

Insight 360 Getting Started Guide

Getting Started Exercises

[Insight 360](#) empowers architects and integrated teams with centralized access to performance data and advanced analysis engines. Through robust integration with [Revit](#) and [FormIt 360](#) and direct access to guidance and recommendations, architects can approach the design process with understanding of the elements that lead to better building performance outcomes throughout the building lifecycle.

In the following exercises you will access Insight 360 through FormIt 360 and Revit. You will also learn how to navigate the Insight 360 web interface and interact with a range of analysis results. Finally you will produce in context solar and lighting analysis results with Revit.

- **Exercise 1:** Generate Insight from FormIt 360 or Revit
- **Exercise 2:** Insight 360 interaction model and scenario comparisons
- **Exercise 3:** Analysis visualization within FormIt 360 and Revit

Be sure to check out the following resources for deeper dives into specific Insight 360 features.

- [Insight 360 Integrated Workflows](#)
- [Whole Building Energy Analysis](#)
- [Daylighting & Lighting Analysis](#)
- [Solar Radiation & PV Energy Generation](#)

If you have any questions, please post them on the [Insight 360 Community Forum](#) and the Insight 360 team will respond.

****Note about access****

Insight 360 is available as part of [FormIt 360 Pro](#). With FormIt 360 Pro, no additional downloads are needed. Insight 360 is also offered as a subscription benefit for Revit 2016 and above. Download the [Revit Insight 360 plugin here](#). If using Revit 2016, be sure you have [Revit 2016 R2](#).

Exercise 1 – Generate Insight

Whether designing in FormIt 360 or Revit, Insight 360 provides access to a range of potential design outcomes that can help identify key energy and cost drivers. For both design environments, location is the only required setting.

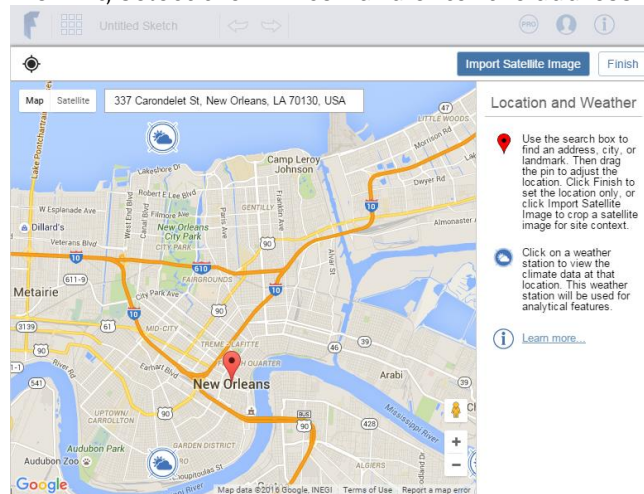
1. Start with a mass model in either FormIt 360 or Revit. If starting in Revit, you can also work with a schematic or detailed building element model. In both cases, you will be required to log in to your A360 account.



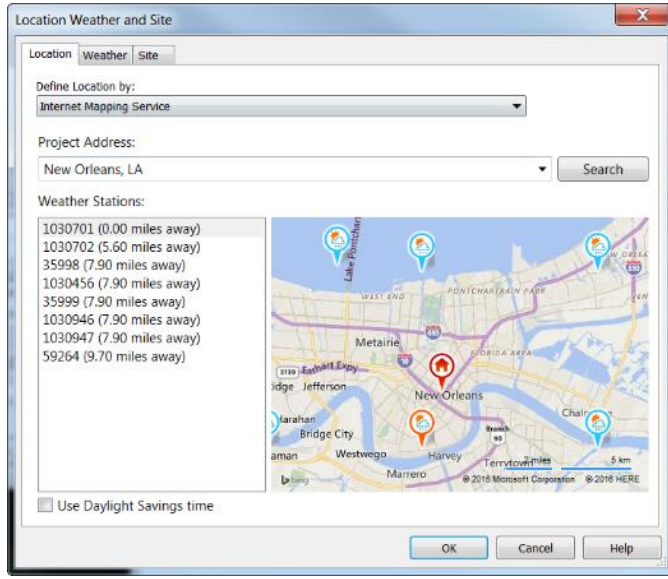
2. After opening the model and signing in, set the location for your project if not already set.

This step is required to use Insight 360. Setting the location will tell Insight 360 to run the analysis using the closest weather station. (You can also override this select a different weather station if appropriate).

- In FormIt, select the **Pin** icon and enter the address in the search bar.



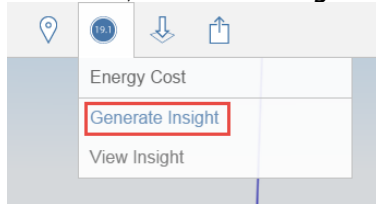
- In Revit this can be done by navigating to the **Manage** tab. Select **Location** and enter the address.



3. Select **Generate Insight** to submit the model geometry to Insight 360 for analysis.

Currently you will receive 2 emails from Insight 360. The first one will confirm that your model has been successfully submitted to Insight 360. The second will be received once the analysis is complete and you can access your Insights.

- In FormIt, **Generate Insight** is located under the **Energy Cost Dial**.



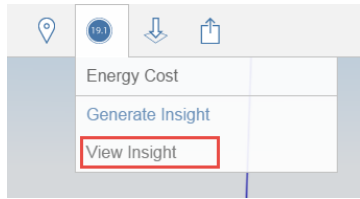
- In Revit, **Generate Insight** is part of the Insight 360 Revit plugin, which installs in the **Analyze** tab.



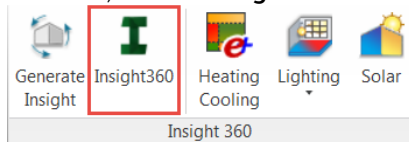
After the project has successfully been uploaded to Insight 360, you can continue to use FormIt or Revit, but be aware that any changes you make to the model will not be represented in Insight 360. Whatever the state your model is what will be analyzed when you select **Generate Insight**.

4. Once the analysis is complete, you can access the results.

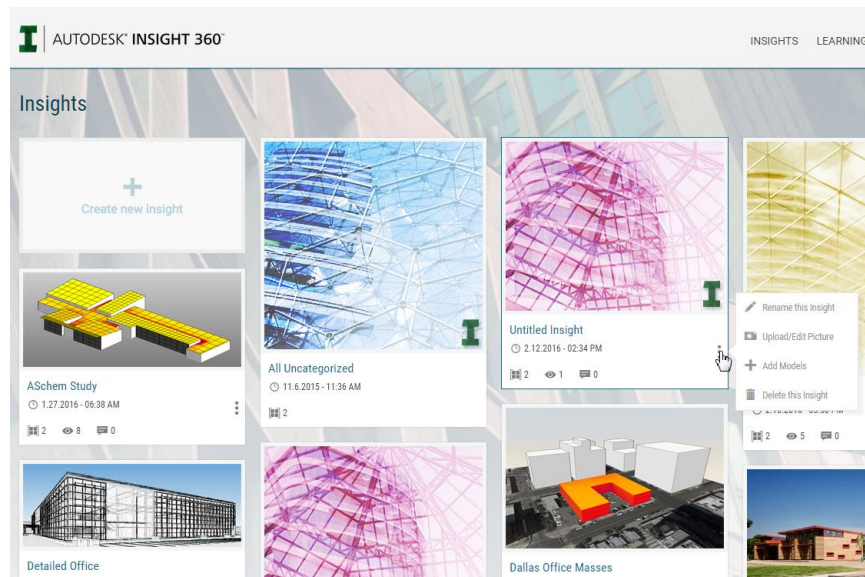
- In FormIt, select **View Insight** under the **Energy Cost Dial**.



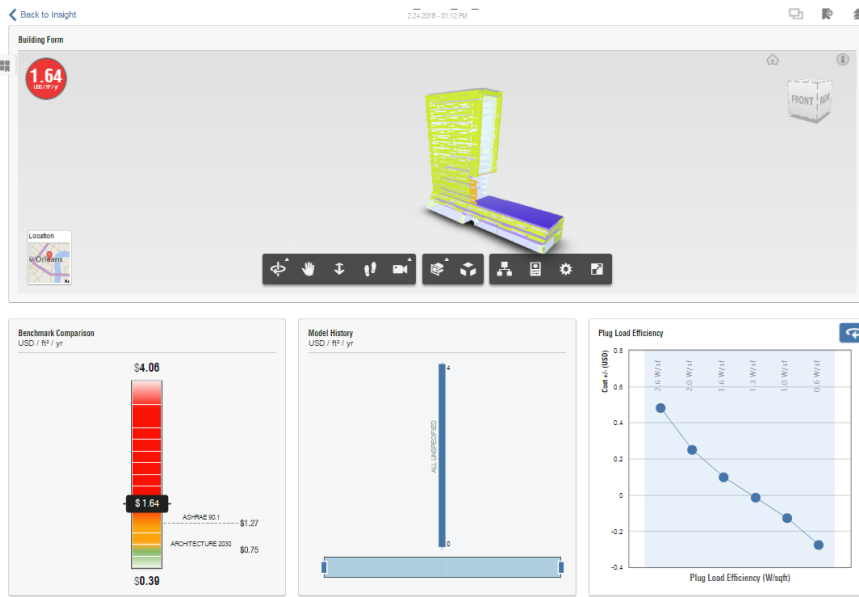
- In Revit, select **Insight 360** from the Insight 360 plugin panel.



- Alternatively, you can log in to insight360.autodesk.com and select **INSIGHTS**. Logging in to the website does not require you have FormIt or Revit open. If you are logging into the website, you will have to navigate to your project. New projects will always land in the **All Uncategorized** Insight. You can categorize your Insights by selecting **Create new insight** then adding models you wish to compare. Rename your Insight and update the cover image to help categorize your outcomes.



5. Once accessing your Insight, you are ready to start exploring and comparing design scenarios.



6. Follow steps 1-3 for other mass model so you can compare mass forms within Insight in the next exercise.

****Note about model completeness****

More about best modeling practices with [FormIt](#) and [Revit](#) at the links.

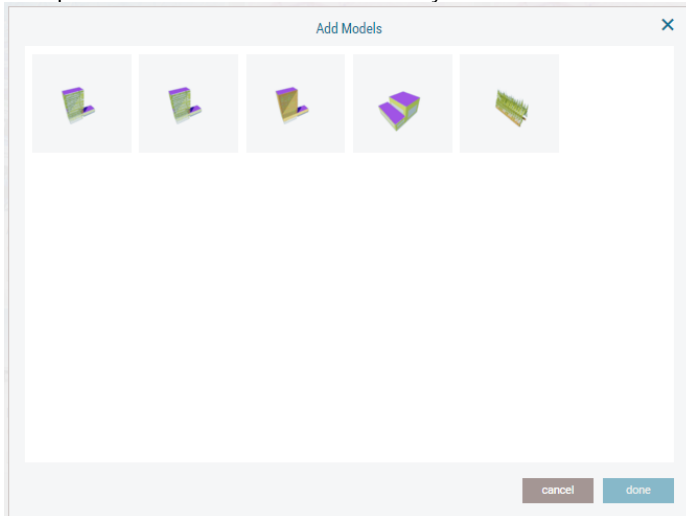
Exercise 2 – Interacting with Insight 360

Once you've generated an Insight, you can change design settings, compare different design scenarios and visualize performance in the Insight 360 web browser.

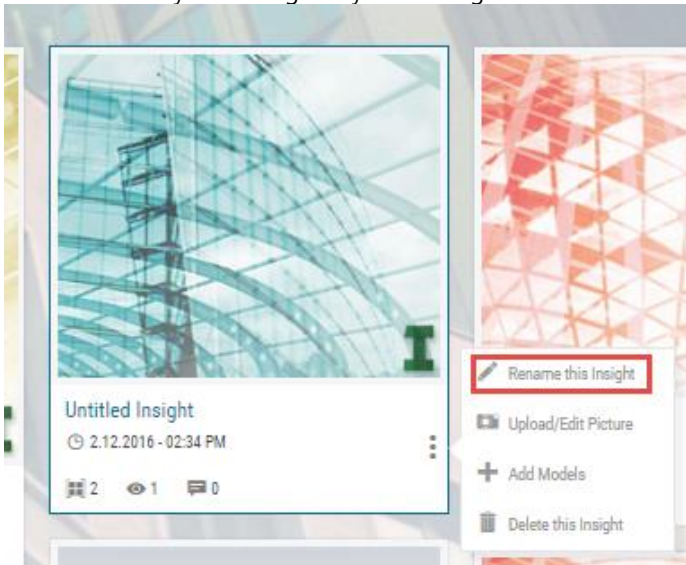
1. Access **insight360.autodesk.com** and log in with your A360 account information. Next select **Insights**.

Note that Chrome, Firefox, or Safari are the recommended browsers.

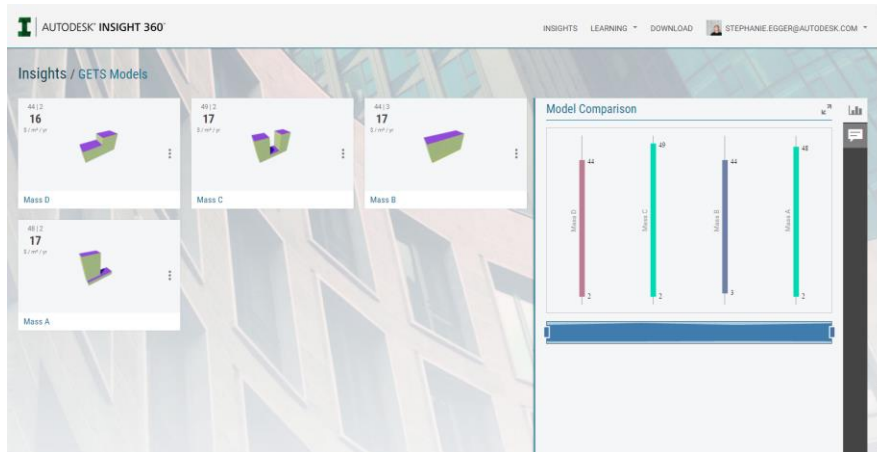
2. Select **Create new insight**. This will allow you to select submitted from FormIt or Revit to compare. Select the mass models you submitted and select **Done**.



3. Next rename your Insight by selecting the three dots on the right hand side of the tile.



4. Open the Insight by selecting the tile. You will see an overview of the models you can compare.



The bar chart on the right shows the potential energy cost range for each model—making comparison across different mass forms easy. The right panel also contains options for commenting, sharing, and controlling units, metric comparisons, and factor sorting.

The screenshot shows the 'Settings' panel in Autodesk Insight 360. The panel is titled 'Settings' and contains three sections of settings. The first section is 'What default units would you like?' with two radio buttons: 'Imperial' and 'Metric'. The 'Metric' radio button is selected. The second section is 'What roll-up would you like?' with two radio buttons: 'Annual Cost(\$)' and 'Energy Use Intensity(EUI)'. The 'Annual Cost(\$)' radio button is selected. The third section is 'Do you want Model widgets to sort by importance?' with two radio buttons: 'Yes' and 'No'. The 'No' radio button is selected. There is an 'Apply' button at the bottom right of the panel.

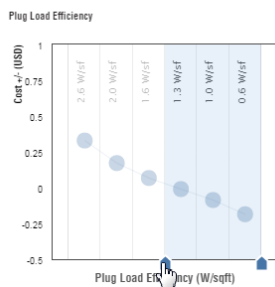
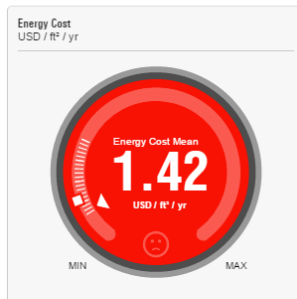
5. Select the one of the models. Next you will see the energy model that was created from your geometry in addition to a range of factors that impact the building's energy cost and performance.



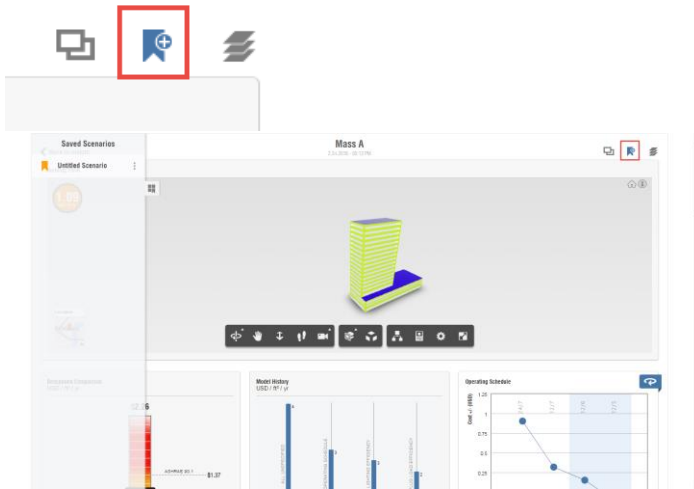
- A. The *Large Model Viewer* (LMV) shows the energy model submitted to Insight, as well as the Energy Cost Range (ECR), EUI (click on the ECR dial to toggle between cost and EUI), and the location specified.
- B. The *Benchmark Comparison* shows how your design's current performance stacks up against industry benchmarks such as ASHRAE 90.1 and Architecture 2030.
- C. The *Model History* tracks all changes made to your model and impact.
- D. The *Factors* allow you to quickly visualize the impact of different design decisions for key drivers of performance. Factors are ordered from greatest to least impact. You can also override this in the Settings dialog.

6. Set a range or value for *Operating Schedule*, *Lighting Efficiency*, and *Plug Load Efficiency*.

Editing: Plug Load Efficiency



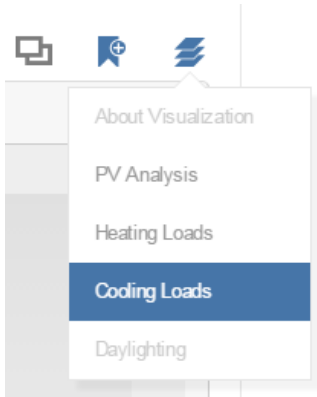
- Save this scenario by selecting the bookmark icon in the top right. Name this scenario *Baseline*. Now if you change any of the factors, selecting *Baseline* will set your dashboard back to this state.



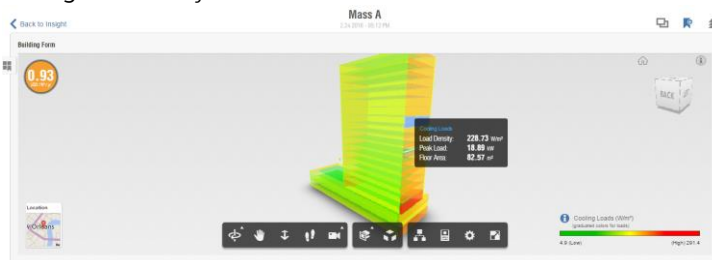
- Edit the WWR factors and save a few scenarios based on your options. Continue setting factor ranges and save scenarios to track comparisons.
- After editing some factors and saving the scenarios, select **Scenario Compare** in the top right. All of the scenarios you have saved will appear in a side by side comparison. Hover over the bars to see the savings.



- In addition to interaction with the ECR, you can also visualize heating and cooling loads with Insight 360. In the top right, drop down the **Visualize** menu and select **Cooling Loads**.

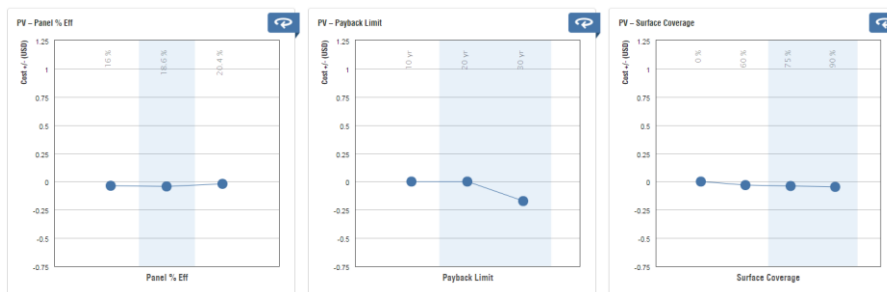


You will now see the cooling loads for individual building spaces. You can click on any space and see the actual values. *These values are calculated using EnergyPlus.* They also will update change with any of the factors.



Use the Explode command in the LMV to expand the model and thermal zoning.

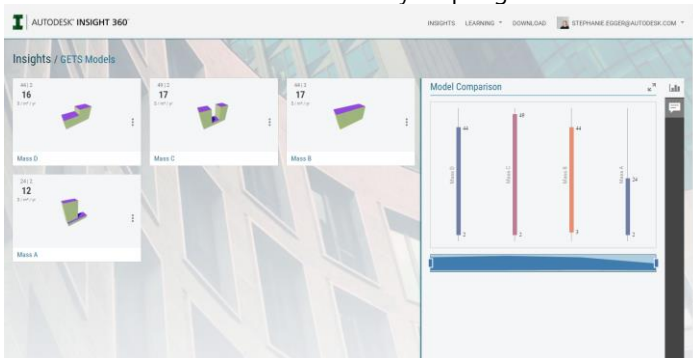
- Included in the Insight 360 factors are 3 PV factors. These control panel efficiency, payback limit, and % roof surface coverage. These factors are also dynamic and dependent upon each other.



Select **PV analysis** from the **Visualization** menu and whatever settings you set for the PV widgets will be represented in the PV analysis results.



12. Select **Back to Insight** in the top left. You can continue to set ranges and save scenarios for other mass models you've submitted to Insight 360. This screen will allow you to compare across different mass forms as you progress.



Exercise 3 – Analysis Visualization

Parallel to working with the ECR dashboard, Insight 360 also supports visualizing in context analysis data that can help drive energy and cost efficient design decisions.

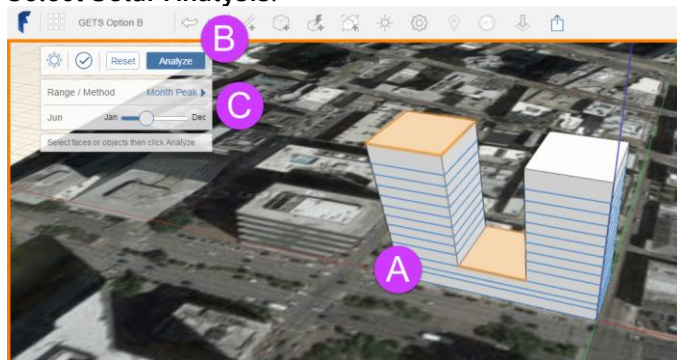
Part 1: FormIt 360 Pro Solar Analysis

1. Open one of the mass models in FormIt 360 and login to enable the Pro features.
2. For new projects, make sure that your location is set.
3. Select the **Sun and Shadows** icon.



Here you have the ability to turn shadows on/off and set the date and time at which to visualize shadows for your model.

4. Select **Solar Analysis**.



- A. Select the surfaces on which you wish to see solar radiation results.
- B. Select **Analyze** to visualize the results. **Reset** will clear all selections. The ✓ will close the Solar Analysis view.
- C. Set the **Range** to *Monthly Peak* or *Year Cumulative*. For *Monthly Peak* you can use the slider to set your time of year.



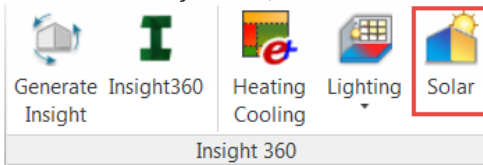
Hover over the model to get precise values.

5. When you are done exploring results, select the checkmark to close the solar analysis view.

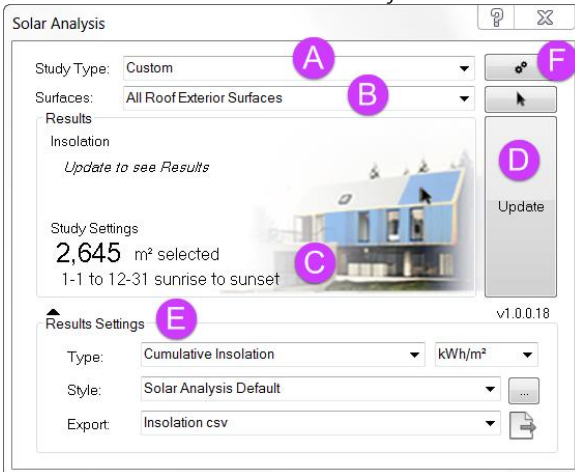
Part 2: Solar Analysis with Revit

Both FormIt and Revit use the same calculations to produce solar analysis results. While FormIt is powerful for informing early design decisions, Revit workflows allow you to represent more detail and customize more input and output information.

1. Open a model in Revit.
2. For new projects, make sure that your location is set.
3. From the Analyze tab, select **Solar** from within the Insight 360 panel.

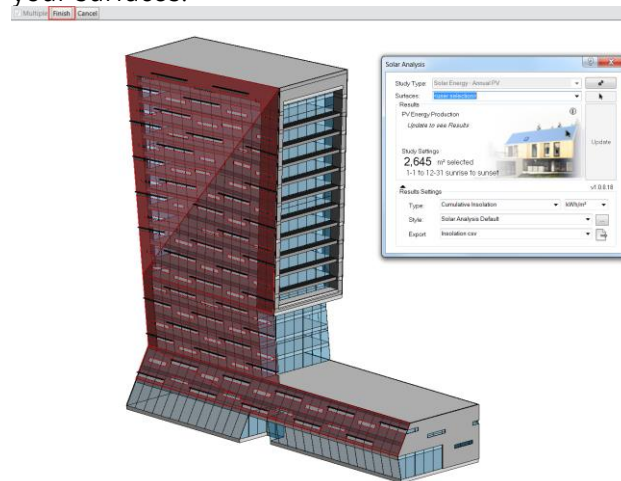


4. The *Solar Analysis* dialog will appear and allow you to select the type of study you would like to conduct as well as how you would like to visualize your results.



- A. *Study Type* allows you to select an analysis. *Solar Energy–Annual PV* will automate sun settings for a full range for annual cumulative insolation and PV energy results. *Custom* will allow you to specify your date and time ranges as well as control result types.
- B. *Surfaces* are the surfaces on which analysis results will appear. Preset surface selections exist for both mass and building element models. Alternatively you can select your own surfaces. If you select **<user selection>**, Revit will prompt you with

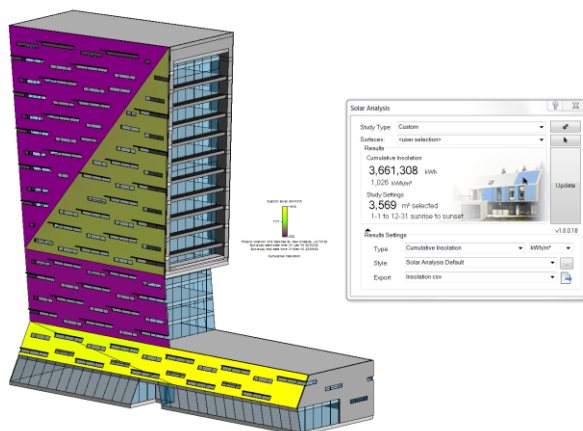
information about material assumptions. Select **Finish** in the top left after selecting your surfaces.



- C. *Study Settings* describes the surface area selected for the study as well as the date and time range. Surface area is calculated from the surfaces you have selected. The date and time range is taken from the *Sun Settings* the 3D view you are currently in. To change it, select **Sun Settings**.



- D. Select **Update** to run the analysis using the settings you have enabled. Results will appear on your model.



In addition to the visual results on your model, a summary will also update in the *Solar Analysis* dialog.

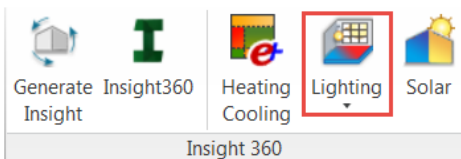
- E. *Results Settings* allow you to change analysis type, units, visualization style, as well as export results to a .csv.
- F. If you are conducting a *Solar Energy–Annual PV* study, you can open the *Study Settings* to edit inputs related to PV energy offsets to make your results more representative. For more guidance on how to control these settings [see this AU Handout](#).

- When you are done, you can close the *Solar Analysis* dialog, and results will still appear on your model. To turn them off, you can remove them from the *Analysis Display Settings* or just select the analysis results in the model and delete them.

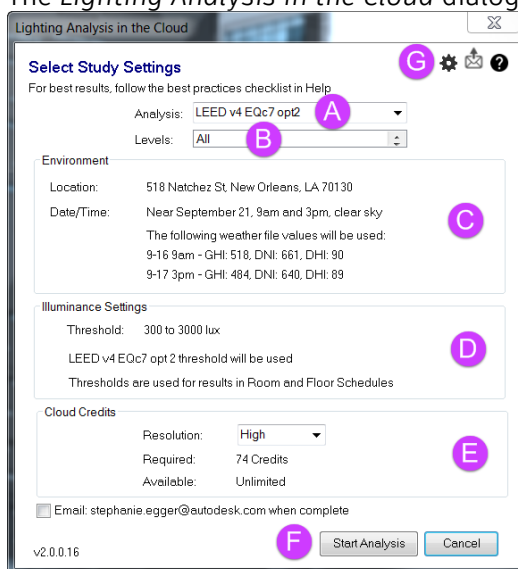
Note that solar analysis results do not save with your Revit file, so you will be required to “Update” them each time you open your project. We suggest you set up 3D views with the desirable Sun Settings so you can quickly regenerate these results as needed.

Part 3: Daylighting and Lighting Analysis with Revit

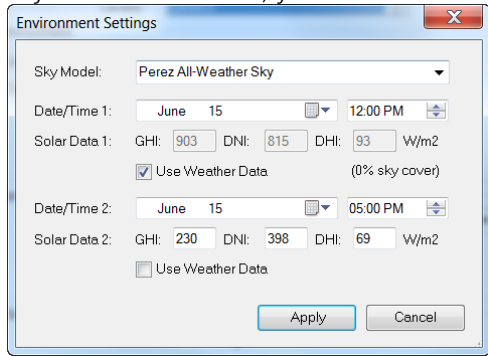
- Open a building element model in Revit. Note that for lighting analysis studies you must use a building element Revit model. *A conceptual mass model will not work.*
- For new projects, make sure that your location is set.
- From the **Analyze** tab, select **Lighting** > **New** from within the Insight 360 panel.



- The first dialog that appears provides resources and best practices for conducting a lighting analysis study. These best practices are not required, but will help you achieve more representative results. Select **Continue**.
- The *Lighting Analysis in the Cloud* dialog box will allow you to control your study settings.

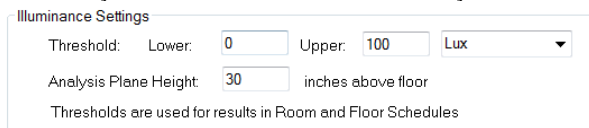


- A. *Analysis* allows you to select between different study types including *LEED v4 EQc7 opt2*, *LEED 2009 IEQc8.1*, and *Custom*. For the LEED study types, environment and illuminance settings will be automated based on the LEED requirements..
- B. Select which *Levels* you would like to visualize results for.
- C. The *Environment* settings are automatically populated for LEED analysis types, however if you select *Custom*, you have the ability set your own study date and time.

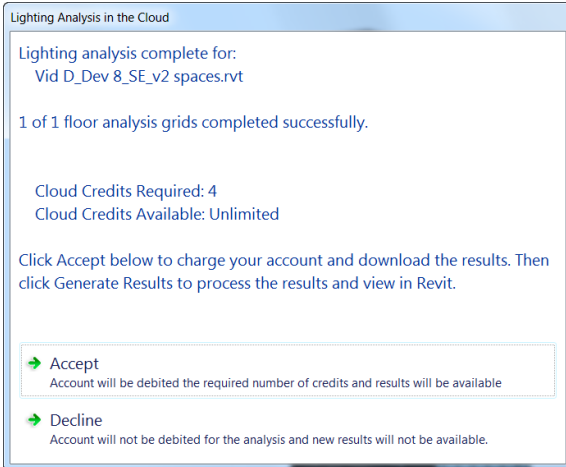


Customized options include Sky Model and two date and time selections. By default irradiance values will automatically populate from your weather file for selected date and time, however you can uncheck *Use Weather Data* and enter your own values.

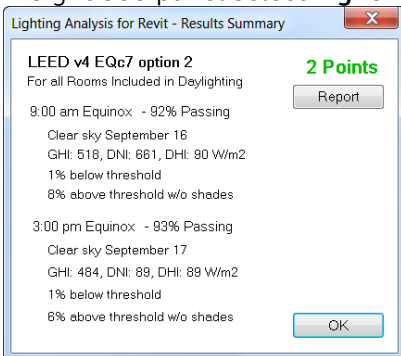
- D. *Illuminance Settings* are also automatically populated based on LEED criteria, but can be manually controlled for *Custom* analyses.



- E. *Resolution* includes Low (6 foot grid) and High (1 foot grid) and also drives cloud credit costs.
 - F. Select **Start Analysis** to begin the simulation. Cloud credits will not be charged until the analysis is complete.
6. After selecting **Start Analysis** the Revit model will be uploaded to the cloud rendering engine. Do not close the project or Revit during this process. Once the model is successfully uploaded to the cloud, it is okay to close the project or continue working in Revit.
 7. Revit will notify you once the results are ready. **Accept** or **Decline** the cloud credit charges at this point.

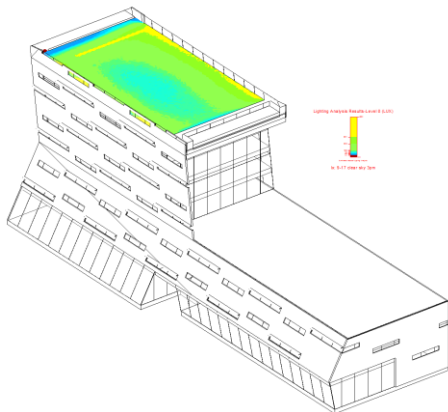


- Open the **_Lighting Analysis Model View** under 3D Views. Note that any “_Lighting ...” views are automatically created to easily access results in plan, 3D, and as a schedule. From the Insight 360 panel select **Lighting** > **Lighting** to populate results in your active 3D view.



You'll be prompted with a dialog box that lets you know whether your simulation meets LEED criteria (or your threshold criteria you specified in *Custom* analysis).

- Use the Section Box to view the results in 3D or open the corresponding “_Lighting” floor plan.





- Open **_Lighting Analysis Room Schedule**. In this model, we did not defined the interior layout yet, so each level is one room. However, if you were to define interior walls and rooms, those rooms would be populated here.

<_Lighting Analysis Room Schedule>

LEED v4 EQc7 opt2Whole Building Results - 9am: 92% within, 3pm: 93% within

9-16 9am GHI: 518, DNI: 661, DHI: 90 W/m2

9-17 3pm GHI: 484, DNI: 89, DHI: 89 W/m2

A	B	C	D	E	F	G	H	9am threshold results			3pm threshold results			R	
								I	J	K	L	M	N		O
Level	Name	Number	Area	Include in Daylighting	Automated Shades	within threshold %	above threshold %	Area	within threshold %	above threshold %	Area	within threshold %	above threshold %	Area	
Level 1	Room	1	26884 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 2	Room	2	26408 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 3	Room	3	24745 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 4	Room	4	3700 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 5	Room	5	3700 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 6	Room	6	3700 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 7	Room	7	3700 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 8	Room	8	3700 SF	☑	☑	92	8883 SF	0	744 SF	1	73 SF	93	9008 SF	0	666 SF
Level 9	Room	9	3615 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 10	Room	10	3384 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 11	Room	11	3304 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 12	Room	12	3072 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 13	Room	13	3096 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 14	Room	14	3067 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 15	Room	15	3072 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 16	Room	16	3079 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 17	Room	17	3154 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 18	Room	18	3178 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF
Level 19	Room	19	3534 SF	☑	☑	0	0 SF	0	0 SF	0	0 SF	0	0 SF	0	0 SF

Any changes made in the schedule do not require you re-run the analysis. Simply select **Lighting > Lighting** again to regenerate results considering the information updated in the schedule.

- Lighting analysis results save with your Revit model. Save, and the next time you open this model select **Lighting > Lighting** and results from your last simulation with generate.

For more advanced lighting analysis workflows such as how to include electric lighting and controlling material settings visit [these resources](#).