions: 51 District Thermal Energy Management for LEED 79 Door 60

- E -

efficiency 71 equipment 69 external 72

- F -

film coefficient 63 fin 60 floor 63 form 72 frame width 62 FSEC EnergyGaugeCom home page

- G -

Getting Started gnd refl 63 gross area 36

- H -

heat capacity table heater 71

- I -

infiltration 43 infl coef 63 input 71 insert 72 inside sol abs 63 inside vis refl 63 Introduction 5 IPLV 69

- J -

jurisdiction 36

- L -

latitude 36 LEED Online Submission Instructions 78 Library Information location 63 longitude 36 loss 71

- M -

Material Lib By Use Material Library 87 Material Library Data Table Materials & Constructs Library 92 Menus method 43 More Details of zone type multiplier 63

- N -

Navigation Tree 12

- 0 -

outside emiss 63 overhang 60 owner 36

- P -

permit no 36 Piping 73 Project 36 Project Preferences

- R -

range 43 rate 71

- S -

setback 62 Shade Library Form shading 60 shape 63 shielding coeff 36 Skylight 62 Software Library Information source 43 Space 47 Start Here 3 state 36 storeys 36 Systems 65

- T -

terrain Par 1 36 terrain par 2 36 tilt 63 title 36 type 51

- U -

Use Library Information User Library Information

- W -

wall 51 water 71 Window 57 Window Glass Library 96

- Z -

zip 36 Zone 43

- S -

Steps to Comply with Florida 2010 Building Code 16