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Inviting FormIt 360 to the Revit Party!

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Learning Objectives

- Understand the mobility and functions of FormIt 360.
- Learn how to use FormIt 360 to create basic building design and apply Revit materials.
- Learn how to import FormIt 360 models seamlessly into Revit.
- Learn how to use FormIt 360 software's Energy Analysis tools and other BIM applications.

Description

FormIt 360 software is a fairly new player to the Autodesk, Inc., field. FormIt 360 is a powerful design-visualization and simulation software that parties nicely with Revit software. Its mobile application and cloud storage make it easy for users to modify designs, whether they're in the office or on the go. In this session, we will show you how to develop and use a FormIt 360 model for analysis. We will discover how FormIt 360 building models interact with Revit software and its materials. FormIt 360 software's applications within the Building Information Modeling (BIM) realm, along with its built-in energy analysis functions, are sure to become much-used design tools. And maybe, just maybe, we'll win over some other "sketchy" application users! You'll want to RSVP to this design party! This session features FormIt 360 and Revit.

Your AU Expert

Kimberly Fuhrman, LEED AP BD+C, has over 20 years of experience with Autodesk products in both civil and architectural fields. Kimberly is the BIM Manager at LSC Design, Inc., in York, Pennsylvania. She serves on the Architectural Advisory Committees for several technical colleges, and on the Market Leadership Advisory Board for the USGBC-Central Pennsylvania Community. She is a Revit Architecture Certified Professional, an Expert Elite member, Revit Inside the Factory Insider (formerly Gunslinger), and the Revit Structure Content Manager for [AUGI World](#). She was a speaker at Autodesk University 2015. In her spare time, Kimberly is a regular contributor to the [cadpanacea.com](#) blog.

A Look at Design Process

Identifying the Problem

We all know that Revit is a fantastic design tool! But, it is so easy to become immersed in the modeling power that Revit possesses. We can begin designing in Revit, and before we know it, we have a fairly detailed building design, ready for rendering. And in some cases, there is no problem with that. Models in early design are often created for looks – to impress a potential client, community or benefactor. Once the projects move beyond schematic design, those models are often discarded and started over for construction documentation. There are other software programs out there for design, but it's the integration with Revit that has always been a struggle. Designers need a solution that can accommodate mobility and work seamlessly with Revit.

Introducing FormIt 360

FormIt 360 is a web-based mobile or desktop application that provides many of the same features as other design programs and plays nicely with Revit. **FormIt 360 for Web** is a free version that is accessible via an online web application. Also available as mobile apps are **FormIt 360 for iPad** and **FormIt 360 for Android**.



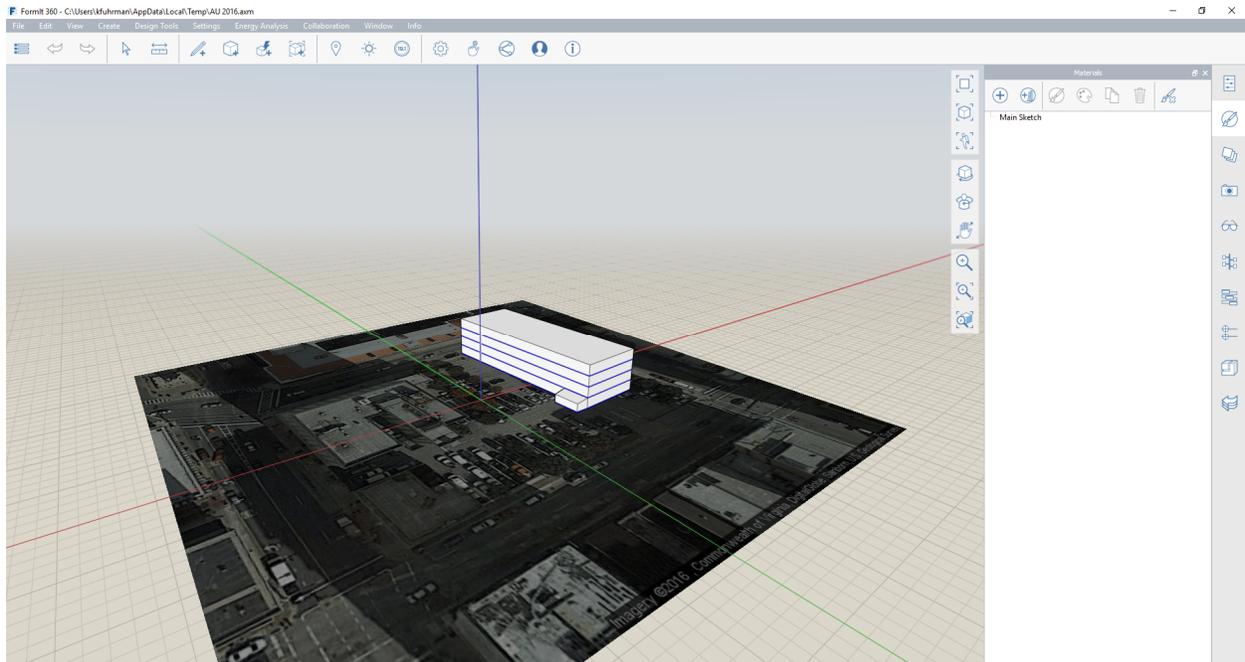
formit360.autodesk.com

FormIt 360 for Windows is a downloadable application that installs like every other Autodesk application.

FormIt 360 Pro is an affordable paid version of the web or desktop app that includes additional features such as energy analysis with Insight 360, real-time project collaboration, and the Autodesk Material Library. FormIt 360 Pro is now a part of the [AEC Industry Collection](#).

All versions work with A360 Drive so you can access projects anywhere.

For this session, we will be using **FormIt 360 Pro for Windows**. There are quite a few Autodesk University sessions, videos and blog posts that delve deep into how to use FormIt (I've listed a few at the end of this document). I'll just give you some of the basics so that we can jump to the interaction between FormIt and Revit.



FORMIT 360 FOR WINDOWS

The User Interface

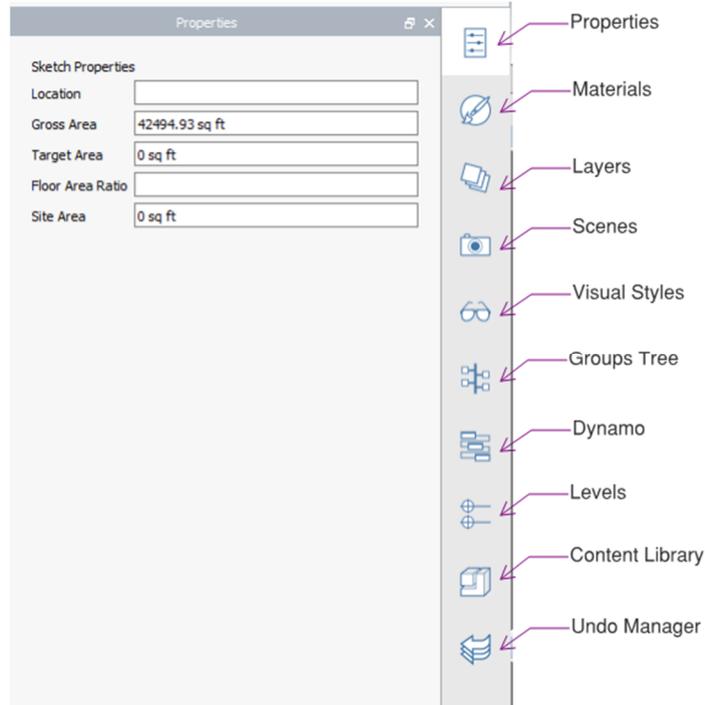
Action Bar



This may sound like a beverage station at AU, but no. It is where many of the action tools reside within FormIt 360. The Action Bar ribbon (located at the top of the drawing window) includes project file commands, basic modeling tools, location information, and in the Pro version, the energy analysis and collaboration tools. You need to be signed in to your A360 account, and have purchased the Pro license to use the energy analysis (Insight 360) and collaboration tools.

Palette Bar

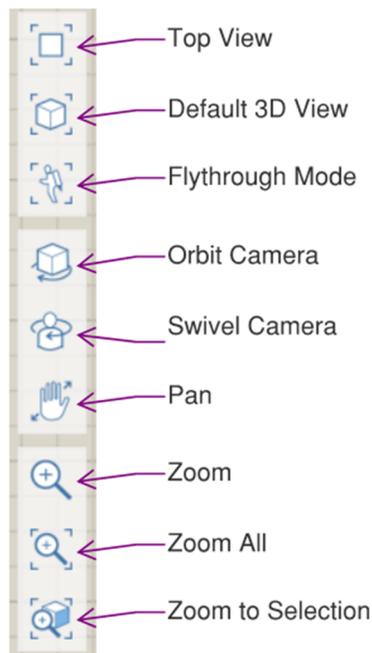
Again, not a beverage station, but a collection of tools to help enhance your model. The tools listed below provide physical and graphical information for the FormIt 360 model. New to FormIt 360 are the Dynamo and Undo Manager tools.



The Properties window reflects the properties of objects selected or, if no objects are selected, the general scene Properties.

Navigation Tools

The Navigation Tools in FormIt 360 are located within the drawing scene window and are similar to most design programs.

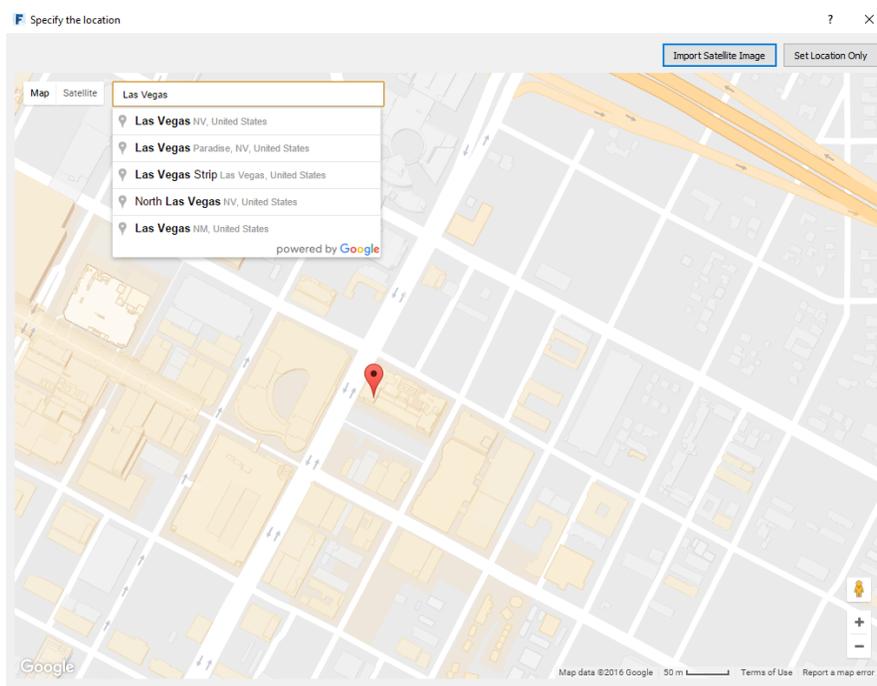


Right-clicking and dragging around the model initiates the default Orbit Camera. This would be similar to moving around the object. To initiate the Swivel Camera, hold Ctrl + right-click and drag. Think of looking through binoculars as the camera swivels. Select Pan from the Navigation menu to left-click and drag the viewing window.

Getting Started

Location

Typically when a building design starts, a location for that building has already been selected. To set the location in the FormIt 360 project, click on the Location button  located on the Action Bar. This will open a Location dialog where you can search for a specific address or general locale. You then have the option to **Import a Satellite Image** of the site, or simply **Set Location Only**. Location settings are important for generating accurate energy and solar analysis results.

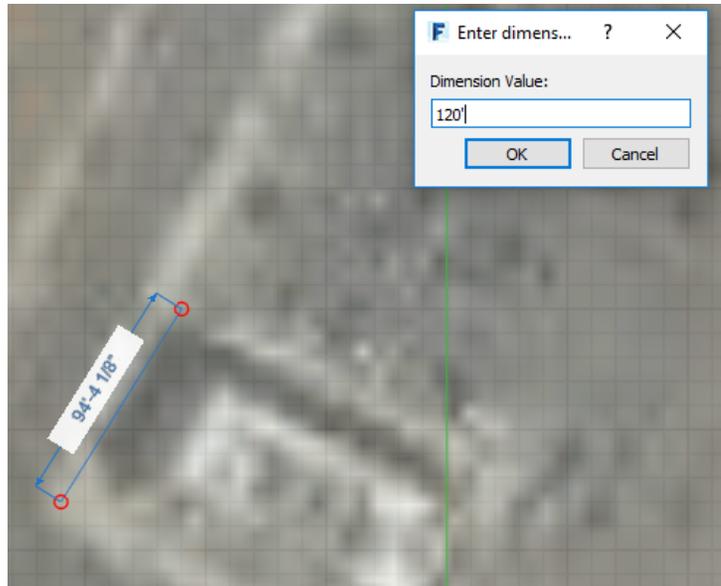


SPECIFY THE LOCATION IN FORMIT 360

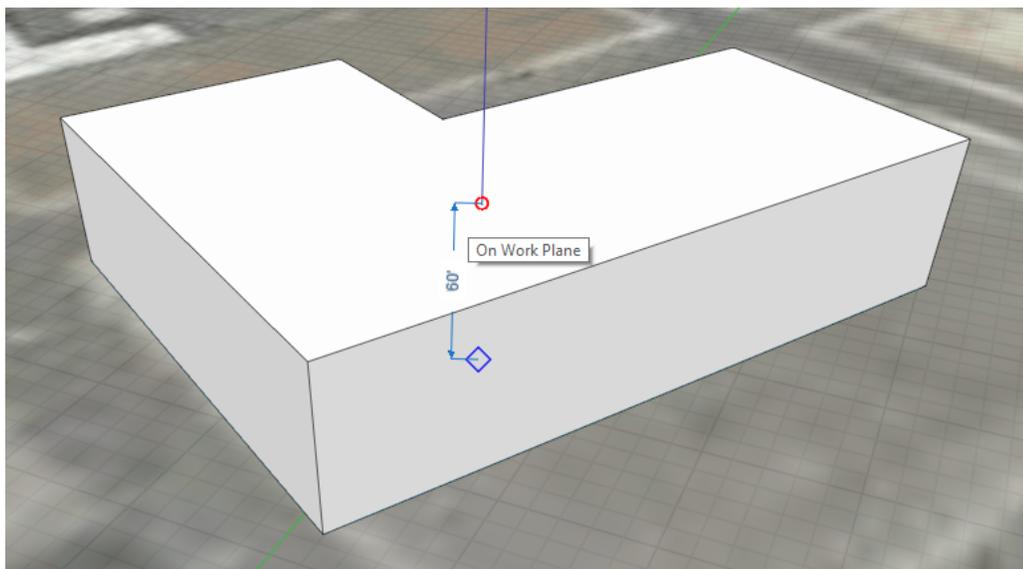
With or without the location map image, the next step is to create the building form using the massing tools. To sketch an outline in plan view, use the sketch tools to create a building outline.



Click to select the first point, and click to select the next point. To set a specific dimension, move the cursor, hit the Tab key, and enter the value in the dialog box.

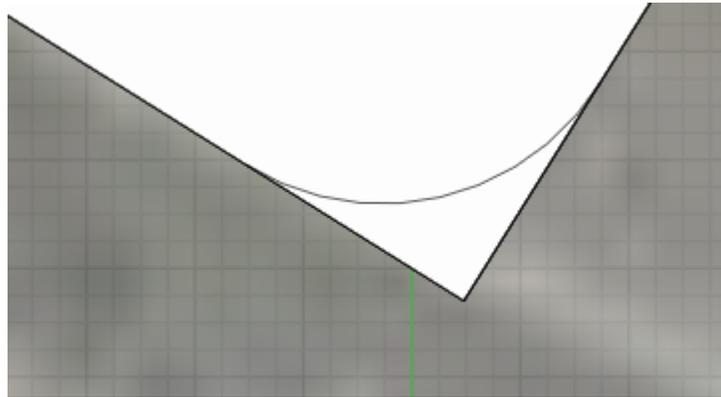


A closed outline creates a “face”, which can then be extruded. Click on the face to select it, then click again and drag upward to extrude, creating a 3D solid. It’s easiest to do this in the default 3D view.

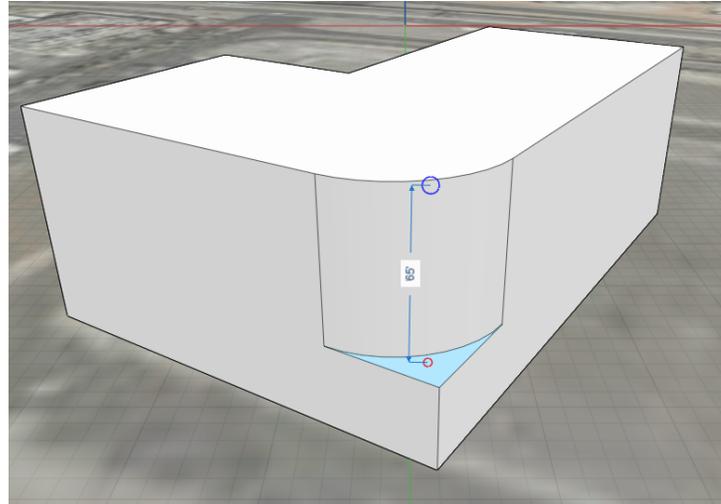




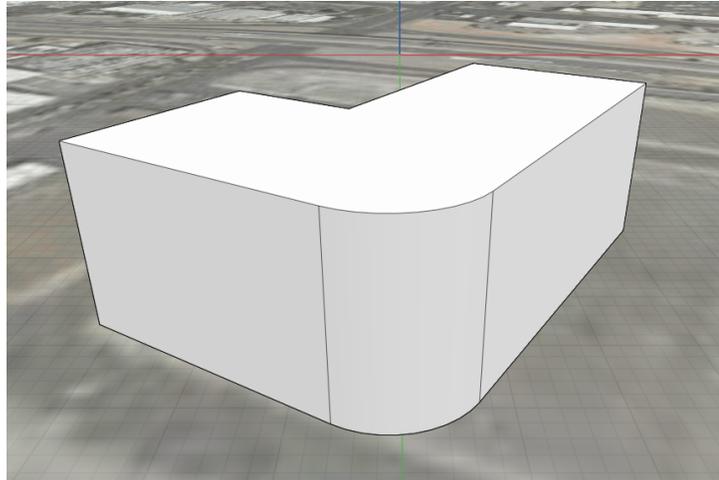
FormIt 360 editing is a “push-pull” method. Clicking on any vertex, edge, or face and then clicking and dragging will push or pull that feature, changing the size and shape of the object. It is also possible to sketch a shape on a face, then push-pull drag to cut out the shape from the model.



DRAW SHAPE ON FACE



CLICK AND DRAG TO BOTTOM TO REMOVE



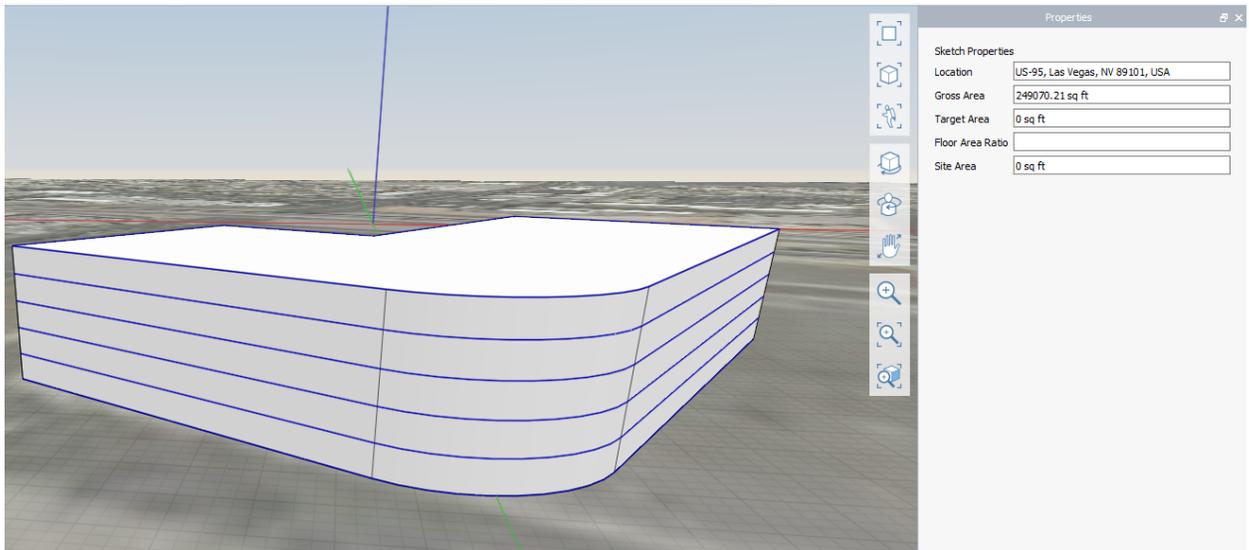
COMPLETED SHAPE

Levels

FormIt 360's levels will translate directly into Revit. To apply levels, click on the Levels button on the Palette Bar.

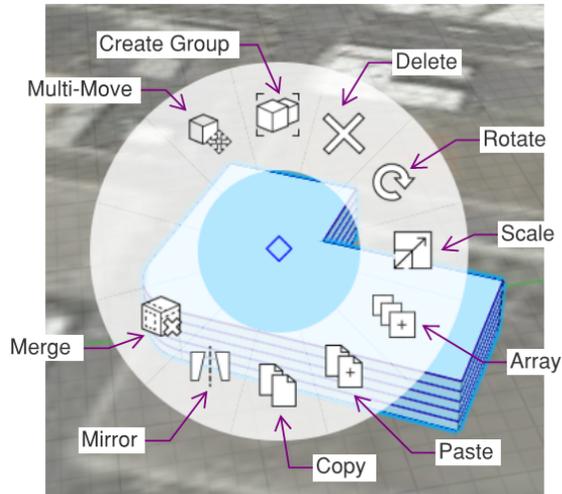


Click the plus sign to add a single level, or the double plus button to add multiple levels as required. After creating levels, double click the building model to select it. Switch to the Properties tab on the Palette bar and click the button to "Use Levels"



Groups

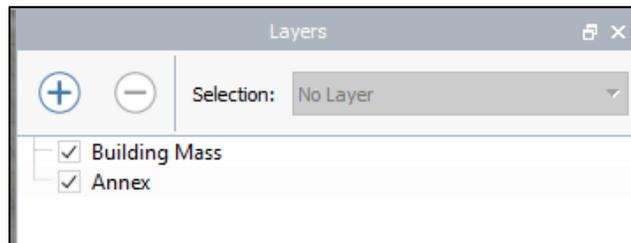
While Groups in Revit can be temperamental, Groups in FormIt 360 can save some frustration. Any time you create a new mass object adjacent to another mass object, those objects automatically join. If you need to keep the mass objects separate, double-click the objects, right-click to pull up a contextual menu, and then click "Group".



RIGHT-CLICK CONTEXTUAL MENU WITH OBJECT SELECTED

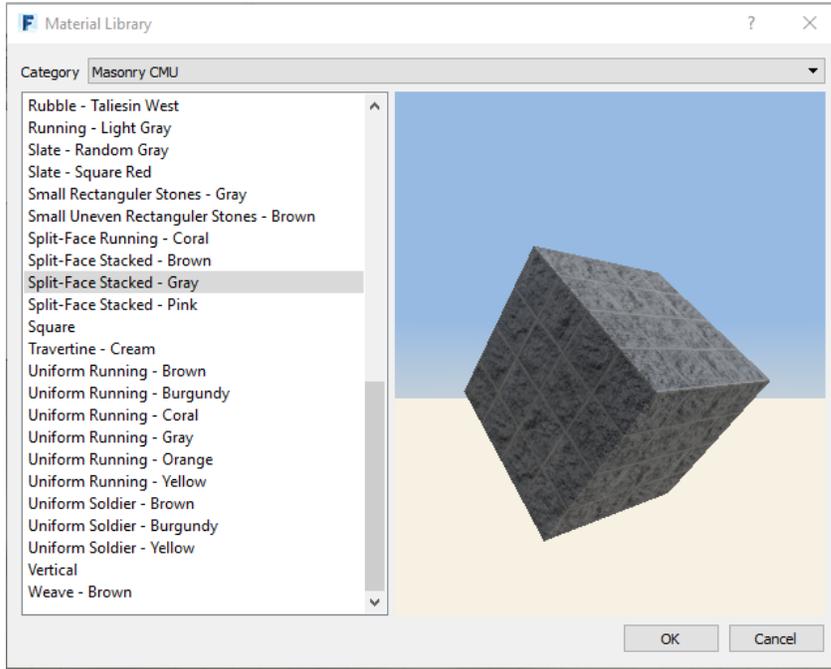
Layers

Similar to Layers in AutoCAD, Layers in FormIt help to control visibility of objects. The method of creating Layers is the same as creating Levels...click on the Layers button on the Palette bar. Create and name layers (note: there are no other properties associated with the layers, such as color or line type). To turn off a layer, simply un-check the box next to the layer name.



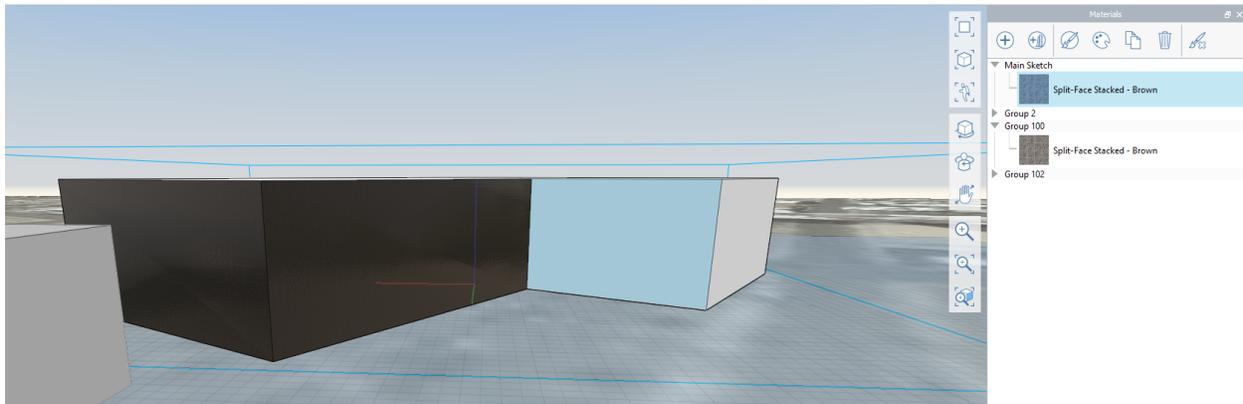
Materials

Materials can be created using your own bitmap files, or if you are on the Pro Subscription, can be added from the Autodesk Material Library. Click on the Materials button on the Palette bar, then click to Create Material or Import Material from Library.



AUTODESK MATERIAL LIBRARY

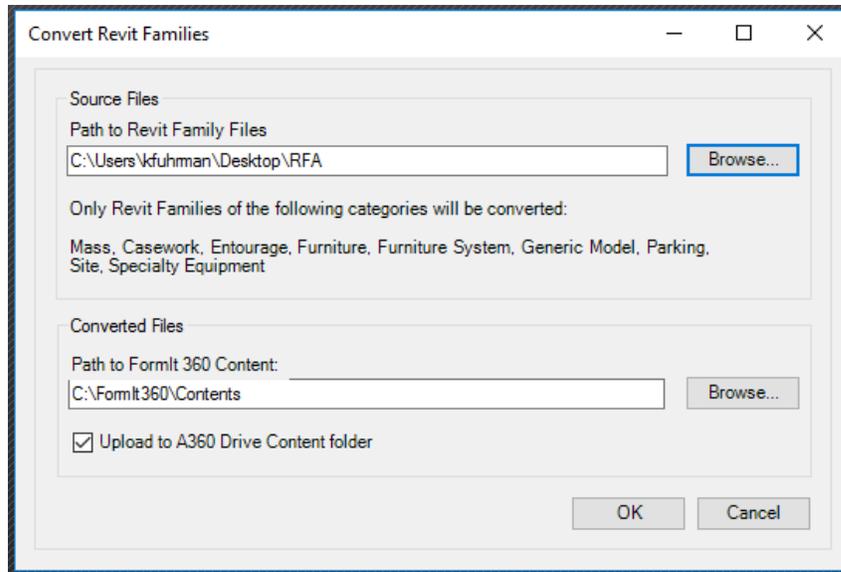
Materials can be added to Groups as a whole, or to individual faces. To apply a material to a face, click the name of the material, then click the paint brush and finally click the faces to apply the material.



APPLY MATERIAL TO FACES

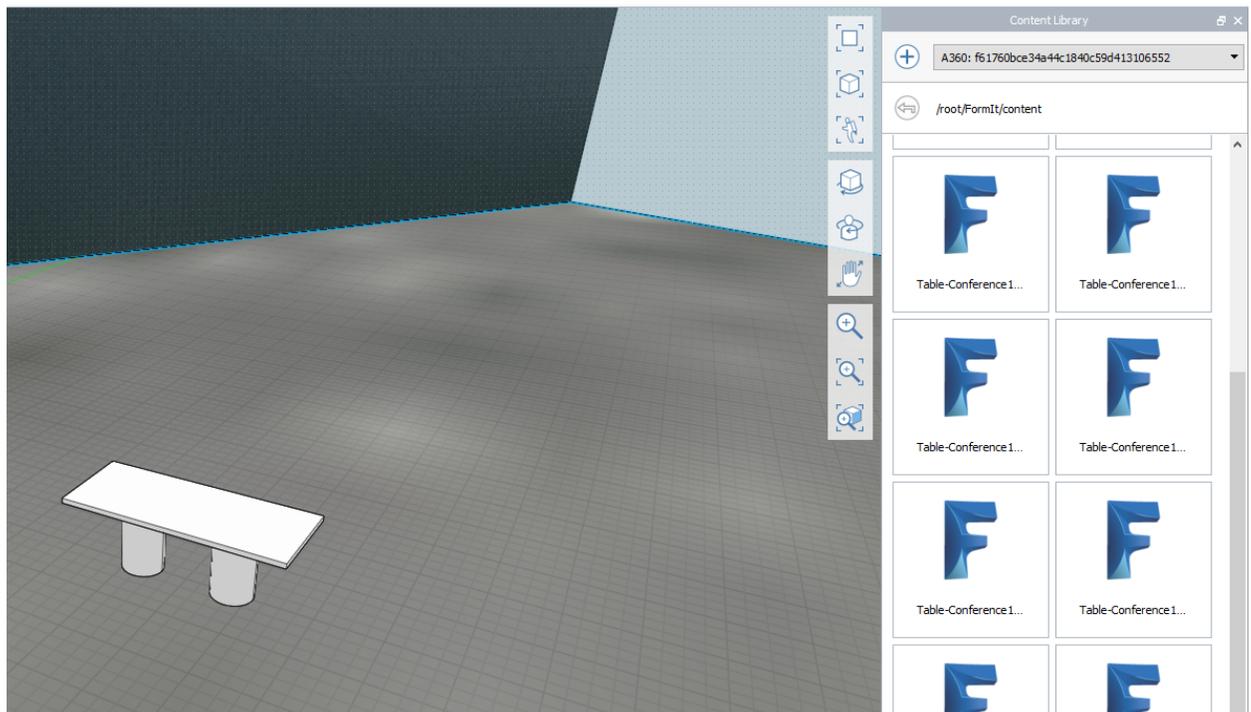
FormIt 360 Converter

Certain family types can be exported from Revit and imported into FormIt 360 using the FormIt Converter add-in in Revit. These include Casework, Entourage, Furniture, Furniture Systems, Generic Models, Parking, Site, Specialty Equipment and Mass objects. The converter will select RFA objects from an entire folder, so it is best to create a separate folder for those objects you wish to convert. Revit Families with different “Family Types” will be exported as separate content files.



FORMIT 360 CONVERTER DIALOG

Back in FormIt 360, use the Content button on the Palette bar to access content from either the local library you created, or from A360. Click on content from the palette, and left-click to place the content into the scene.



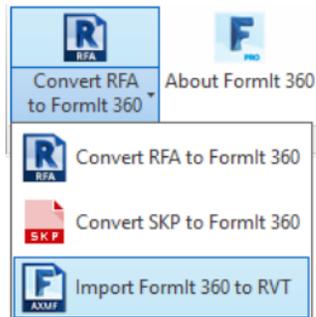
Refer to Autodesk's help page for detailed information regarding converting other file formats to FormIt 360:

<http://help.autodesk.com/view/FORMIT/ENU/?guid=GUID-61C0A431-28F2-47F3-B225-92398859DC5A>

Importing FormIt 360 Models in Revit

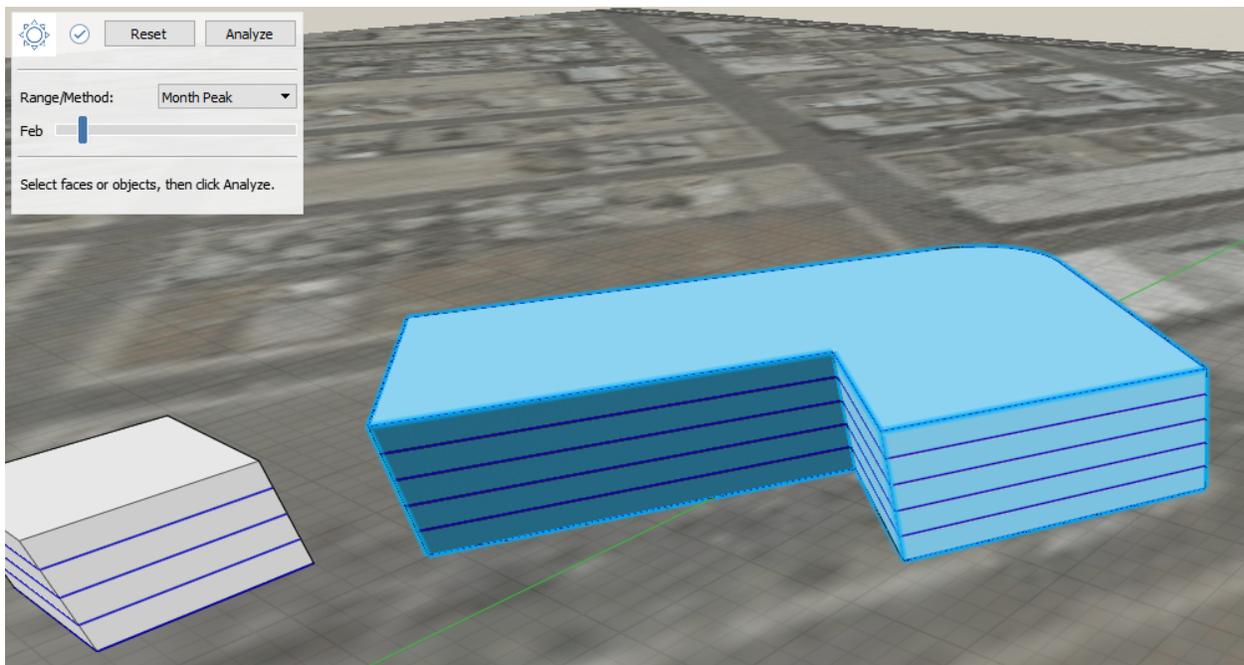
There are two ways to import models from FormIt 360 to Revit. The first is by saving the FormIt 360 model to A360 Drive. Saving to A360 Drive automatically creates a FormIt 360 (.axm) file AND a Revit (.rvt) file. Download and open the Revit file directly.

If you do not save to A360 Drive, and save the FormIt360 file locally, it will only save the .axm file which you will need to convert using the FormIt converter. The Import FormIt 360 to RVT is accessible within an open Revit project.

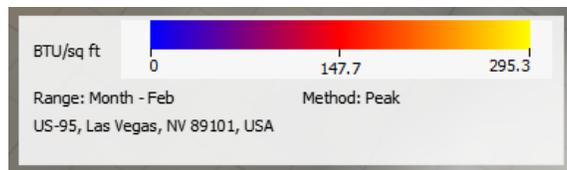
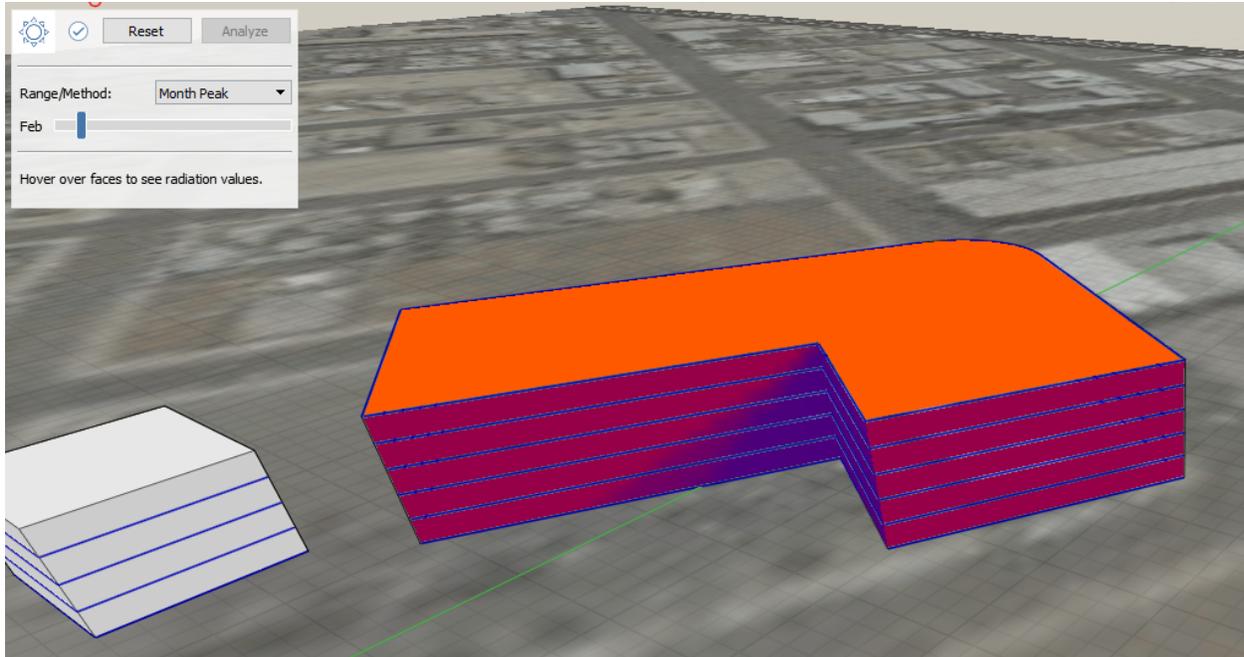


Energy Analysis Using Insight 360

Solar Analysis and Insight 360 are available with the FormIt 360 Pro subscription. These features reside on the Action bar at the top of the drawing scene window. Initiate Solar Analysis by clicking on the sun icon. Set the Range Method to use the Month Peak values or a Year Cumulative value. Click the Analyze button to show results. Hovering over a face will report the specific values for that face.

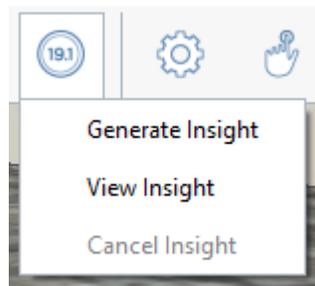


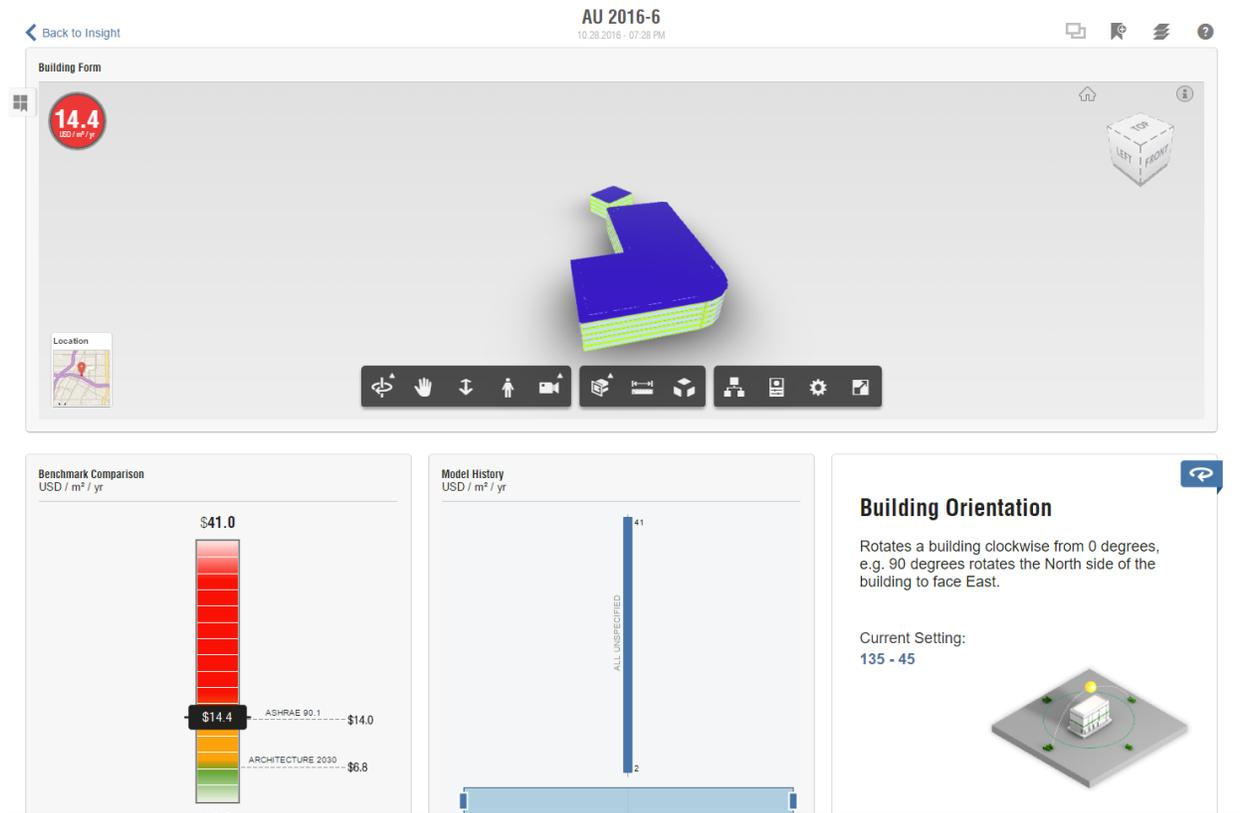
SELECT OBJECTS TO ANALYZE



SOLAR ANALYSIS RESULTS

[Insight 360](#) works in an external web application. You will need to have the location set, and have at least one level applied to the building model. Click the Generate Insight button to send the FormIt 360 model to Insight 360. It takes a view minutes to generate. You can continue working in FormIt 360 while Insight generates. You will see a notification when Insight is complete. Click View Insight to open the web application and see your results.





INSIGHT 360

The Insight 360 application is made up of “widgets” for various building factors. Clicking on the circular arrow “flips” the widget to show the variables in the factor. Clicking anywhere in the widget opens an interactive window. Moving the slider affects the Energy Cost Mean. The Benchmark Comparison shows the real-time impact of each of the variables in comparison to ASHRAE 90.1 and the [Architecture 2030 Challenge](#). The goal, of course, is to get to green!

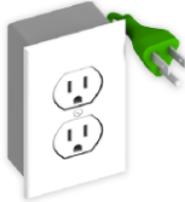
Changes made within Insight 360 are simulation only, and do not apply to the FormIt 360 model. Results can be used to inform early design decisions. For more information on Insight 360, check out my other AU class session [AR16137 – Insight 360: Energy Analysis...for Architects?](#)



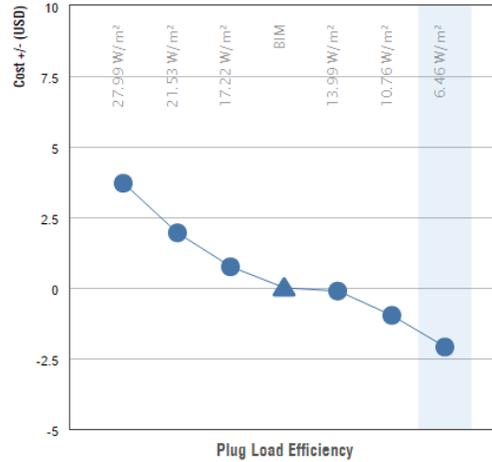
Plug Load Efficiency

The power used by equipment i.e. computers and small appliances; excludes lighting or heating and cooling equipment.

Current Setting:
6.46 W/m²

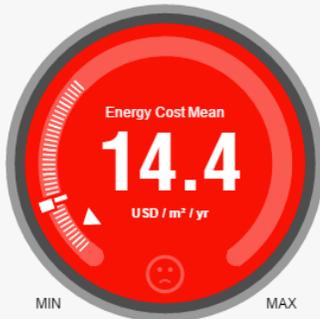


Plug Load Efficiency

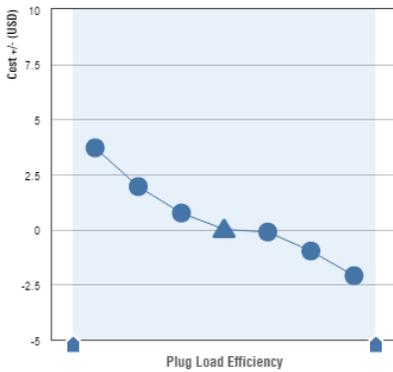


Editing: Plug Load Efficiency

Energy Cost
USD / m² / yr

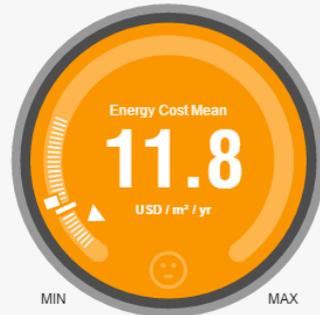


Plug Load Efficiency

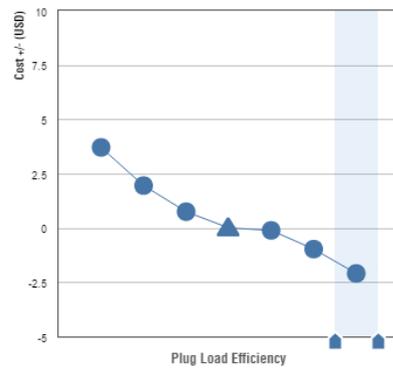


Editing: Plug Load Efficiency

Energy Cost
USD / m² / yr



Plug Load Efficiency





Conclusion

FormIt 360 is a great option to other design programs that works seamlessly with Revit, and can be used on a variety of mobile platforms...whenever that creative muse strikes! We have taken a short glimpse at just some of the tools within FormIt 360 Pro. I encourage you to check out the [FormIt 360](#) website for more information and examples. Invite FormIt 360 to your Revit party, and work smarter, not harder!

Resources

FormIt 360 Blog

<http://formit360.autodesk.com/blog>

FormIt 360 Primer

<http://formit360.autodesk.com/blog/post/introducing-the-formit-primer>

Insight 360

<https://insight360.autodesk.com/oneenergy>