

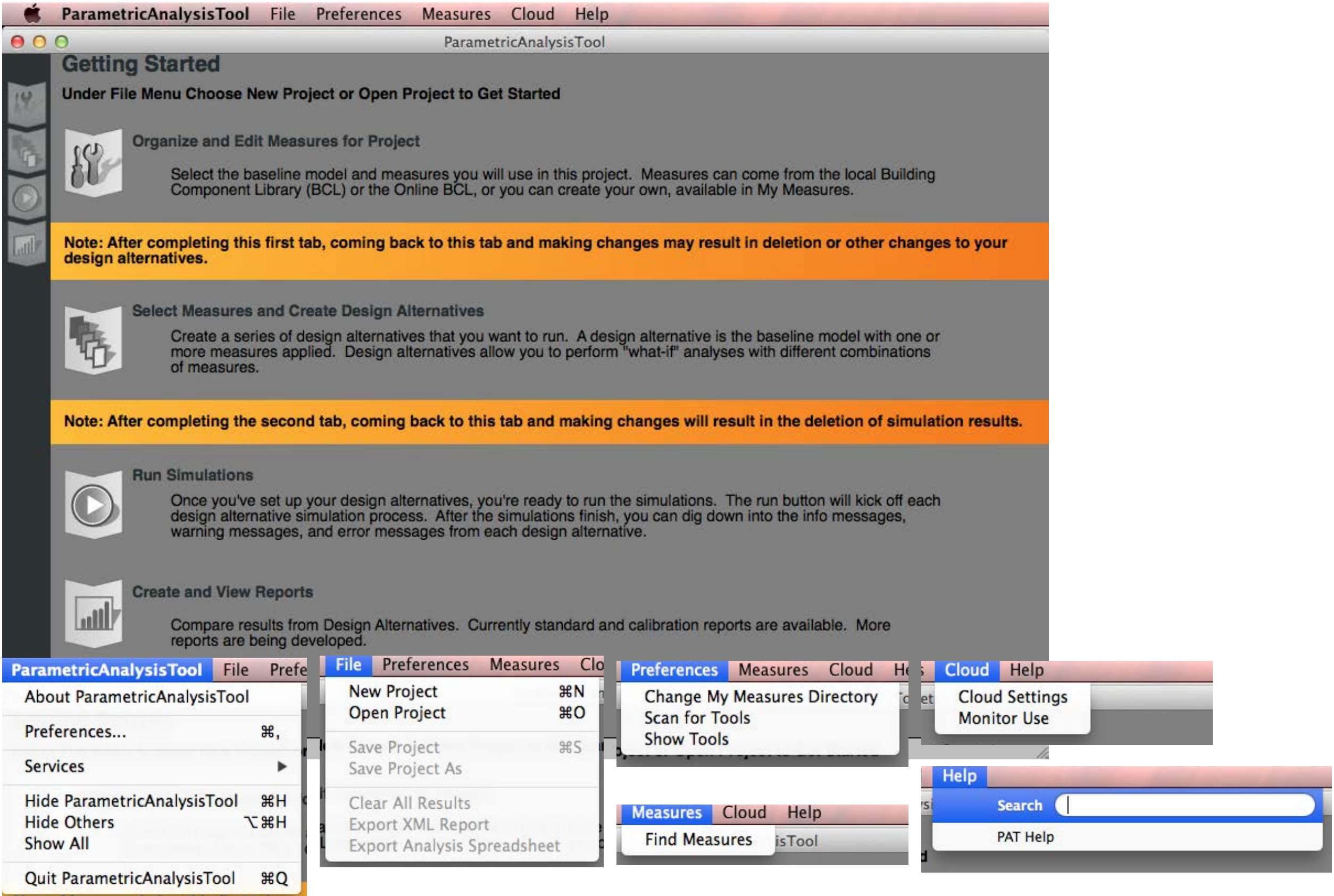
Starting Screen & Menus

The first screen of the interface provides some guidance on the PAT workflow.

Start by creating a new project under the “File” menu or opening an existing project.

Move through the four tabs on the left to

- Organize your measures
- Create design alternatives
- Run simulations
- View results



ParametricAnalysisTool (PAT) Version 1.4.0

Organize & Edit Measures for Project 1

Download measures from The [Building Component Library \(BCL\)](#). Drag measures from the library to the central panel.

- There are three types of measures:
- **OpenStudio Measures** are run on the OSM model before it is converted to an IDF.
 - **EnergyPlus Measures** can be run on the IDF file before it is handed to EnergyPlus.
 - **Reporting measures** produce reports to chart results, provide quality assurance, and quality control on models.

“Measure Groups” usually contain one type of measure with different parameters, because only one measure from a measure group can be applied to each design alternative.

“Always Run Measures” will be applied to all design alternatives created from the baseline model.

Check out the *Measure Writing Guide* on the [OpenStudio Website](#) and start writing your own custom measures.

Choose your baseline OSM model.

ParametricAnalysisTool File Preferences Measures Cloud Help

pat-workflow

Organize and Edit Measures for Project

Select Your Baseline Model *.osm Browse

OpenStudio Measures

+ New Measure Group (One measure from this group can be applied to each design alternative)

Drop Measure From Library to Create a New Measure Group

+ New Always Run Measure (This measure is applied to the baseline and all design alternatives)

Drop Measure From Library to Create a New Always Run Measure

EnergyPlus Measures

+ New Measure Group (One measure from this group can be applied to each design alternative)

Drop Measure From Library to Create a New Measure Group

+ New Always Run Measure (This measure is applied to the baseline and all design alternatives)

Drop Measure From Library to Create a New Always Run Measure

Reporting Measures

+ New Always Run Measure

Drop Measure From Library to Create a New Always Run Measure

Measure Library Edit

Measures

Envelope 6

Electric Lighting 1

Equipment

People

HVAC 6

Refrigeration

Service Water Heating

Onsite Power Generation 1

Whole Building 2

Economics

Reporting 4

Onsite Power Generation 1

Whole Building 2

Economics

Reporting 4

QAQC 4

BCL Add Output Variable

BCL Add Output Diagnostics

BCL Standard Reports

BCL Xcel EDA Reporting an

Troubleshooting

Sync Project Measures with Library

Find Measures on BCL

Tabs provide access to **Library** of measures and **Edit** allows you to define the measure parameters.

Measures are organized into categories. # of measures in category

Icon indicates type of measure

Duplicates the selected measure and allows you to edit the measure to create your own measure.

Create a new measure from a starting template.

Folder for your own measures. Duplicated measures and your new measures are saved in this folder.

Updates any of the measures in your project with the latest versions in the library

Opens interface to find and download measures from BCL.

Organize & Edit Measures for Project 2

By selecting the measure and selecting the right “Edit” tab, inputs for the measure can be entered and adjusted.

Select a measure and edit parameters in the panel to the right

Always Run Measures are not part of groups

Move measure groups up or down the workflow

x2 to Duplicate a measure or X to delete a measure from the group

Edit allows you to define the selected measure parameters.

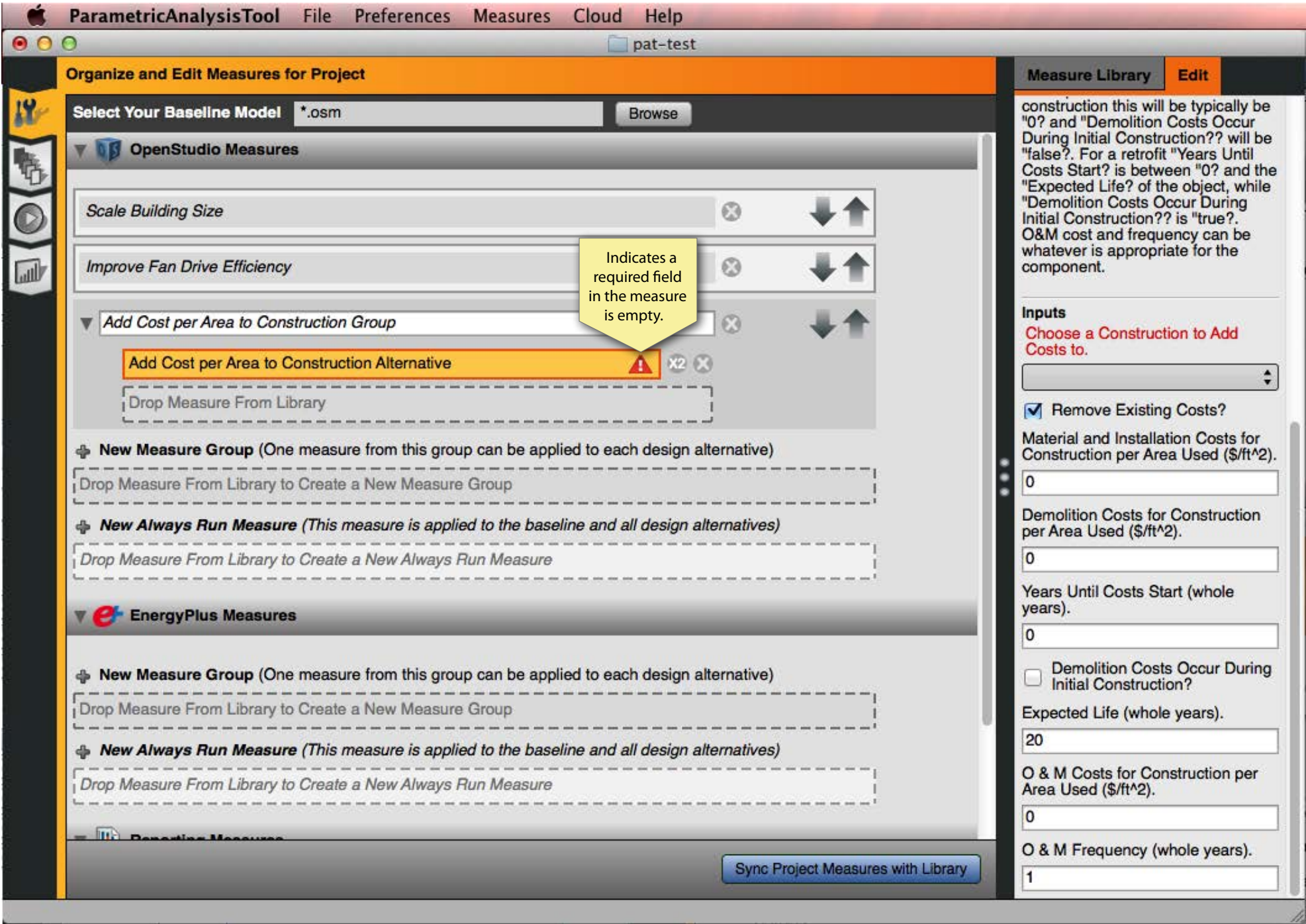
Refine the description and name to identify the parameters of this particular version of the measure.

Edit the parameters for this version of the measure here.

Updates any of the measures in your project with the latest versions in the library

Organize & Edit Measures for Project 4: Warnings

A red warning triangle and will show up beside your measure if required fields are not complete. Select the measure and complete the fields in the "Edit" panel on the right.



Red text indicates the required field that needs to be completed

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Organize & Edit Measures for Project 3: BCL

From the “Measures” menu and “Find Measures” along the top or the “Find Measures on BCL” button at the bottom of the “Library” you can access the BCL.

Search for specific measures or browse through the categories.

The “Check All” button can be used to select all the measures on a page view. If you already have a measure in your library the check box will be grayed out and checked.

Measures Cloud Help

Find Measures isTool

Search for measures or browse categories

Open menu to Find Measures on BCL

Pages of measures

Checks all measures ,on that page for download

ParametricAnalysisTool File Preferences Measures Cloud Help

Online BCL

Search window

Categories

Envelope

Electric Lighting

Equipment

People

HVAC

Refrigeration

Service Water Heating

Onsite Power Generation

Whole Building

Economics

Reporting

Select a measure and the attributes for that measure show up in the right panel.

Envelope

1

9

Name: Replace Exterior Window Constructions with a Different Construction from the Model

Measure Function: Measure

Measure Type: ModelMeasure

Name: Add Overhangs by Projection Factor

Measure Function: Measure

Measure Type: ModelMeasure

Name: AEDG Small to Medium Office - Fenestration and Daylighting Controls

Measure Type: ModelMeasure

Name: AEDG K12 - Fenestration and Daylighting Controls

Measure Type: ModelMeasure

Name: AEDG K12 - Exterior Door Construction

Measure Type: ModelMeasure

Name: AEDG Small to Medium Office - Exterior Door Construction

Measure Type: ModelMeasure

Name: Inject OSM Geometry into an External IDF

Measure Type: EnergyPlusMeasure

Name: Set Space Infiltration by Exterior Surface Area

Measure Function: Measure

Measure Type: ModelMeasure

Measures you already have downloaded are shown with a gray check box.

Check All

Attributes

Requires EnergyPlus Results false

Uses SketchUp API false

Measure Function Measure

Measure Type ModelMeasure

Files

EnvelopeAndLoadTestModel_01.osm

ReverseTranslatedModel.osm

SetWindowToWallRatioByFacade_Test.rb

measure.rb

EnvelopeAndLoadTestModel_02_RotatedSpaceAndEtest.osm

Sources

Tags

Envelope.Fenestration

Measure Library Edit

Measures

Envelope 6

Electric Lighting 1

Equipment

People

HVAC 6

Refrigeration

Service Water Heating

Onsite Power Generation 1

Whole Building 2

Economics

Reporting 4

Measures with boxes that are checked will be downloaded.

Download

Opens the interface shown above and to the left.

Find Measures on BCL

Organize & Edit Measures for Project 5: New Measure

Hit the “New Measure” icon to open a dialog to create your own measure. Write a descriptive title, more detailed descriptions, and select the measure type and taxonomy.

Duplicating a measure opens up a similar dialog, but the name of the measure will have “copy” added at the end.

The *Measure Writing Guide* on the OpenStudio website will guide you through this process and provide best practices.

The Modeler Description is meant to assist the energy modeler. It should explain in some detail how the measure manipulates the model and where appropriate what model objects are being added or altered. It should offer any special guidance that the measure writer wants to communicate to people using the measure

Folder for your own measures. Duplicated and your new measures are saved in this folder.

Duplicates the selected measure and allows you to edit it to create your own measure.

Creates a new measure from a starting template.

Select Measures & Create Design Alternatives 1

This tab allows you to create design alternatives from the measures you put into your project on the first tab.

The left panel provides a list of available OpenStudio measure groups and measures.

A maximum of one measure from a group can be applied to a single design alternative. But you can apply measures from different groups on a single model.

Select the measures you want to apply by clicking on the measure name. Depending on what measures you select the buttons on the right top panel will create the alternative.

You can create one design alternative for each measure selected with the "Create One For Each Selected Measure."

To create one design alternative with many measures applied, select the measures and hit "Create One With Selected Measures."

If you want to bring in an external model to compare as an alternative use the "Create From External File" button.

Buttons available depending on what measures you have selected in the left panel

Selects all measures in project

Clears all measure selections

Creates a single design alternative for each selected measure

Creates one design with all the selected measures, a maximum of one measure per measure group.

Creates a design alternative from an external file

Measure Group

Click measure names to select. The background of selected measures turns orange

Select multiple measures by clicking on the measure name

Select Measures & Create Design Alternatives 2

The examples to the right show how your measure selections determine what buttons are available for creating design alternatives.

Buttons available depending on what measures you have selected in the left panel

The screenshot displays the ParametricAnalysisTool (PAT) Version 1.4.0 interface. The main window is titled 'ParametricAnalysisTool' and has a menu bar with 'File', 'Preferences', 'Measures', 'Cloud', and 'Help'. The window is divided into two main sections: 'Select Measures and Create Design Alternatives' and 'Create Design Alternatives'.

Left Panel: Select Measures and Create Design Alternatives

- Select Measure(s) from Project Measures:** Includes 'Select All' and 'Clear Selection' buttons.
- OpenStudio Measures:** A list of measures grouped by category. The selected measures are highlighted in orange.
- Selected Measures:**
 - Increase R-Value of Insulation for Exterior Walls:** R30 Exterior Wall Insulation, R40 Exterior Wall Insulation, R100 Exterior Wall Insulation.
 - Decrease Lighting Power Density in Corridors:** 0.9 W/sf Corridor Lighting, 0.8 W/sf Corridor Lighting, 0.5 W/sf Corridor Lighting.
 - Increase Cooling Efficiency for AHU:** COP 4 DX Coils, COP 5 DX Coils.
 - Increase R-Value of Insulation for Roofs:** R30 Roof Insulation, R45 Roof Insulation.
 - Set Window to Wall Ratio by Facade Group:** Set Window to Wall Ratio by Facade Alterr.

Right Panel: Create Design Alternatives

- Buttons:** 'Create One For Each Selected Measure', 'Create One With Selected Measures', and 'Create From External File'.
- Baseline and Measures Applied to All:** Adjust Thermostat Setpoints by Degrees.
- New Design Alternative:** A list of measures applied to the new design alternative, including R30 Exterior Wall Insulation, 0.9 W/sf Corridor Lighting, COP 4 DX Coils, R30 Roof Insulation, and Adjust Thermostat Setpoints by Degrees.

Annotations:

- Selects all measures in project:** Points to the 'Select All' button.
- Clears all measure selections:** Points to the 'Clear Selection' button.
- Creates a single design alternative for each selected measure:** Points to the 'Create One For Each Selected Measure' button.
- Creates one design with all the selected measures, a maximum of one measure per measure group:** Points to the 'Create One With Selected Measures' button.
- Creates a design alternative from an external file:** Points to the 'Create From External File' button.
- If measures within the same measure group are selected then the 'Create One With Selected Measures' button is not available:** Points to the 'Create One With Selected Measures' button in the second example, where it is disabled.

ParametricAnalysisTool (PAT) Version 1.4.0

Select Measures & Create Design Alternatives 1

Once you create design alternatives, they appear in the right panel. The name of the alternative can be edited. The measures applied to each alternative are viewable by expanding the view.

The baseline model always appears at the top of the right panel with a dark gray background. The “Always Run” measures are listed under the baseline and are run on all design alternatives.

Design alternatives can be removed by hitting the delete button.

ParametricAnalysisTool

File Preferences Measures Cloud Help

Large Office Study

Select Measure(s) from Project Measures

Select All Clear Selection

OpenStudio Measures

Add Overhangs by Projection Factor Group

Add Overhangs by Projection Factor Alternative Only

AEDG Small to Medium Office - Exterior Wall Construction Alternative Only

AEDG Small to Medium Office - Exterior Wall Construction Alternative

AEDG Small to Medium Office - Interior Finishes Alternative Only

AEDG Small to Medium Office - Interior Finishes Alternative

AEDG Small to Medium Office - Envelope Alternative Only

AEDG Small to Medium Office - Envelope Alternative

AEDG Small to Medium Office - Roof Construction Alternative Only

AEDG Small to Medium Office - Roof Construction Alternative

AEDG Small to Medium Office - Interior Lighting Alternative Only

AEDG Small to Medium Office - Interior Lighting Alternative

AEDG Small to Medium Office - Interior Lighting Alternative

AEDG Small to Medium Office - Electric Equipment Alternative Only

AEDG Small to Medium Office - Electric Equipment Alternative

AEDG Small to Medium Office - Electric Equipment Alternative

AEDG Office SWH Group

AEDG Office SWH Alternative

AEDG Office HVAC Radiant with DOAS Group

AEDG Office HVAC Radiant with DOAS Alternative

AEDG Office HVAC Radiant with DOAS Alternative

Create Design Alternatives

Create One For Each Selected Measure Create One With Selected Measures Create From External File

Baseline and Measures Applied to All

Set Lifecycle Cost Parameters

Xcel EDA Tariff Selection and Model Setup

Xcel EDA Reporting and QAQC

Analysis Period Cash Flows

Annual End Use Breakdown

Perform Interior Lighting Quality Assurance Assessment

Add Overhangs by Projection Factor Alternative Only

Set Lifecycle Cost Parameters

Add Overhangs by Projection Factor Alternative

Xcel EDA Tariff Selection and Model Setup

Xcel EDA Reporting and QAQC

Analysis Period Cash Flows

Annual End Use Breakdown

Perform Interior Lighting Quality Assurance Assessment

Description

AEDG Small to Medium Office - Exterior Wall Construction Alternative Only

Set Lifecycle Cost Parameters

AEDG Small to Medium Office - Exterior Wall Construction Alternative

Xcel EDA Tariff Selection and Model Setup

Xcel EDA Reporting and QAQC

Analysis Period Cash Flows

Measures being applied to the baseline model and all design alternatives

Name of design alternative

Measures being applied to the model. Always run measures are in italic

Delete a design Alternative

Expand or collapse details

Run Simulations Locally

Select the design alternative you want to run. Selected alternatives turn the yellow-orange. Hit the run button to start the simulations.

If you want to run a daylighting analysis with Radiance select that option here.

Runs locally if cloud is off

Starts simulation runs for selected

Progress bar displays summary status of runs. It stays at 0 until a run is finished

Simulation Alternative	Status	0 NAs	0 Warnings	0 Errors
Baseline	Not Started	0 NAs	0 Warnings	0 Errors
R30 Exterior Wall Insulation Only	Not Started	0 NAs	0 Warnings	0 Errors
R40 Exterior Wall Insulation Only	Not Started	0 NAs	0 Warnings	0 Errors
R100 Exterior Wall Insulation Only	Not Started	0 NAs	0 Warnings	0 Errors
0.9 W/sf Corridor Lighting Only	Not Started	0 NAs	0 Warnings	0 Errors
0.8 W/sf Corridor Lighting Only	Not Started	0 NAs	0 Warnings	0 Errors
0.5 W/sf Corridor Lighting Only	Not Started	0 NAs	0 Warnings	0 Errors
COP 4 DX Coils Only	Not Started	0 NAs	0 Warnings	0 Errors
COP 5 DX Coils Only	Not Started	0 NAs	0 Warnings	0 Errors
R30 Roof Insulation Only	Not Started	0 NAs	0 Warnings	0 Errors
R45 Roof Insulation Only	Not Started	0 NAs	0 Warnings	0 Errors
Set Window to Wall Ratio by Facade Alternative Only	Not Started	0 NAs	0 Warnings	0 Errors

Turns on the cloud (takes a few minutes) and you can run selected simulations on the cloud

Select daylighting analysis engine

Clears all results

Clears individual results

Showing that 2 out of 5 simulation runs are finished

Click arrow to open and view run warnings and errors

Running Locally

40% Complete

Turn On Cloud

Select Daylight Simulation Engine

Select All

Clear Selection

All

Simulation Alternative	Date/Time	Status	0 NAs	0 Warnings	0 Errors
Baseline	2014-Aug-05 16:42:00	Finished	0 NAs	7 Warnings	0 Errors
Set Window to Wall Ratio by Facade Alternative 0.4 Only	2014-Aug-05 16:42:00	Running	1 NA	7 Warnings	0 Errors
Set Window to Wall Ratio by Facade Alternative 0.3 Only	2014-Aug-05 16:42:00	Finished	1 NA	7 Warnings	0 Errors
ReduceSpaceInfiltrationByPercentage Alternative 30 Onl	2014-Aug-05 16:42:00	Running	1 NA	2 Warnings	0 Errors
ReduceSpaceInfiltrationByPercentage Alternative 35 Onl	2014-Aug-05 16:42:00	Running	1 NA	7 Warnings	0 Errors

View Locally Run Results

Warnings and errors can be viewed by expanding the baseline or alternative.

ParametricAnalysisTool

File Preferences Measures Cloud Help

3StoryCourtyardSchoolPre1980

Run Simulations

Run Locally

Turn On Cloud

Select Daylight Simulation Engine

EnergyPlus

Radiance

Select All

Clear Selection

All

▼ Baseline	2014-Jul-28 13:15:27	Finished	0 NAs	292 Warning	0 Errors	
▼ Adjust Thermostat Setpoints by Degrees	2014-Jul-28 13:15:27	Idle		0 Warnings	0 Errors	
<div>Initial Condition: Initial cooling setpoints used in the model range from 75.2 F to 80.06 F. Initial heating setpoints used in the model range from 60.08 F to 69.8 F.</div> <div>Final Condition: Final cooling setpoints used in the model range from 76.2 F to 81.06 F. Final heating setpoints used in the model range from 58.08 F to 67.8 F.</div>						
▼ ModelToldf	2014-Jul-28 13:15:35	Idle		2 Warnings	0 Errors	
<div>Warning: Unknown IddObjectType: 'OS:ClimateZones'</div> <div>Warning: Unknown IddObjectType: 'OS:ClimateZones'</div>						
► ExpandObjects	2014-Jul-28 13:15:51	Idle		0 Warnings	0 Errors	
► EnergyPlusPreProcess	2014-Jul-28 13:15:54	Idle		0 Warnings	0 Errors	
► EnergyPlus	2014-Jul-28 13:15:58	Idle		290 Warning	0 Errors	
► OpenStudioPostProcess	2014-Jul-28 13:18:04	Idle		0 Warnings	0 Errors	

View warnings and Errors

ParametricAnalysisTool (PAT) Version 1.4.0

Running on the Cloud: Settings 1

Before you click the “Turn on Cloud” button, fill out the *Cloud Settings* dialogs from the *Cloud* menu.

Add information on your Amazon EC2 account and agree to the terms on the first screen.

Currently only Amazon EC2 is available through PAT.

The “Monitor Use” dialog under the *Cloud* menu will show you how many instances you have in your current project as well as other projects. If your “Total Instances Running” is more than 0, and you don’t know why, you can go to the EC2 Console website to terminate them. The “Estimated EC2 Charges” value is directly from Amazon, but may be up to 24 hours delayed. As a result you won’t see this change on the fly as you are working on a project, you will typically see it the next day.

Learn more about using Amazon cloud at [aws.amazon.com](#).

ParametricAnalysisTool

File Preferences Measures Cloud Help

3StoryCour

Cloud Settings

Monitor Use

Run Simulations

Run Locally

Cloud Settings

ParametricAnalysisTool

Cloud Resources

Amazon EC2

To create an account go to [aws.amazon.com](#)

Access Key

Secret Key

PAT cloud support with Amazon EC2 is a new feature, and is still under active development to improve interprocess reliability and performance. The user assumes all responsibility for orphaned EC2 processes, and it is strongly recommended that you monitor EC2 cloud usage at [aws.amazon.com](#) to avoid any unwanted charges.

Agree to terms before continuing

☒ I Agree

Continue Save Cancel

Access the cloud settings for connecting to Amazon

Check on cloud use

ParametricAnalysisTool

Estimated EC2 Charges: N/A

Project Run Time: 0 minutes

Instances Running on Current Project: 0

Total Instances Running: N/A

Manage all Projects with AWS Console

Stopping the cloud will terminate all instances. Any detailed results not selected for download will be lost.

OK

Running on the Cloud: Settings 2

On the second screen of the “Cloud Settings” dialog, confirm that you have chosen the desired sever, worker, and number of workers.

As soon as you hit the “Turn on Cloud” button you will start incurring charges, and the smallest increment is one hour. If you have to cancel and re-start it you will be charged again.

Review pricing at <http://aws.amazon.com/ec2/pricing/>

ParametricAnalysisTool

File Preferences Measures Cloud Help

3StoryCour

Cloud Settings Monitor Use

Run Simulations

Run Locally

Cloud Settings

ParametricAnalysisTool

Region

us-east-1

This is the only region with CloudWatch enabled. CloudWatch allows you to monitor your cost and performance. The AWS Management Console provides a dashboard, alarms, and graphs.

Server Information

Instance Type	CPU Count	Name
m2.xlarge	2	M2 Extra Large

Worker Information

Instance Type	CPU Count	Name
cc2.8xlarge	16	Cluster Compute Eight Extra Large

Number of Worker Instances

2

Results for simulations run on the cloud are only available while the cloud is running. Stopping the cloud will terminate all instances, and any results not downloaded will be lost.

Monitor your cloud use with [CloudWatch](#) and [AWS Management Console](#). Review pricing for cloud service at aws.amazon.com/ec2/pricing

Back Save Cancel

Determines how many simulations can be run, but also increases the fees per hour

Access the cloud settings for connecting to Amazon

Download the results you need before terminating the cloud connection

ParametricAnalysisTool (PAT) Version 1.4.0

Running Simulations on the Cloud

Select your baseline model, then run locally before you start the cloud to confirm that it is valid and will run properly. To do this you can deselect all other design alternatives, and then select just the baseline.

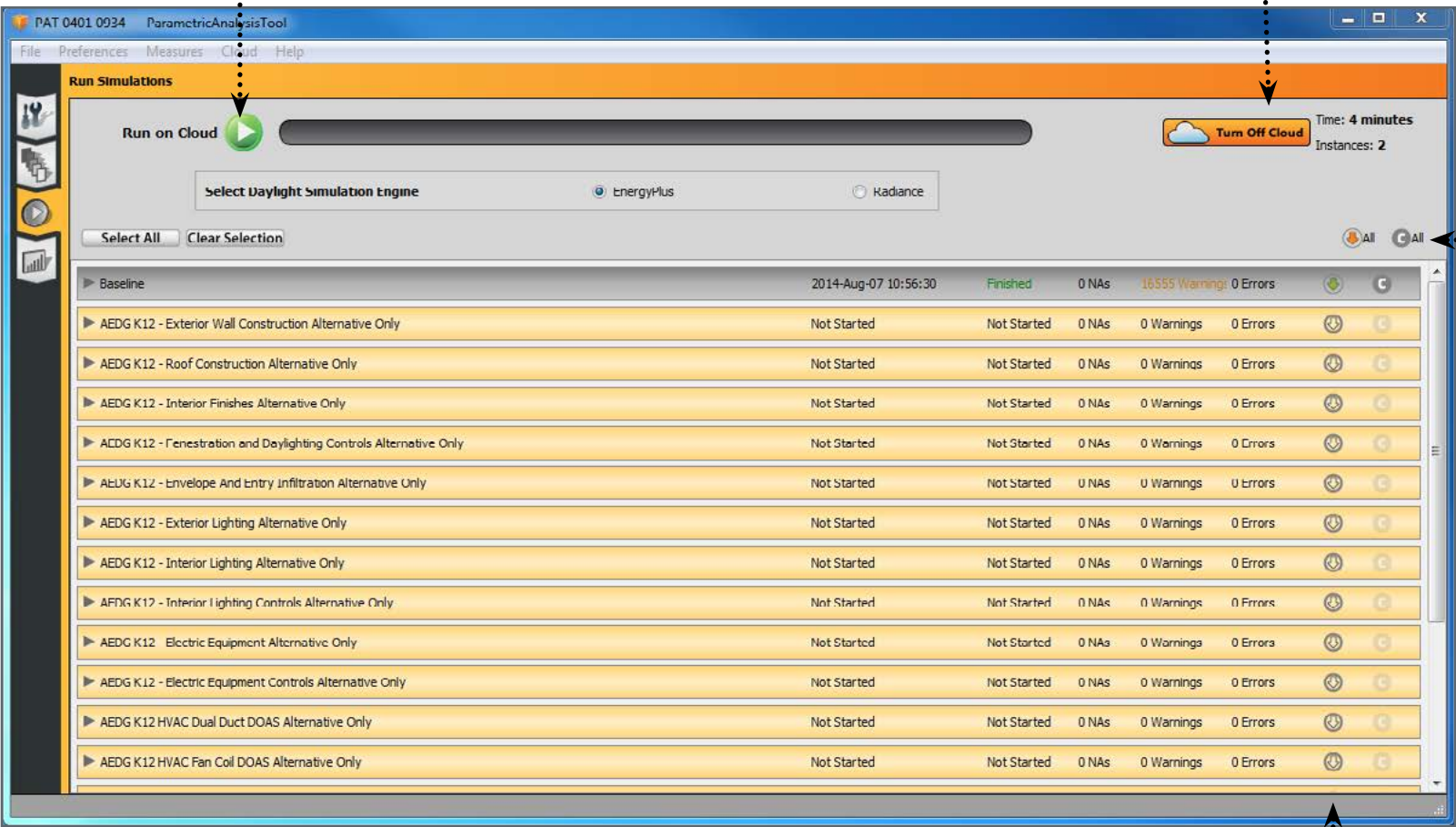
Before you click the “Run on Cloud” button, make sure you have selected all of the design alternatives that you want to run. Choosing “Select All” will select all jobs that have not already been run locally, or on a previous cloud session.

Quitting PAT while the cloud is on will not close the EC2 instances. If you Launch PAT again but open a different project it may look like the cloud is off, but that is only relevant for that current project.

To properly end the cloud session in PAT re-open the PAT project (if you have closed it) and then click the button to stop the cloud. For a few minutes you will see “Stopping Cloud.”

Once you stop the cloud you will no longer be able to download detailed simulation results. If this happens and you want to get one, you can always run that job locally. It is generally not recommended to download detailed results for all design alternatives, as that will use a lot of hard drive space and network bandwidth.

Once the cloud is on, the Run Button is enabled



Turns on the cloud and you can run selected simulations on the cloud

Turning on cloud. This takes a few minutes

Button turns off cloud. Time and number of instances displayed

Stops cloud—takes a few minutes

Cloud connection is lost, go to AWS Cloud Management Console to terminate session

Clears all results

Detailed results downloaded

Detailed results not downloaded

Detailed results to be downloaded

Button disabled while running simulations

Baseline	2014-Aug-07 10:56:30	Finished	0 NAs	16555 Warnings	0 Errors
AEDG K12 - Exterior Wall Construction Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 - Roof Construction Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 - Interior Finishes Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 - Fenestration and Daylighting Controls Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 - Envelope And Entry Infiltration Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 - Exterior Lighting Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 - Interior Lighting Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 - Interior Lighting Controls Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 - Electric Equipment Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 - Electric Equipment Controls Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 HVAC Dual Duct DOAS Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors
AEDG K12 HVAC Fan Coil DOAS Alternative Only	Not Started	Not Started	0 NAs	0 Warnings	0 Errors

AWS Management Console

It is always a good idea to go to the EC2 website to confirm that the instances have shut down. To view your EC2 web console, click the "Manage all Projects with AWS Console" in the "Monitor Use" dialog or "AWS Management Console" in the "Cloud Settings" dialog. It will take you to this address (<http://aws.amazon.com/console/>). Once there click "Sign in to the AWS Console"

Create an account

Sign Up

Sign in to the AWS Console

Sign in to your account

The screenshot displays the AWS Management Console homepage. At the top, there's a navigation bar with the AWS logo and links for 'Sign Up' and 'Sign in to the AWS Console'. Below this, the main heading 'AWS Management Console' is followed by a brief description: 'Access and manage Amazon Web Services through a simple and intuitive web-based user interface. You can also use the AWS Console mobile app to quickly view resources on the go.' The 'Features' section highlights three key capabilities: 'Access all AWS services in one place', 'Administer your AWS account', and 'Manage AWS resources from any device'. Each feature is accompanied by a small illustrative image. The left sidebar provides quick access to various AWS resources and documentation.

AWS Management Console

It is always a good idea to go to the EC2 website to confirm that the instances have shut down. To view your EC2 web console, click the "Manage all Projects with AWS Console" in the "Monitor Use" dialog or "AWS Management Console" in the "Cloud Settings" dialog. It will take you to this address (<http://aws.amazon.com/console/>). Once there click "Sign in to the AWS Console."

Terminate instances here if you need to

Actions

Terminate

Reboot

Stop

Start

EC2 Dashboard

Events

Tags

INSTANCES

Instances

Spot Requests

Reserved Instances

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

NETWORK & SECURITY

Security Groups

Elastic IPs

Launch Instance

Connect

Actions

Filter: All instances

All instance types

Search Instances

1 to 3 of 3 Instances

	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS
<input type="checkbox"/>	OpenStudio-Worker V1.1.0	i-11721468	cc2.8xlarge	us-east-1d	running	2/2 check...	None	ec2-54-221-
<input type="checkbox"/>	OpenStudio-Worker V1.1.0	i-1372146a	cc2.8xlarge	us-east-1d	running	2/2 check...	None	ec2-54-205-
<input checked="" type="checkbox"/>	OpenStudio-Server V1.1.0	i-d59abfb1	m2.xlarge	us-east-1c	running	2/2 check...	None	ec2-50-17-11

Instance: i-d59abfb1 (OpenStudio-Server V1.1.0)

Public DNS: ec2-50-17-175-23.compute-1.amazonaws.com

Description

Status Checks

Monitoring

Tags

Instance ID

i-d59abfb1

Public DNS

ec2-50-17-175-23.compute-1.amazonaws.com

Instance state

running

Elastic IP

-

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Feedback

Copy this address and paste it into the browser to track your run and view results

ParametricAnalysisTool (PAT) Version 1.4.0

OpenStudio Cloud
Management Console

OpenStudio Cloud Management
Console

Home

Projects

Analyses ▾

Admin

About

OpenStudio Cloud Management Console

Dashboard

1 Projects

1 Analyses

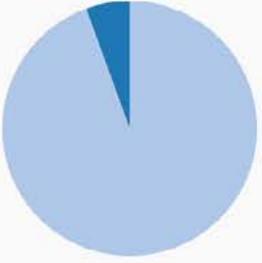
94% Completed

0% Failed

Simple Project Analysis

Project: 37bac106-9f49-427b-8e1f-fd1430a495b8

Date Started: 08/07/2014 17:14:27



started (1)

completed (17)

TOTAL (18)

View Analysis

Delete Project

Run Progress

View Analysis

compute-1.amazonaws.com/analyses/ad6051b8-9c51-4f73-85a4-abf649d2/b9f

OpenStudio ▢ OpenStudioCore... ▢ Building Componen... ▢ NREL/OpenStudio ▢ Bugzilla Main Page ▢ Toodledo ▢ Evernote Web ▢ Pivotal Tracker ▢ Endomondo Challe... ▢ NREL Mail ▢ SU Ruby Doc ▢ Index of /d

Safe Search

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VAULT IS OPEN

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Home

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Admin

About

OpenStudio Cloud Management Console

Analysis Information

Name	Project	Type	Status	Start Time (UTC)	End Time (UTC)	Delta Time (s)	View
Simple Project Analysis	37bac106-9f49-427b-8e1f-fd1430a495b8	batch_run	started	00-07-2014 17:15:19			JSON Zip File

List of Measures (0) | List of Variables (0) | View Parallel Coordinates Plot | View Scatter Plot | View XY Plot | Interactive XY Plot | Download CSV | Download R Data Frame | Debug Log

Stop Analysis

Simulations (18)

All Completed Started Queued Initialized

All Simulations

View All

Name	Status	Status Message	Obj Func Total Site Energy (EUI)	Obj Func Total Life Cycle Cost	Start Time (UTC)	End Time (UTC)	Delta Time (s)	View	Action
New Design Alternative 1	started				00-07-2014 17:27:12			HTML JSON	Destroy
Xcel FDA Tariff Selection and Model Setup Alternative Only	completed	completed normal	17107.5	4131610.0	08-07-2014 17:16:07	08-07-2014 17:22:07	360.27	HTML JSON Zip File Bar Chart Radar Plot	Destroy
AEDG K12 - Interior Lighting Alternative Only	completed	completed normal	16045.3	0.0	08-07-2014 17:16:07	08-07-2014 17:23:37	449.66	HTML JSON Zip File Bar Chart Radar Plot	Destroy
AEDG K12 - Electric Equipment Alternative Only	completed	completed normal	16319.9	0.0	08-07-2014 17:16:07	08-07-2014 17:23:38	450.9	HTML JSON Zip File Bar Chart Radar Plot	Destroy

View and download results in different formats:

- List of Measures
- List of Variables
- View Parallel Coordinates Plot
- View Scatter Plot
- View XY Plot
- Interactive XY Plot
- Download CSV
- Download R Data Frame
- Debug Log

View and download individual results in different formats

Results — Standard

While your project is running on the cloud you can choose the design alternative and select “Download Detailed Results for Selected File” if you want more detailed data on some of the options.

Right click on a design alternative to view the EnergyPlus or OpenStudio Results.

This is the Standard View

Calibration View

PAT 0925 1336 Design Alternatives_FinishedCloudRun_75dp — ParametricAnalysisTool

File Preferences Online BCL Cloud Help

Create and View Reports

View: Standard Calibration

Design Alternative Name	Energy Use Intensity (kBtu/ft2-yr)	Peak Electric Demand (kW)	Electricity Consumption (kWh)	Natural Gas Consumption (Million Btu)	District Cooling Consumption (Million Btu)	District Heating Consumption (Million Btu)	First Year Capital Cost (\$)	Annual Utility Cost (\$)	Total LCC (\$)	
Baseline	161	215	807,169	1,269	0	0	2,907,000	69,878	4,262,421	
Design Alternative Name	Energy Use Intensity Reduction (kBtu/ft2-yr)	Peak Electric Demand Reduction (kW)	Electricity Savings (kWh)	Natural Gas Savings (Million Btu)	District Cooling Savings (Million Btu)	District Heating Savings (Million Btu)	First Year Capital Cost Increase (\$)	Annual Utility Cost Savings (\$)	Simple Payback (years)	Total LCC Savings (\$)
Set R-value of Insulation for Exterior Walls to a Specific Value R-17.5 Only	--	--	--	--	--	--	--	--	--	--
Set R-value of Insulation for Exterior Walls to a Specific Value R-20 Only	--	--	--	--	--	0	27,000 1%	845 1%	32	1,048,861 25%
Set R-value of Insulation for Roofs to a Specific Value R-30 Only	--	--	--	--	--	--	--	--	--	--
Set R-value of Insulation for Roofs to a Specific Value R-40 Only	0 0%	2 1%	2,886 0%	1 0%	0	0	25,000 1%	315 0%	79	973,511 23%
Set R-value of Insulation for Roofs to a Specific Value R-50 Only	--	--	--	--	--	--	--	--	--	--

Download Detailed Results for Selected File

Open File in the OpenStudio Application

dir

Detailed Reports:

EnergyPlus Results

Results | OpenStudio

Right click on design alternative name to open the reports for this alternative

Baseline results shown with the darker gray background

Select a row to enable the buttons along the bottom

Download detailed results of selected file

Opens selected file in OpenStudio application

Opens directory of files for this project. Open individual design alternative file directory.

Results — Calibration

To calibrate to the ASHRAE 14-2002 or FEMP standard the baseline model must contain all utility data for one year and real weather data. Check the guidelines for additional requirements.

By selecting the “Calibration” report you can compare the model and actual utility bills.

The report provides ASHRAE 14-2002 calibration standard and the FEMP calibration standard options.

This is the Standard View

Calibration View

PAT Calibration Screenshot — ParametricAnalysisTool

File Preferences Measures Cloud Help

Create and View Reports

View: Standard Calibration

ASHRAE 14-2002

NBME of 5% or less and CV(RSME) of 15% relative to monthly data. Must contain all utility data for one year and real weather data. Check the guideline for additional requirements.

Design Alternative Name	Electricity Consumption NMBE	Electricity Consumption CVMSE
Baseline	-6.02%	5.88%
Reduce Elec Equip Loads 5%	-0.27%	1.05%
Reduce Elec Equip Loads 7%	2.03%	2.18%
Reduce Elec Equip Loads 9%	4.34%	4.25%
Reduce Elec Equip Loads 11%	6.64%	

Open File in the OpenStudio Application

dir

Select a row to enable the buttons along the bottom

Create and View Reports

View: Standard Calibration

Design Alternative Name

Energy Use Peak Electric Electricity Natural Gas District Cooling District Heating First Year Annual Utility

dataPoint2

7-Null

Name	Date Modified	Size	Kind
7-Null	Aug 5, 2014, 4:42 PM		Foldo
8-UserScript-0	Aug 5, 2014, 4:42 PM		Foldo
9-ModelToldf-0	Aug 5, 2014, 4:42 PM		Foldo
10-ExpandObjects-0	Aug 5, 2014, 4:42 PM		Foldo
11-EnergyPlusPreProcess-0	Aug 5, 2014, 4:42 PM		Foldo
12-EnergyPlus-0	Aug 5, 2014, 4:42 PM		Foldo
13-UserScript-0	Aug 5, 2014, 4:42 PM		Foldo
14-OpenStudioPostProcess-0	Aug 5, 2014, 4:42 PM		Foldo

Macintosh HD Users mschott Document _test files mySchool2 dataPoint2

Opens selected file in OpenStudio application

Opens directory of files for this project

Results — Opening HTML Files from Directory

You can open htm report files in your browser. EnergyPlus and standard and calibration OpenStudio reports can be found by right clicking on a design alternative, on the Results tab, and selecting the results you want to view.

