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Design Strategies with FormIt 360

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initial.aec

Learning Objectives

- Discover strategies on working between FormIt 360 and Revit models
- Learn best practices for helping convert SketchUp users to FormIt 360
- Learn how to take advantage of Insight 360 for facade and energy analysis
- Learn how to take the FormIt 360 model into Revit for further study

Description

Hitting a brick wall at your firm trying to get people to start using FormIt 360 software instead of the “other” design tool? We will look at strategies to help you win this battle. You will learn how to use Revit software add-ins to establish a library, how to best handle design changes between FormIt 360 software and Revit software, and how to take advantage of Insight 360 software to flush out the best facade design while hitting energy targets. This session features FormIt 360 and Revit. AIA Approved

Your AU Expert

Jarod Schultz has extensive experience in using business for business (B4B) for specific outcomes to the architectural, engineering, and construction (AEC) industry. He is skilled at delivering creative solutions to address challenging issues, and this experience enables him to provide invaluable insight and direction to clients, technical staff, and sales. He has mentored and implemented Building Information Modeling (BIM) and AutoCAD software-based solutions for hundreds of clients, and he has become a trusted and respected advisor in the AEC community.

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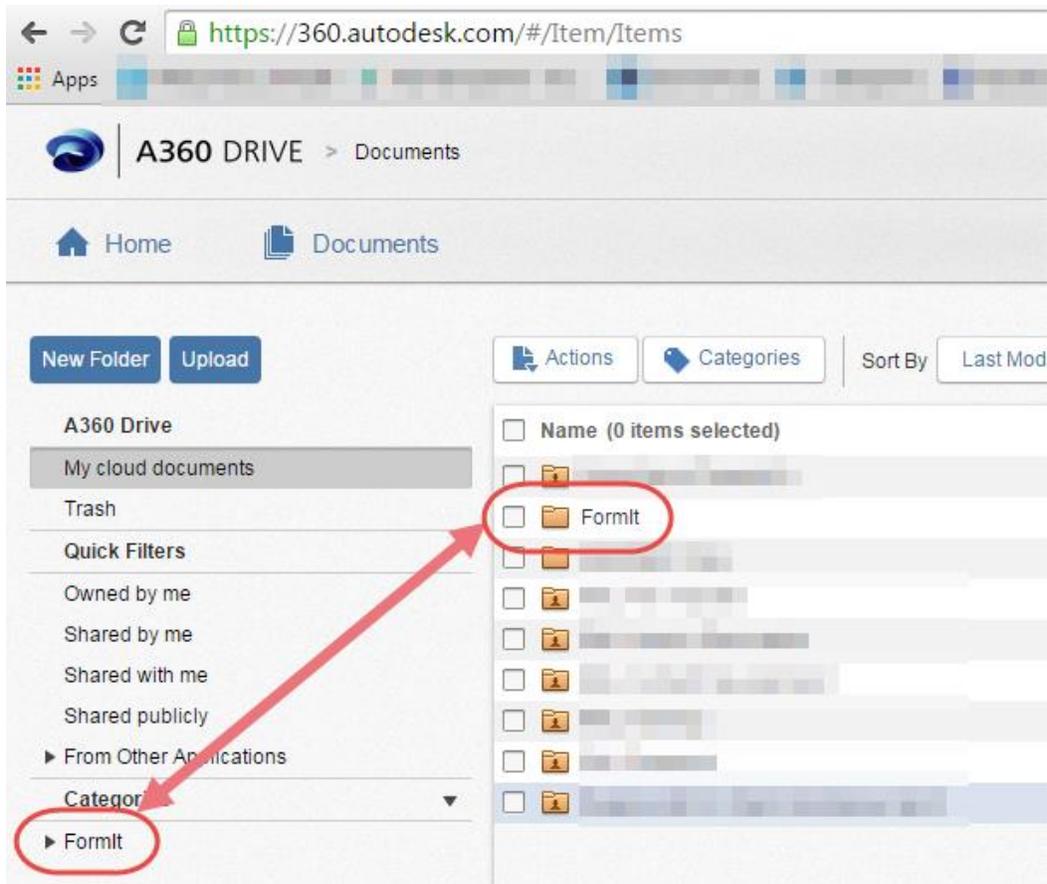
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Getting Started

FormIt & Autodesk 360 Site

The website to get started is: <http://formit360.autodesk.com/>. From here, I'm going to start building a conceptual design model. Take note that you will need an Autodesk 360 account, which is free: <https://a360.autodesk.com/drive/>.

The reason for the Autodesk 360 account is saving the FormIt models. Along with saving the conceptual design model as an AXM file, it also automatically converts it to a RVT file. With that said, Autodesk is bridging the gap on being able to take the conceptual design model directly into Revit, thereby doing away with throw away models.



FormIt Convert Tools

The FormIt 360 Converter tools can be found here:

<http://formit360.autodesk.com/page/download>

The FormIt 360 Converter is a Revit add-in that will allow you to:

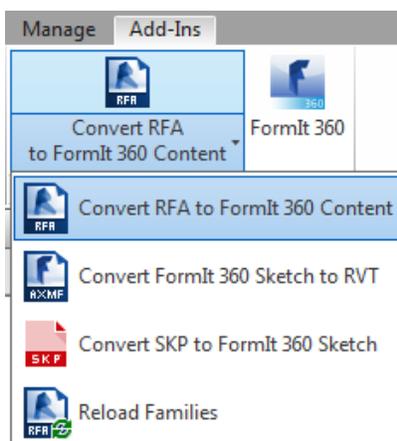
- Convert FormIt 360 files into an open Revit file from within Revit 2015, 2016 or 2017
- Convert SketchUp (SKP) files for use within FormIt
- Convert Revit Families (RFA) files for use within FormIt
- Convert RFAs used in FormIt, back into the original RFA in Revit



Converter Prerequisites

Must have a Windows PC running Revit 2015, Revit 2016, Revit 2017. Download the converters by following the link that is above.

- Click 'Keep' when the download finishes
- Open the downloads folder
- Double click the "FormIt360ConverterSetupForRevit2016.exe"
- Open the folder "FormIt360ConverterSetupForRevit2016"
- Right-click "Setup.exe" and select "Run as Administrator"
- Windows 7, 8, and 10 are supported
- Pick LINK to watch overview video



NOTE: Later in the document we will go through the workflows of using this great add-in for Revit.

Add-Ins Primary Function

The add-in has four primary functions.

Convert RFA Files to FormIt 360 files

Only the following categories are supported, all others will be ignored: Casework, Entourage, Furniture, Furniture Systems, Generic Models, Parking, Site, Specialty Equipment, and Mass.



Convert RFA
to FormIt 360 Content

Convert FormIt 360 Sketch (AXM) Files to Revit Project

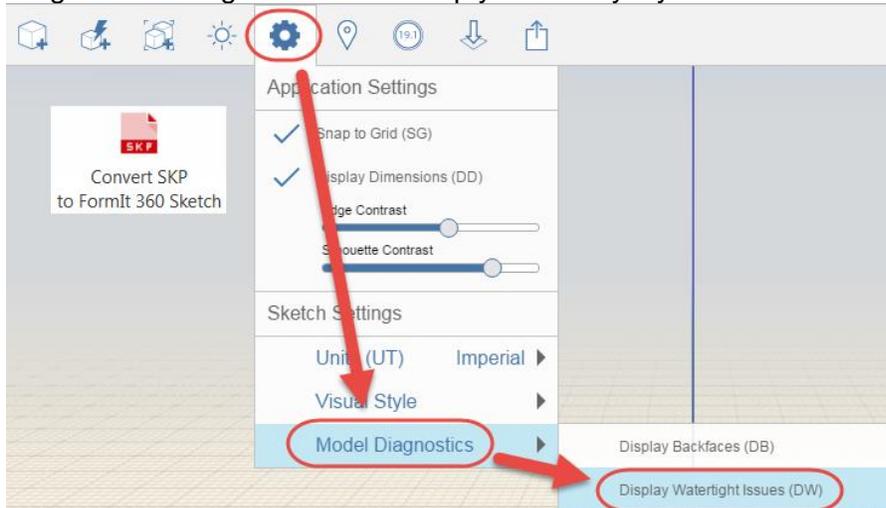
The add-in will proceed to convert the geometry in the FormIt 360 file and place it in the currently open RVT file. Groups that are assigned a specific Category within FormIt 360 will be placed as a family of that same Category. You may manually replace these families with any other Revit family of that same Category using the Type Selector.



Convert FormIt 360
Sketch to RVT

Convert SketchUp (SKP) Files to FormIt 360 Sketch Files

The SketchUp file must be a “watertight” model, so if the model was created in an imprecise method than it might not convert correctly. There is a visual style listed under the Model Diagnostic settings in FormIt to help you identify if your model is watertight.



Replace FormIt Content 360 with Revit Families

In order to successfully convert a FormIt 360 Sketch to RVT, open your template or a default template first. The Reload Families tool will not replace nested families.

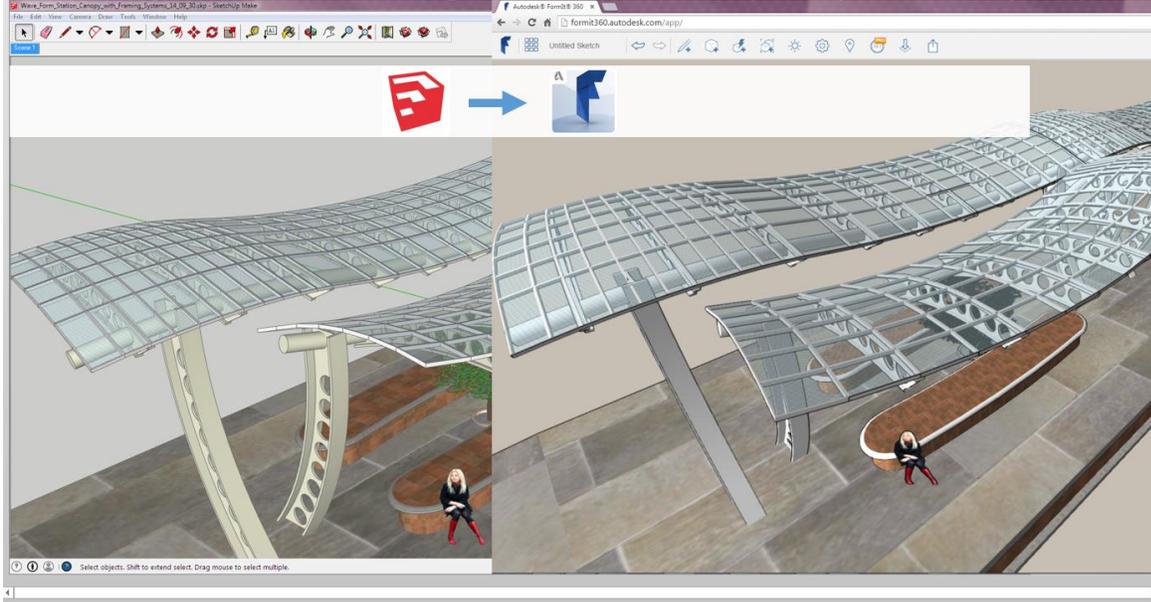


Reload Families

Conversion Examples

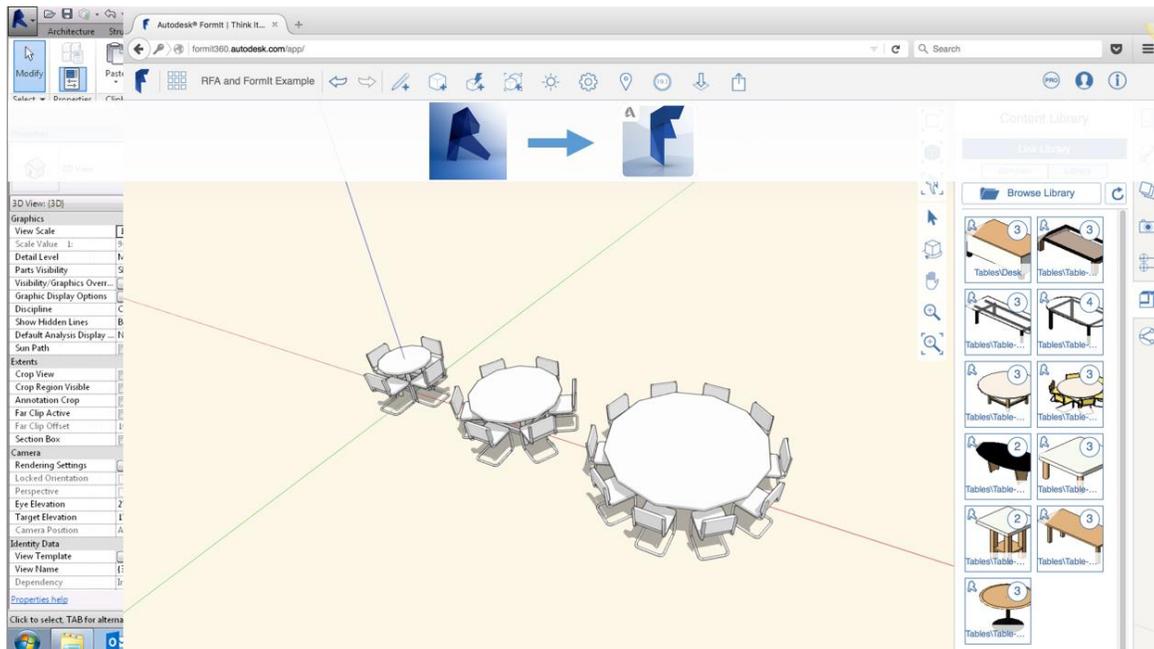
SketchUp to FormIt

We take most items from 3D Warehouse and convert it to FormIt; entourage, trees, people, furniture, and iconic buildings for context in your FormIt model. Remember that once it is in FormIt and you save it, the model gets saved as an AXM (FormIt) and a RVT (Revit) file!



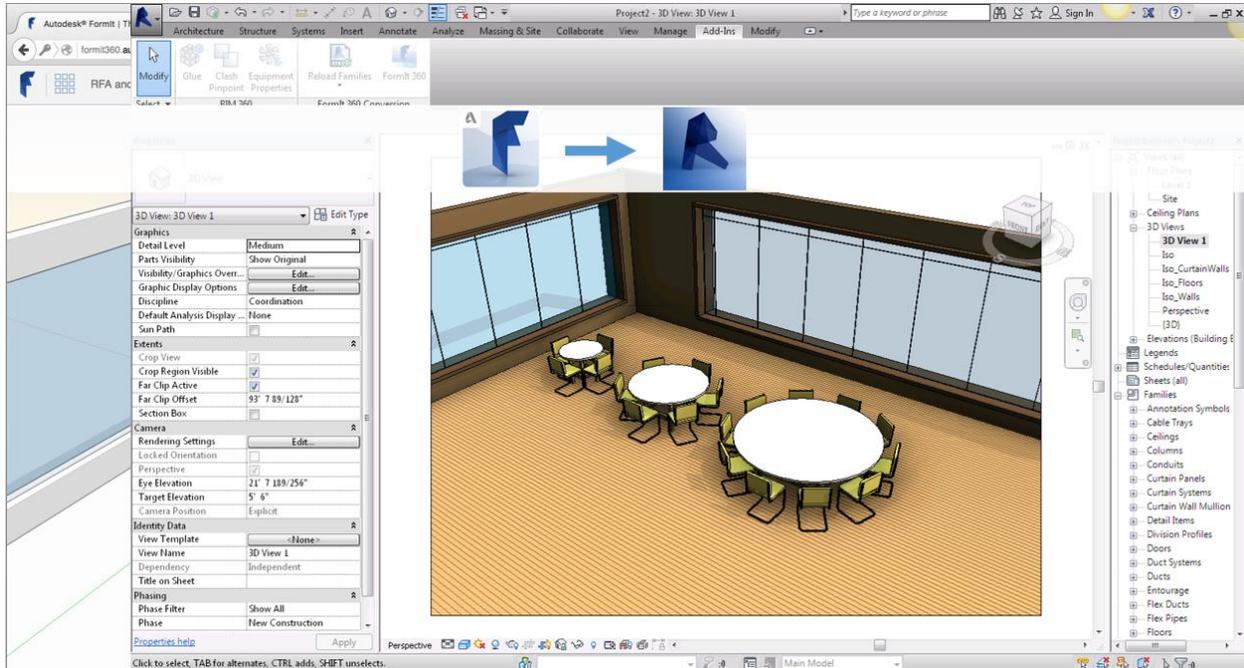
Revit Families to FormIt

Revit Families of specific categories are converted for use in FormIt – You can structure your content library (pictured on the right) in any way you want – you can even place different Revit family types in FormIt!



FormIt to Revit

After developing a conceptual design in by massing and modeling walls, floors, windows, and placing families – you can convert your model into Revit – where FormIt Levels, Building Location, and categorized geometry are all ready for Design Development.

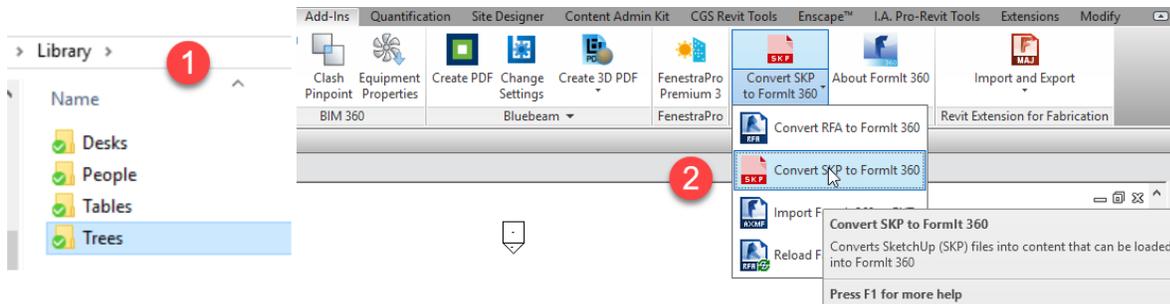


SketchUp Content

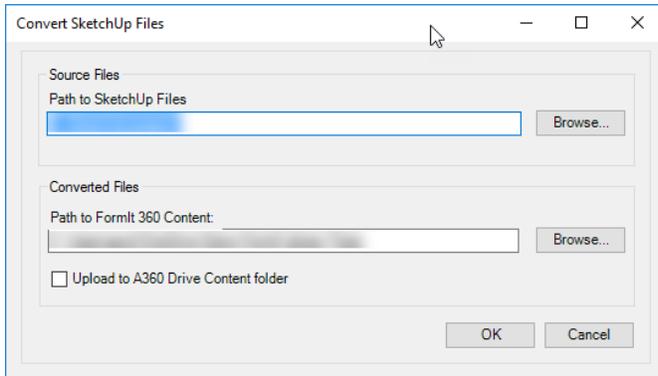
The one of the biggest items for SketchUp users is going to be about their content. Most, not all, of their SketchUp content should be able to be reused in FormIt and even taken into Revit as families.

Conversion

We would hope that their content is organized into some folders for us. If not, we will need to get it there to help with the conversion process into a FormIt library.



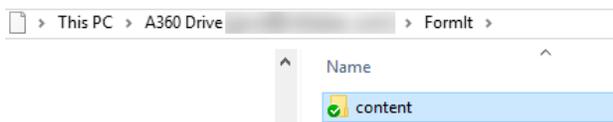
Once this is done then in Revit we can use the Add-ins tab and choose the folders to look in and where the new file will be placed. I will usually dump the new files into the same folder for ease of use.



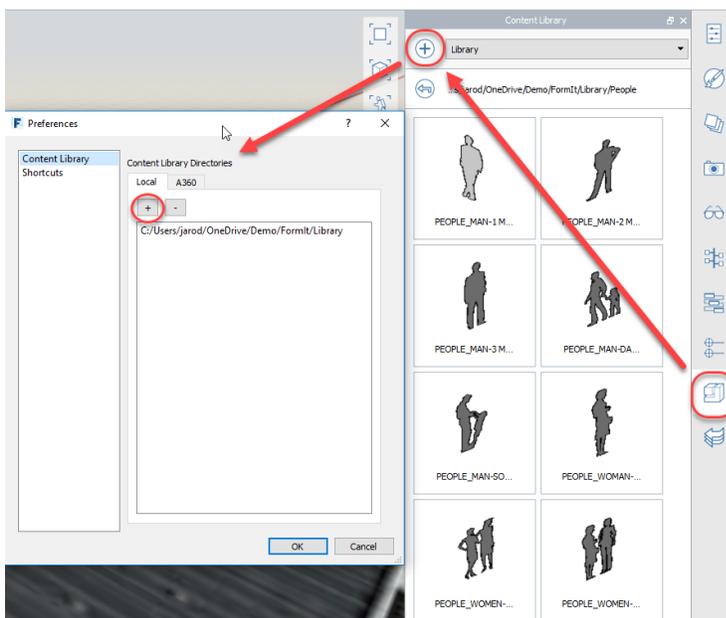
Library or Not

When I say library or not, what I mean is it is truly it is an option. FormIt has a tool to help organize and see the content inside FormIt, web version or the windows version. I like the idea of a library but we will also look at how to load something on-fly into FormIt.

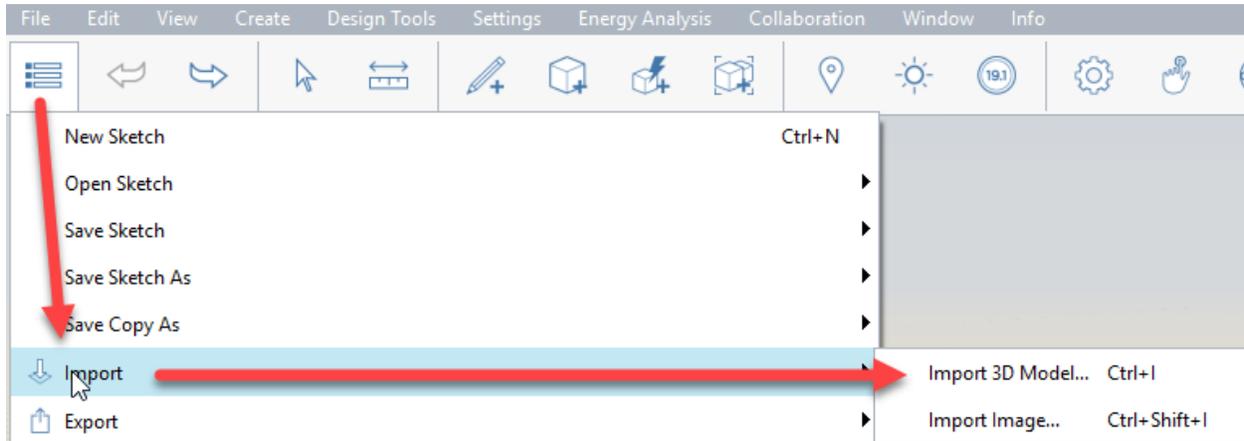
If you are using the web version, then you will need to place the content into the A360 FormIt Content folder.



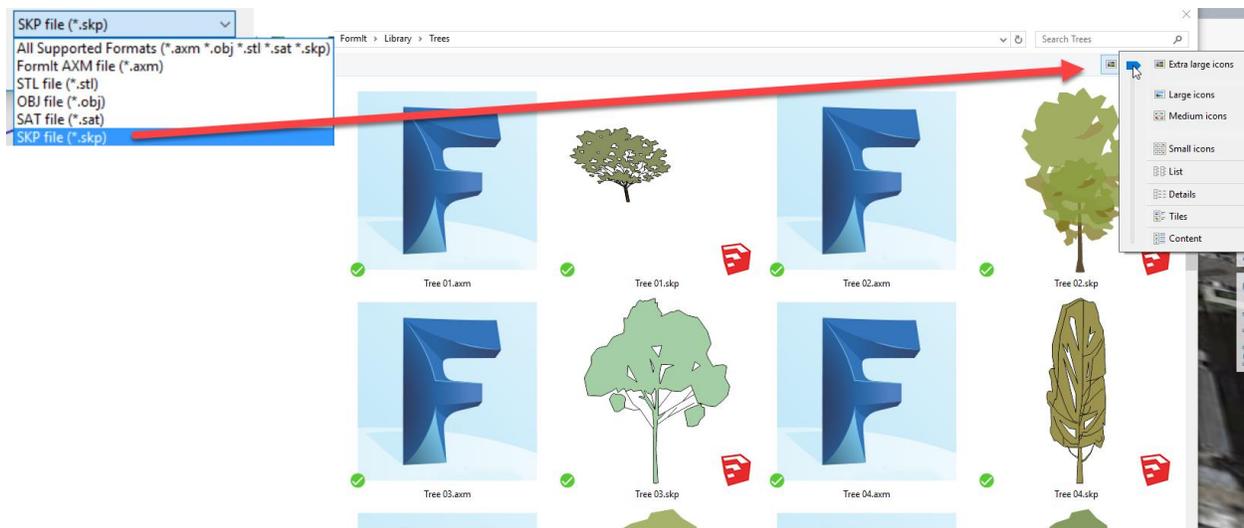
If you are using the Windows version, then you can choose one or multiple folders for the library to look at for content.



If they would rather just insert when they need a certain piece of content, there is another way of doing it. We can Import a SKP file at any time into FormIt to use it in the context of the model. Just pick on the (3) horizontal bars at the top left and choose Import > Import 3D Model.



Change the file type to SKP and you are good to go.



Modeling Techniques

Zoom & Orbit

As for navigation, most of it can be done with the mouse. The wheel does the normal zoom that we all know and love, holding down the wheel will do pan, and the normal holding down the Shift Key and Middle Mouse button together will orbit. There is a toolbar on the right that you can also use.

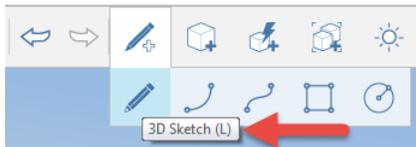
NOTE: If you are zoomed in really close you can use the same trick as Revit, select an object or edge of the model first, then when you use the orbit tool it will orbit around what you have selected.

Delete

The delete is just like most programs, select the objects and then use the "Delete" key on your keyboard.

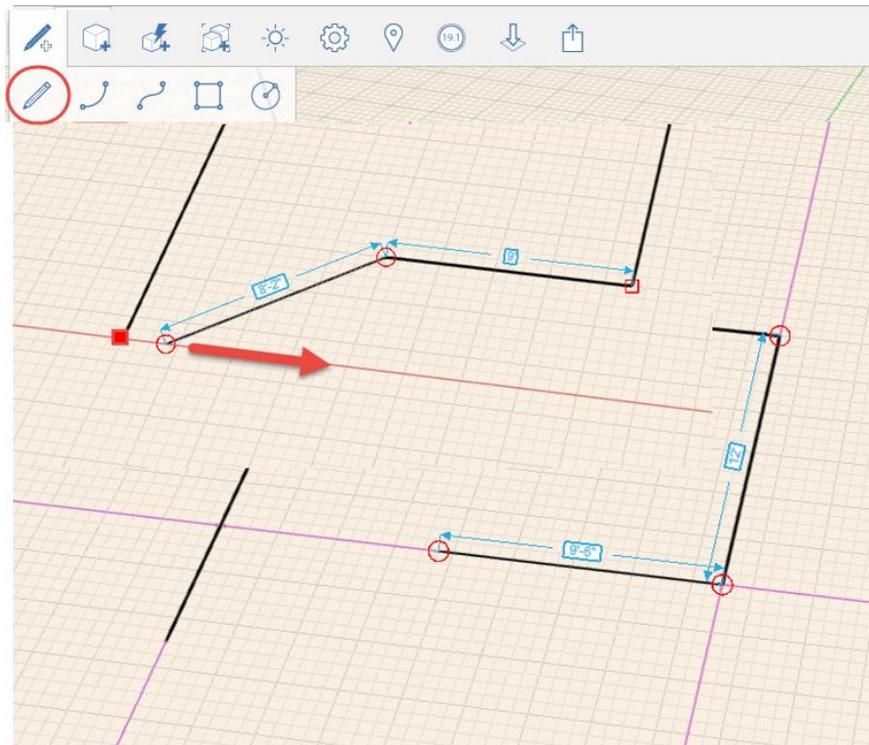
Shortcuts

Most tools in FormIt have shortcuts to them. Just hover a tool and it will show you what to type. LINK. The windows version gives you the ability change them, pick Edit > Preferences



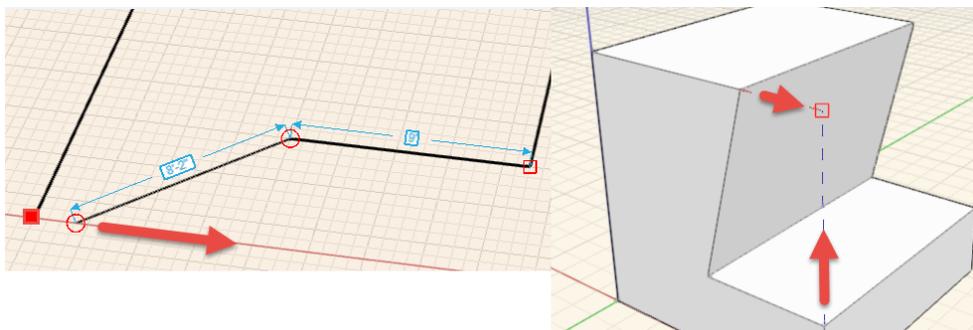
Drawing Lines

All of the main tools are at the top. When drawing lines to create a closed shape, remember that it is just like any other design software, take advantage of the alignment lines and the ortho like mode. If trying to create a line from an existing line, just hover your cursor over the endpoint and pick.



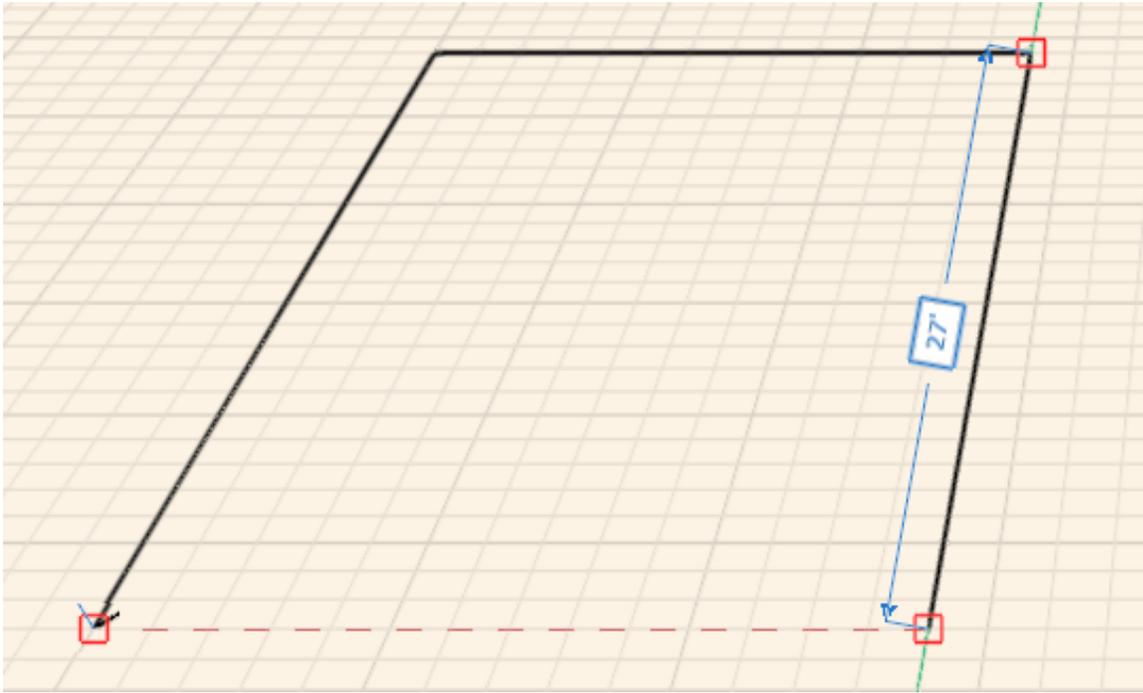
Alignment Lines

Take note of the alignment lines as you are drawing. These are familiar and behave like other design software. You can also hover over an object snap for a second or two to develop a new alignment line. You can also reference two points in 3D using this feature.



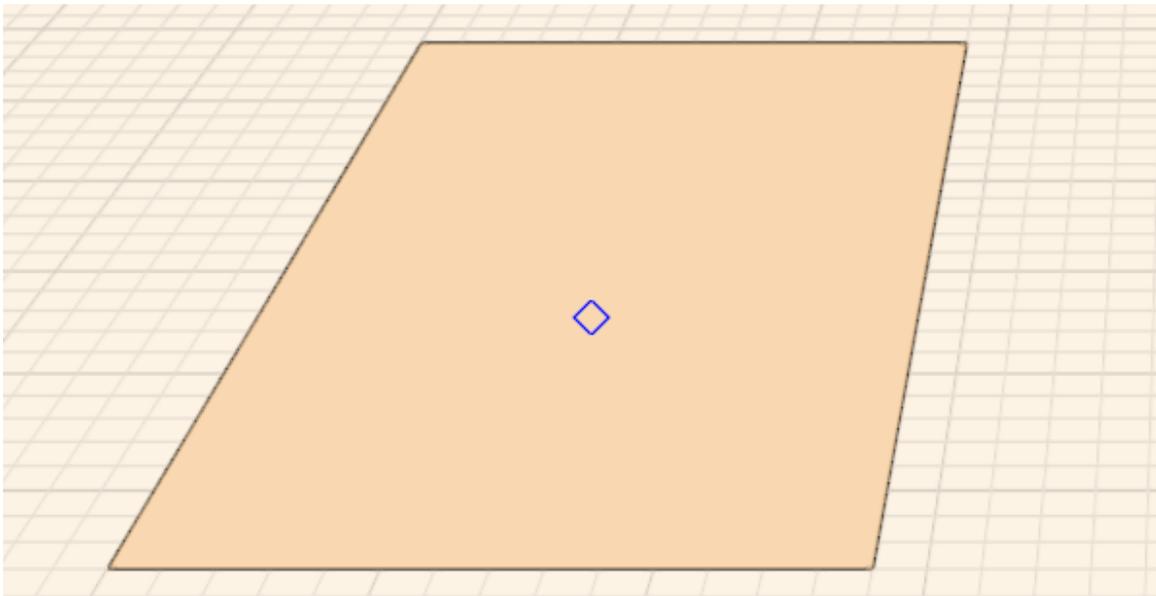
Ortho Mode

You can use the “Shift” key to “lock” the direction when drawing the line and then use an object snap to acquire the correct distance.



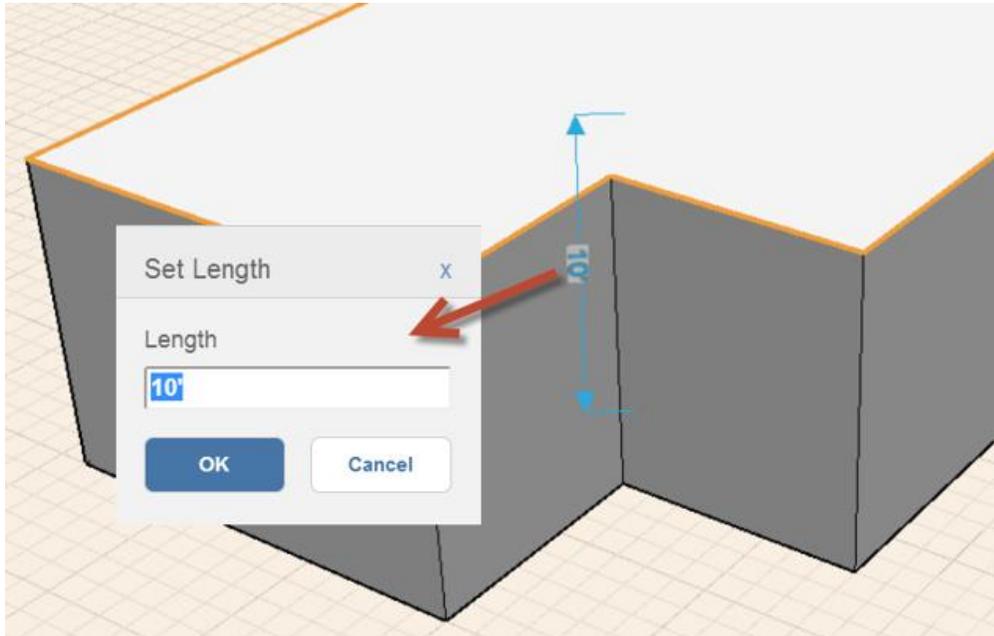
Create Object

Once you have a closed shape, a surface is created. Just click on the surface and then click and drag it to turn it into a solid.



Adding Values

While dragging to create the solid you will notice a temporary dimension. You can pick on it so a dialog box pops up so you can type in an accurate dimension. What is also nice is you can use the “tab” key on the keyboard to open the same dialog box.



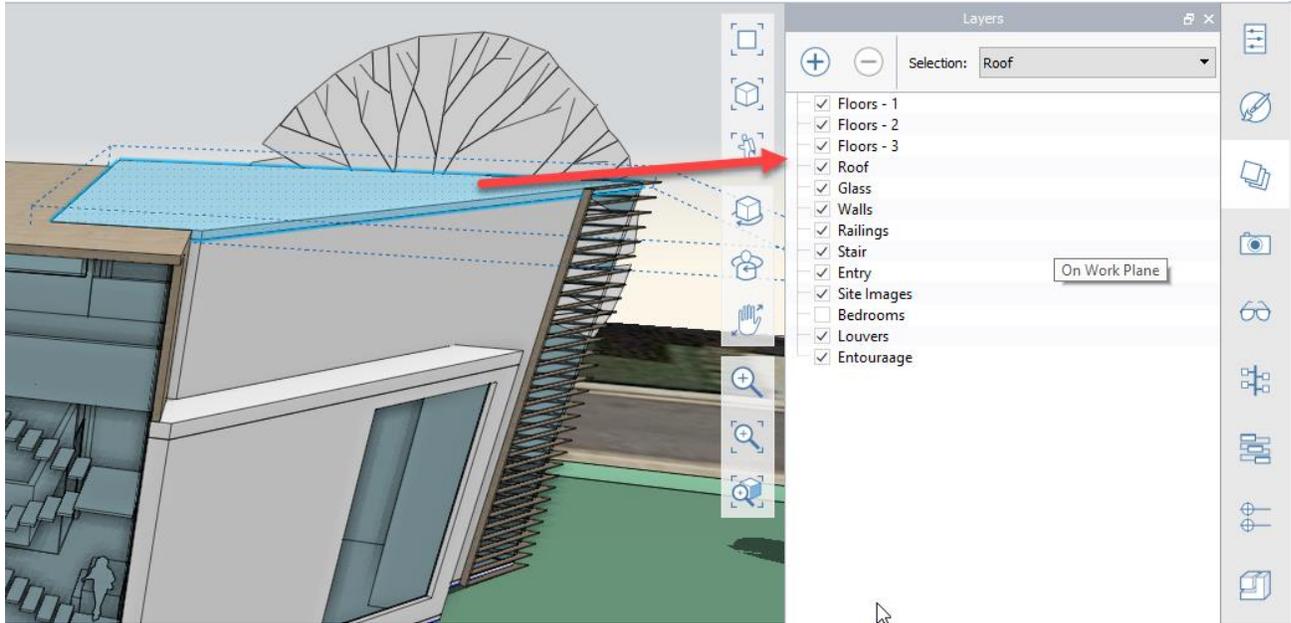
Layers

Use the layers to control the visibility of individual objects.



Create and Modify Layers

- Click Add Layer in the Layer palette to create a new layer.
- Double click on the name to rename the layer.
- To add objects to the layer, select one or more objects in the scene and then choose the desired layer using the drop-down list for “Selection on”.

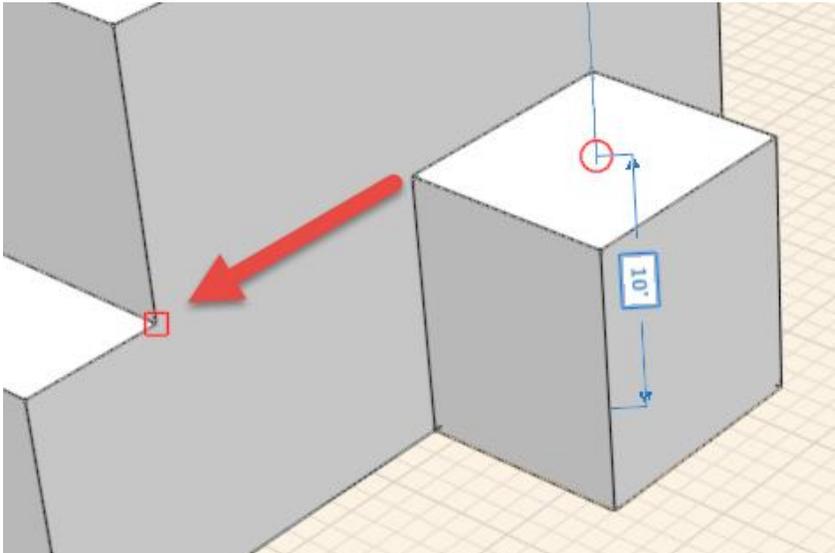


Using Layers

- To turn the layer visibility off, click the checkbox next to the layer name.
- To select all object(s) on the layer, click the selection icon next to the layer name
- To delete a layer, click the trash icon next to the layer name. Only the layer, not the objects assigned to the layer, will be deleted.

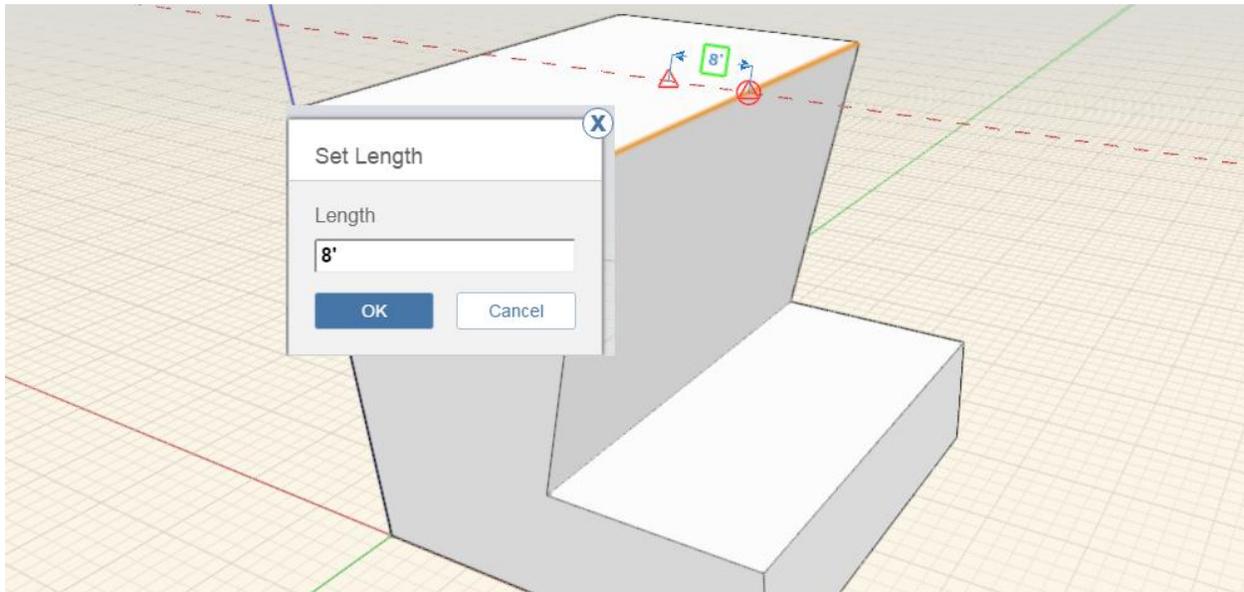
Aligning Edges

Also as you drag to extrude you can hover over an existing edge of an object so the extrusion aligns to that edge.



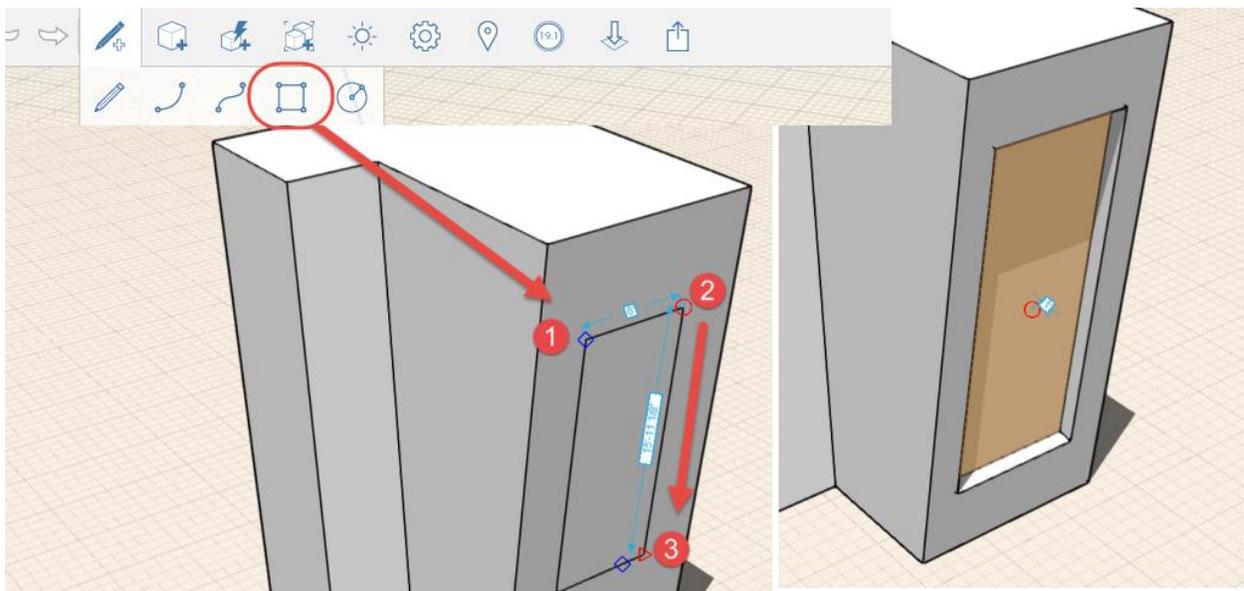
Taper Edges

You can also click an edge and then click and drag the edge to taper it. Pick the dimension or use the “Tab” key to change the value.



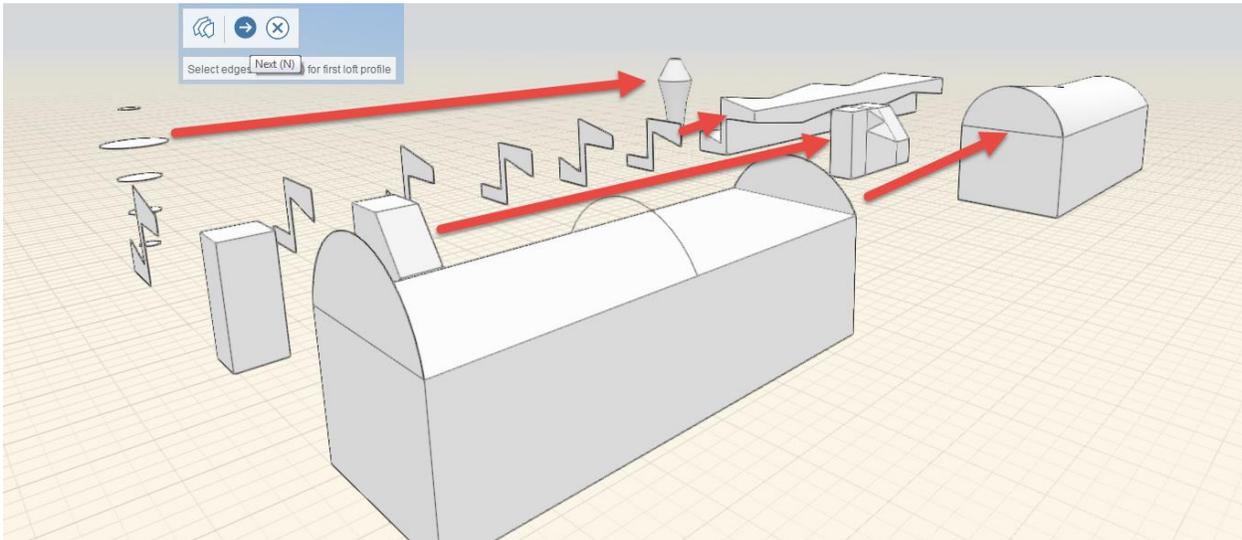
Drawing on Surfaces

FormIt automatically detects when you are on a surface when you draw lines. With that in mind, you can create recesses or additions to the model by drawing additional closed loops or use the rectangle command.



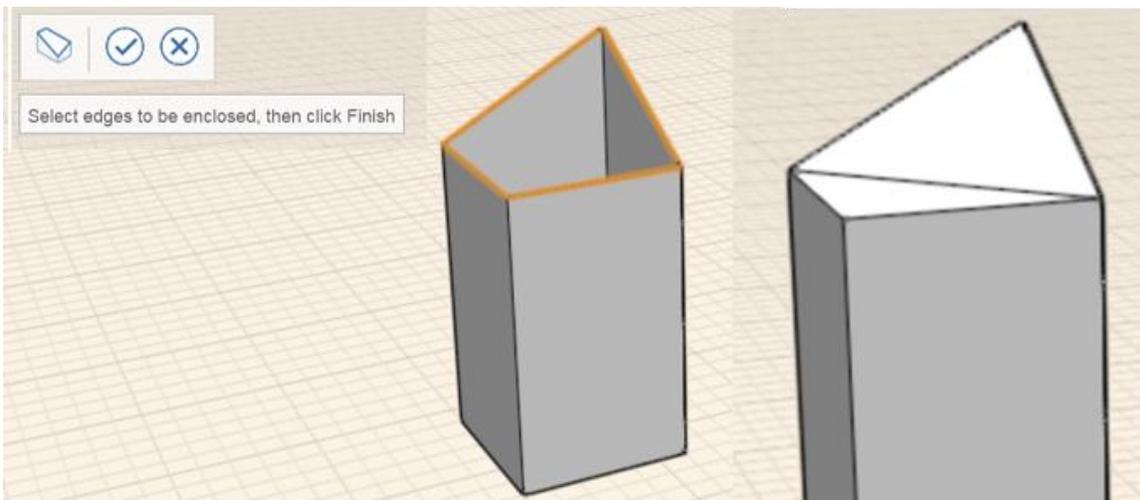
Loft

Below are examples of using the Loft tool. When using the Loft tool if you are selecting faces then you can select them all at once and then pick the check mark. If you are using edges, then you will select each one individually and then use the “Next” or “N” to choose the next edge.



Cover

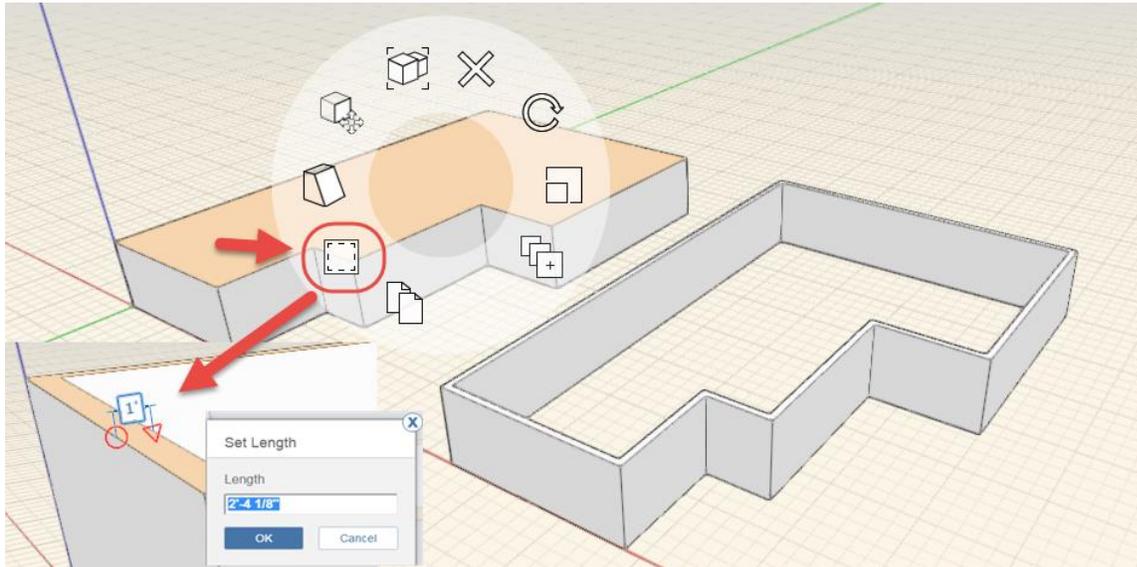
Enclose open edges, make geometry changes along a path of edges, and connect multiple profiles or edges.



Offset

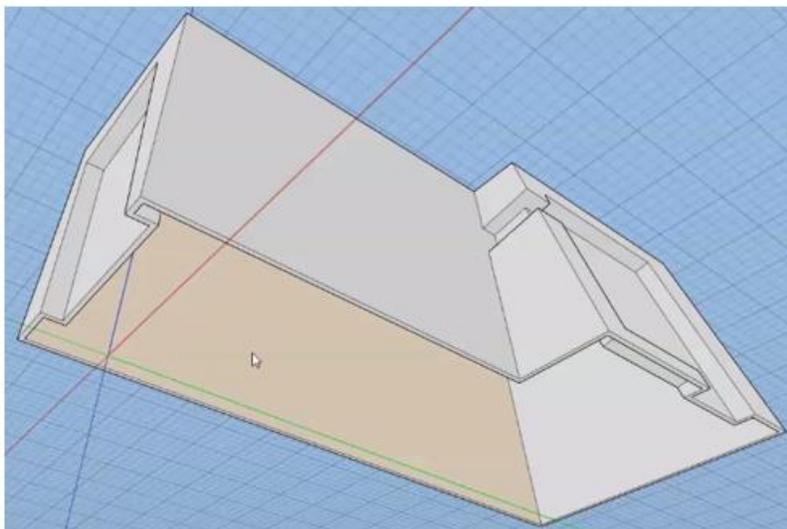
Create new edges offset from the original edges. This is a great tool for hollowing out a mass to create the outer walls of the shell

To offset a face just select the face by picking on it, right-click and select the offset tool from the context menu. Then, move your mouse over the face to create a series of edges offset from the original edges. Pick to accept the value or use the “Tab” key to enter the value for the Offset.



Shell

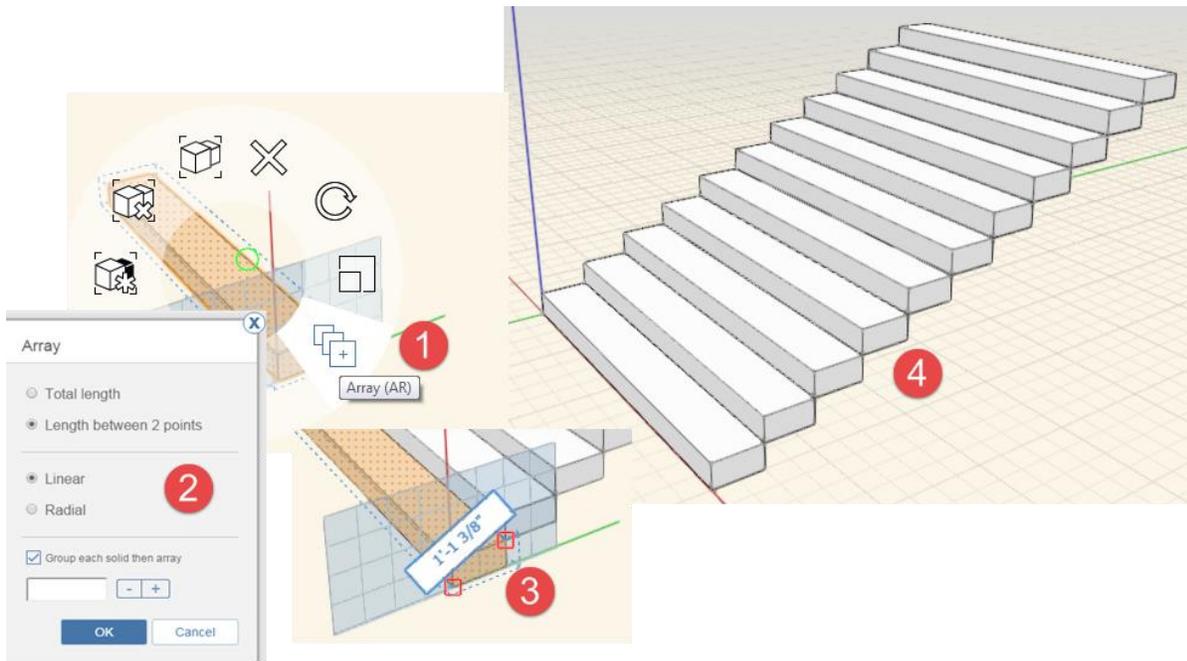
If the model has curves or sloped surface than the shell tool works better in these situations. If you are new to this terminology it is the ability to offset, all current surfaces a certain offset distance.



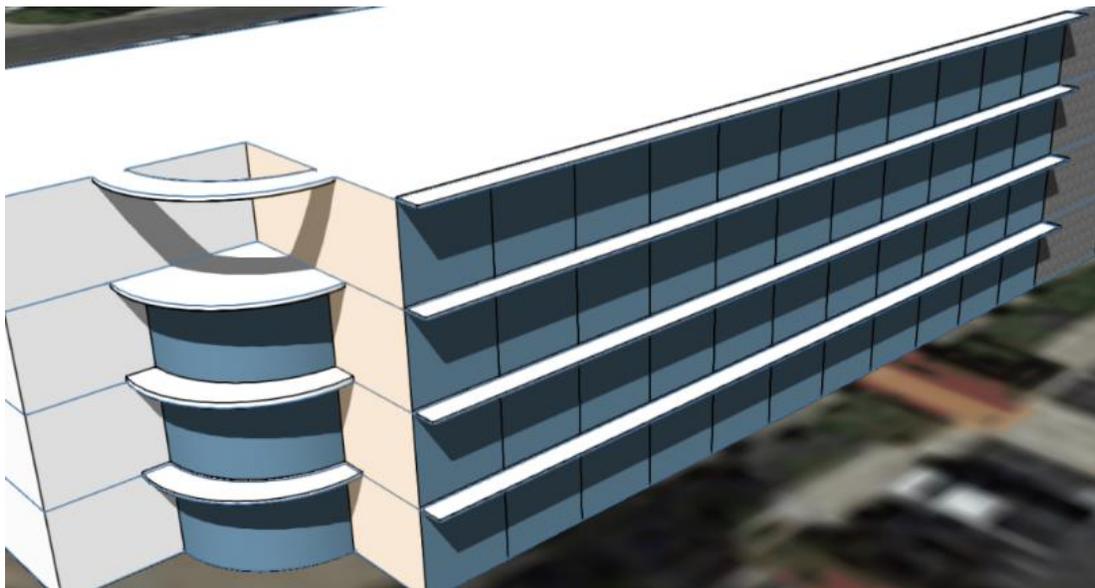
Array

To array edges, faces, or entire objects; click on the object that you want to array and then click on array icon from the context menu. You can create both linear and radial arrays. Choose either linear or radial and then specify the other parameters. Then, similar to the move tool - click the object to start an array, and click again to place arrayed elements.

When you use Array it will automatically create a Group. With Array you can create stairs, curtain walls, or window layouts really quick. Example of how to create stairs and modify them after the fact. [LINK](#)

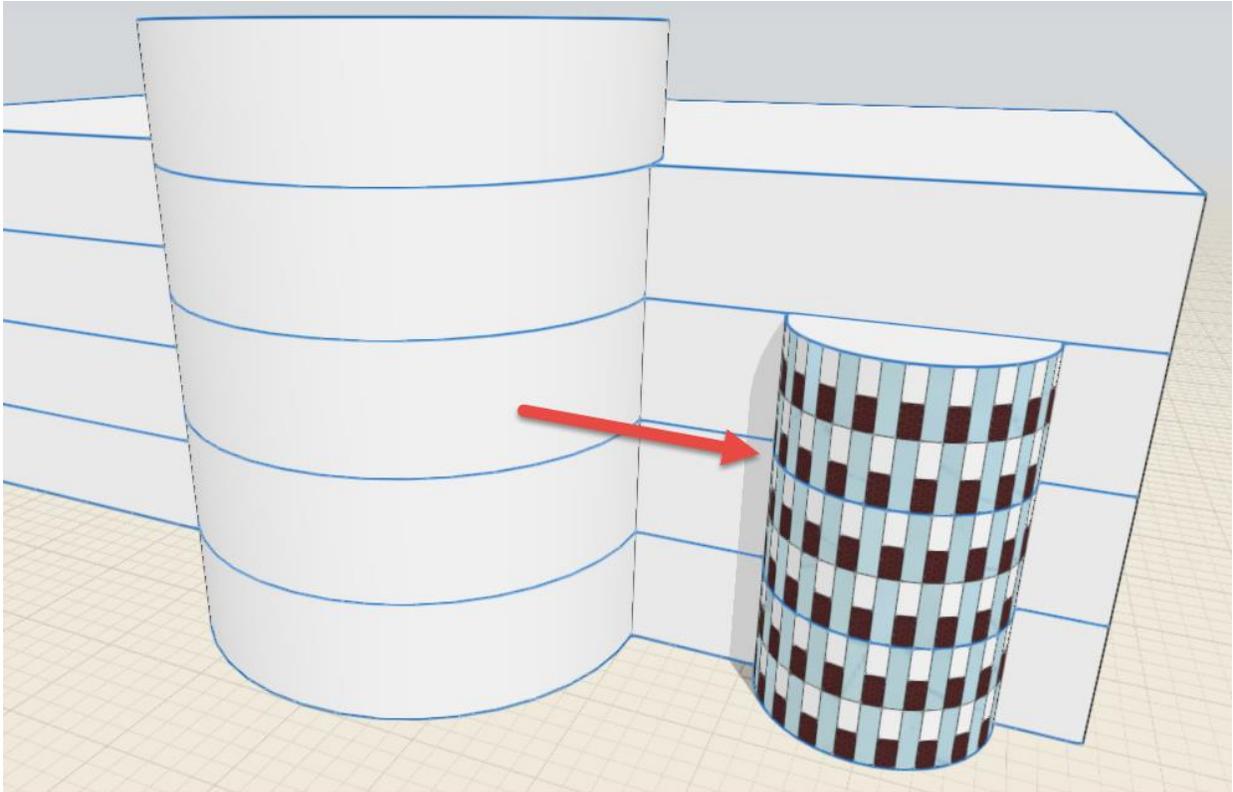


Use the Array feature to help with creating items like curtain wall or sun shade objects. Remember that Array will create a group, so if edit the group the entire Array updates. You can also Array a single line like I did to get the curtain wall effect or select an entire extruded object like the sun shade.

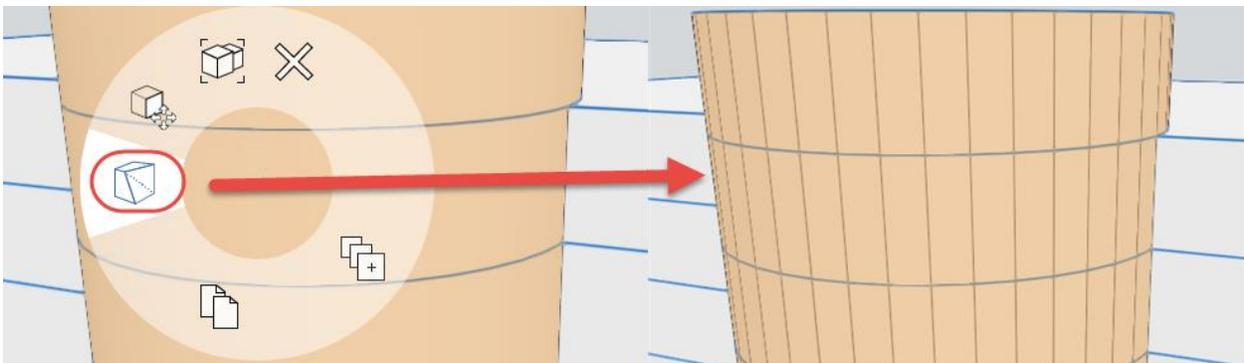


Curved Designs

When working with curved surfaces, in FormIt there will be times that you want to break up that surface into individual faces. This process can be used to help show design intent for curtain wall layout.

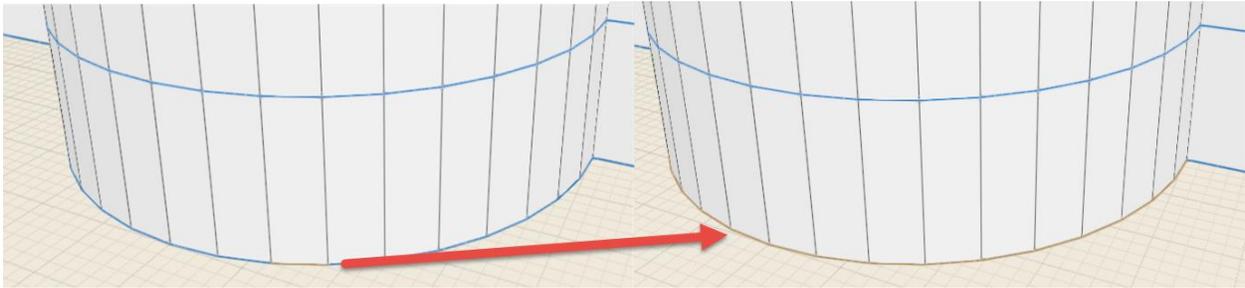


To get started select the curved surface and right-click. On the menu select “facet face”, you will now see the facet faces that are used to make the curved surface.



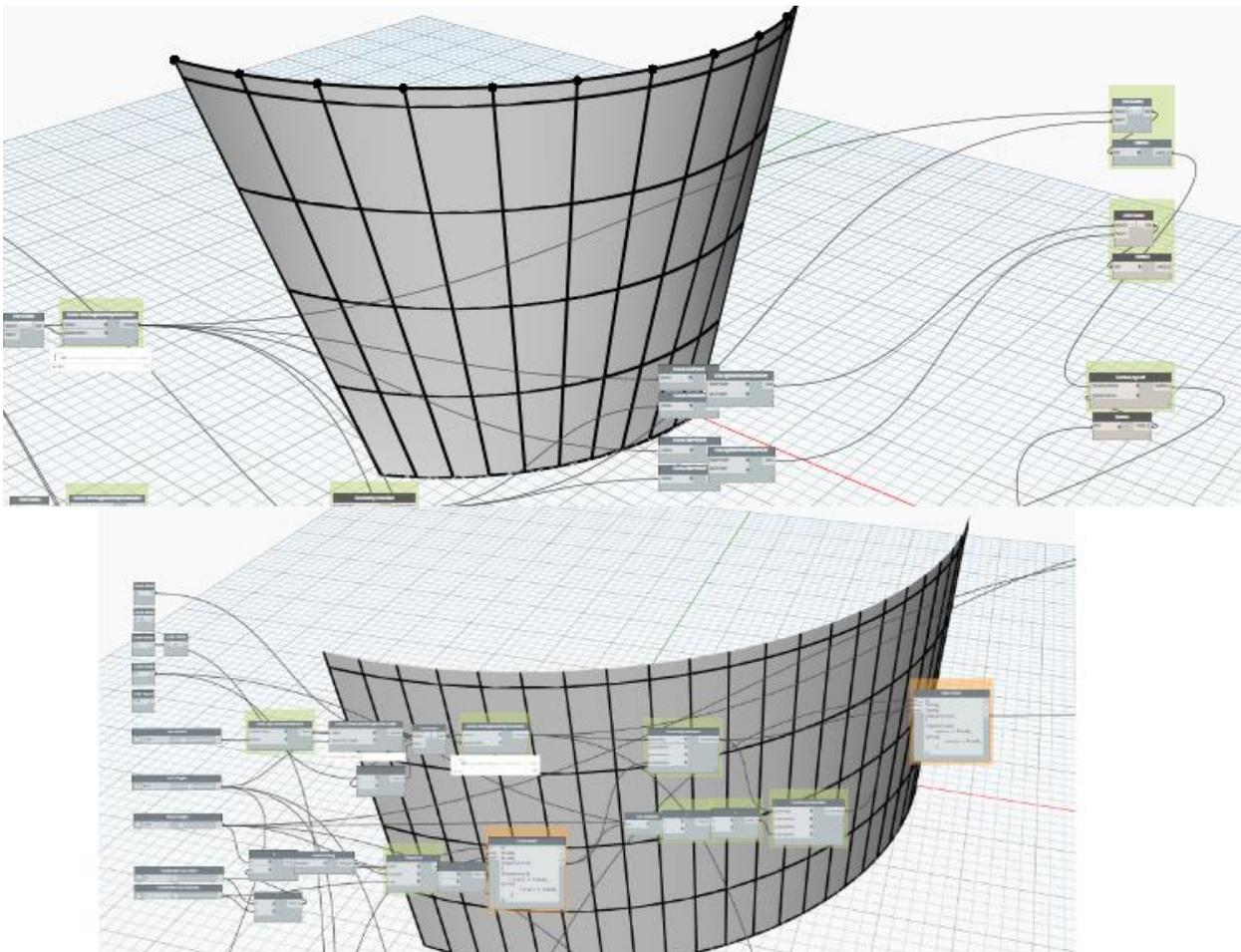
NOTE: At this time, there is no way to tell FormIt how many sides you want. This will be in a future release so please stay tuned.

You can use the Tab key and the Array tool to start creating the horizontal edges to break up the design in the vertical direction. The Tab key helps in selecting all of the individual edges along the bottom or top of the curve so you can Array all of them together.

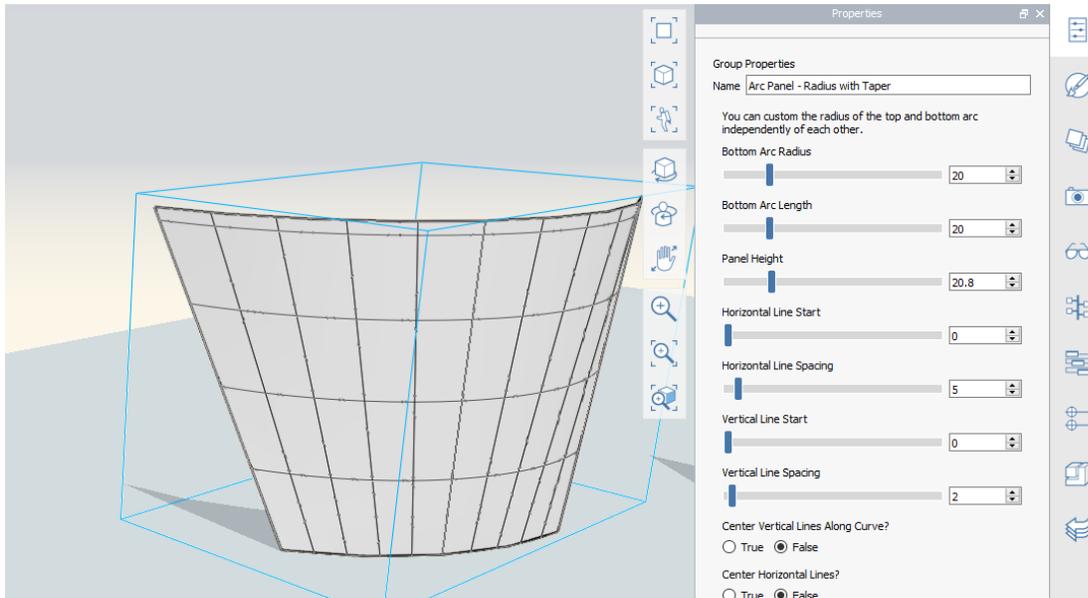


Dynamo Studio Scripts

FormIt can use Dynamo scripts to enhance workflows and modeling capabilities. In my example we have two scripts that can help in building curtain wall facades. One is Arc Panel - Radius No Taper.dyn, this has the ability to create a curved surface and divide the panel spacing horizontal and vertically. The other is Arc Panel - Radius with Taper.dyn, it does the same but gives you the option to change the top or bottom radius to be different. Josh Goldstein was nice enough to build these and share them with us.

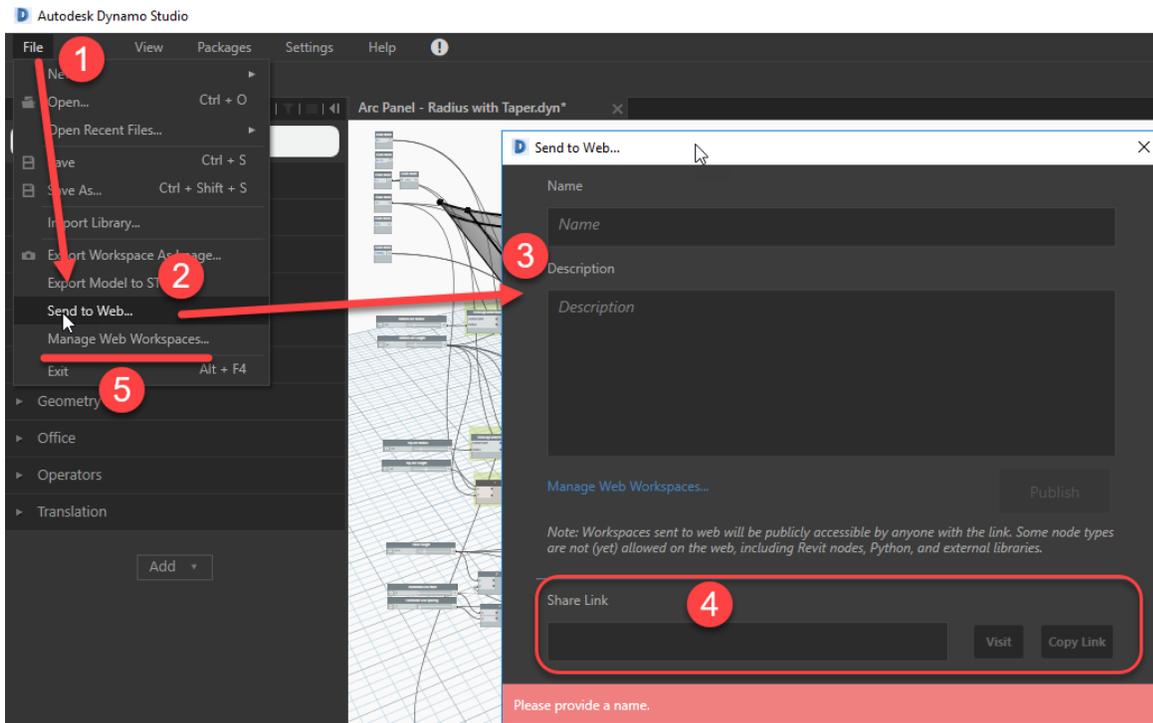


Understand that these scripts need to be created using Dynamo Studio which is different than the Dynamo that is built into Revit. Dynamo Studio gives us the ability to build the interface of check marks, switches, and slider bars that the end-user will see in FormIt.



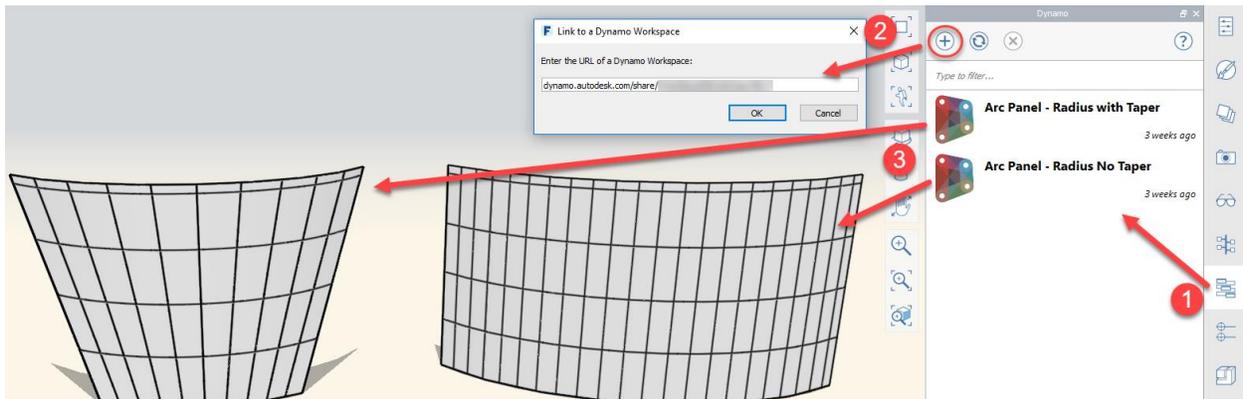
Publish Dynamo Script

For a Dynamo Script to be used in FormIt it must first be published, hence “Send to Web” in Dynamo Studio. From here you can email someone the link “Shared Link” in an email. If you need to do this after the fact just use the “Manage Web Workspaces” tool to see all of your current scripts.

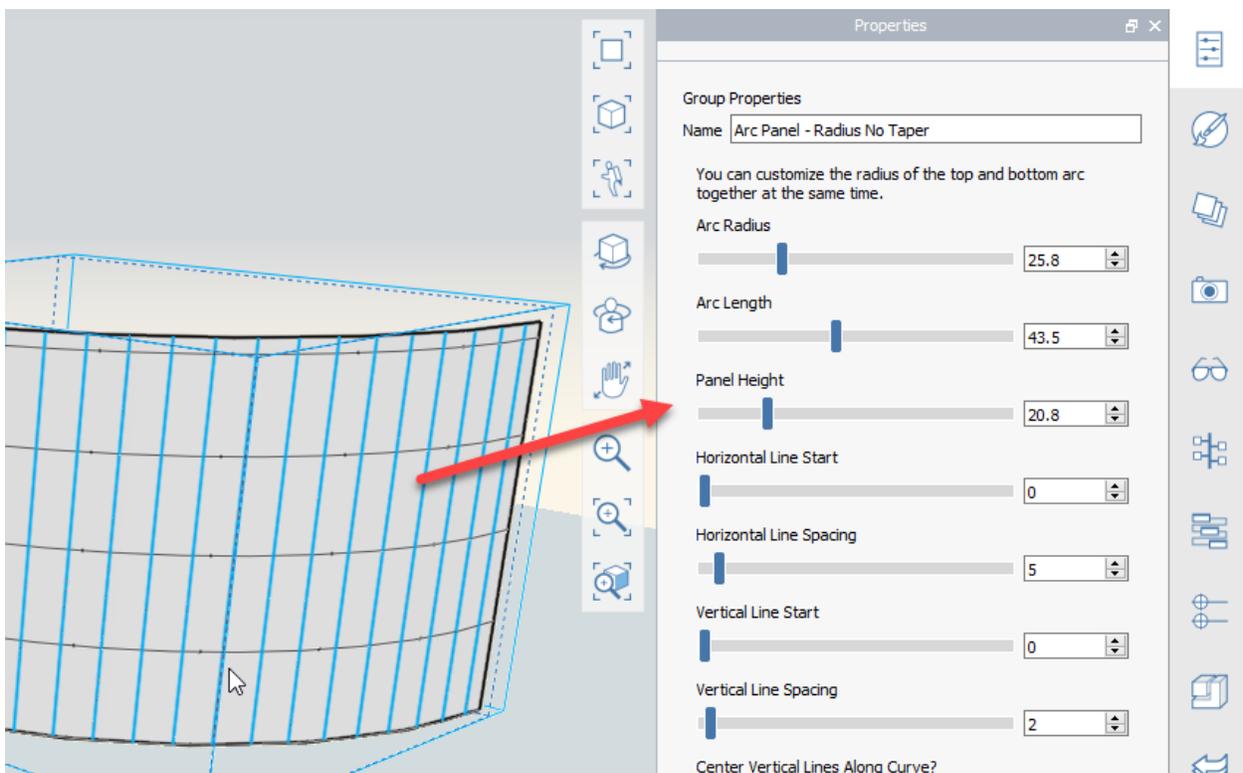


Use Dynamo Script in FormIt

From FormIt you can add the links and drag and drop the Dynamo script into your model to use.



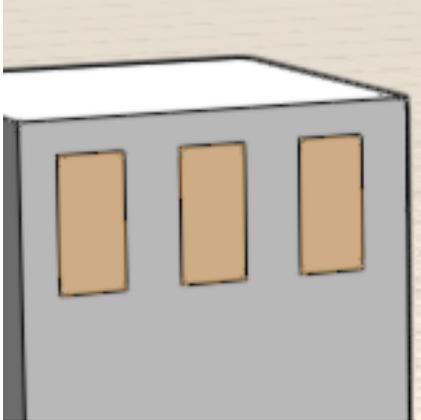
To modify the Dynamo script just double-click on it. It is a group, hence the reason for double-clicking it to edit it. From there you can start changing the data to best fit your needs for the model.



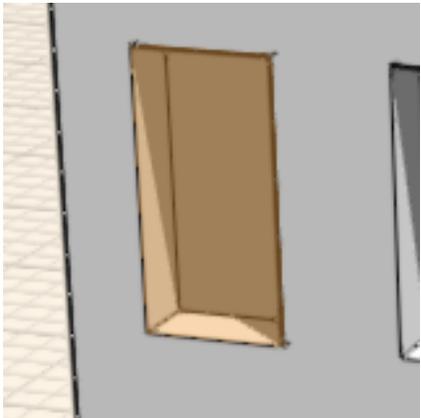
Smart Selection

The TAB key provides a way to make selecting similar objects easier. Accelerate the pace of geometry placement and modification by using the TAB key.

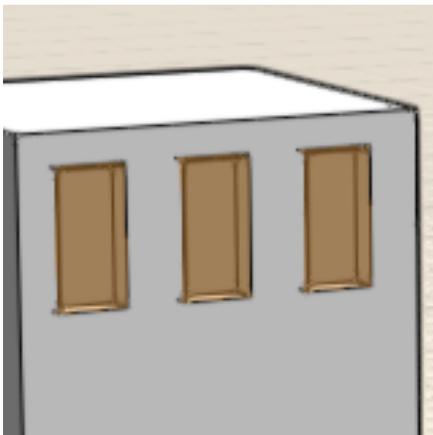
Select same sized faces: Hover over a face, hit the tab key, all the faces on the solid that are the same size highlight - single click to select them all.



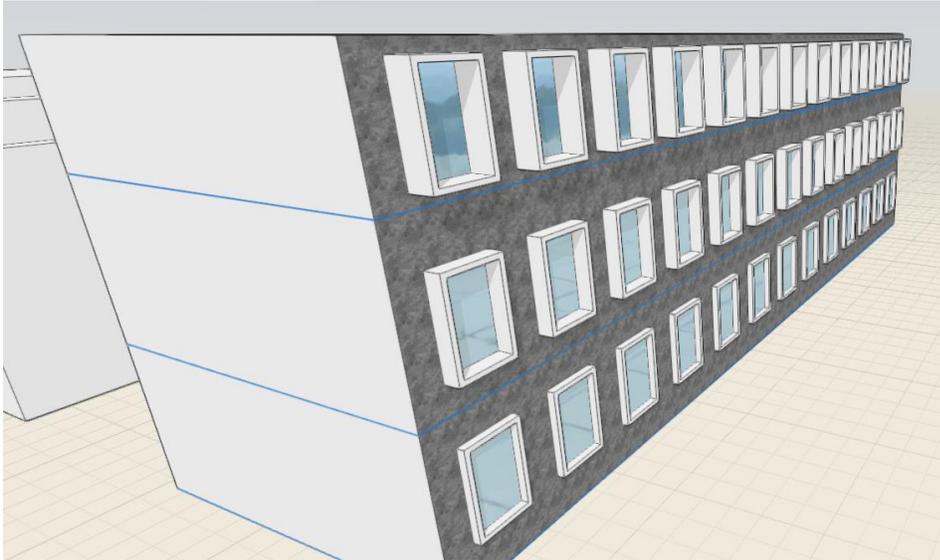
Select cluster of faces: Hover over a face that is part of a cluster of faces, hit the tab key twice, all the faces that are part of the cluster highlight - single click to select them all.



Select same sized cluster of faces: Hover over a face that is part of a cluster of faces, hit the tab key three times, all the clusters of faces that are the same size on the solid highlight - single click to select them all.

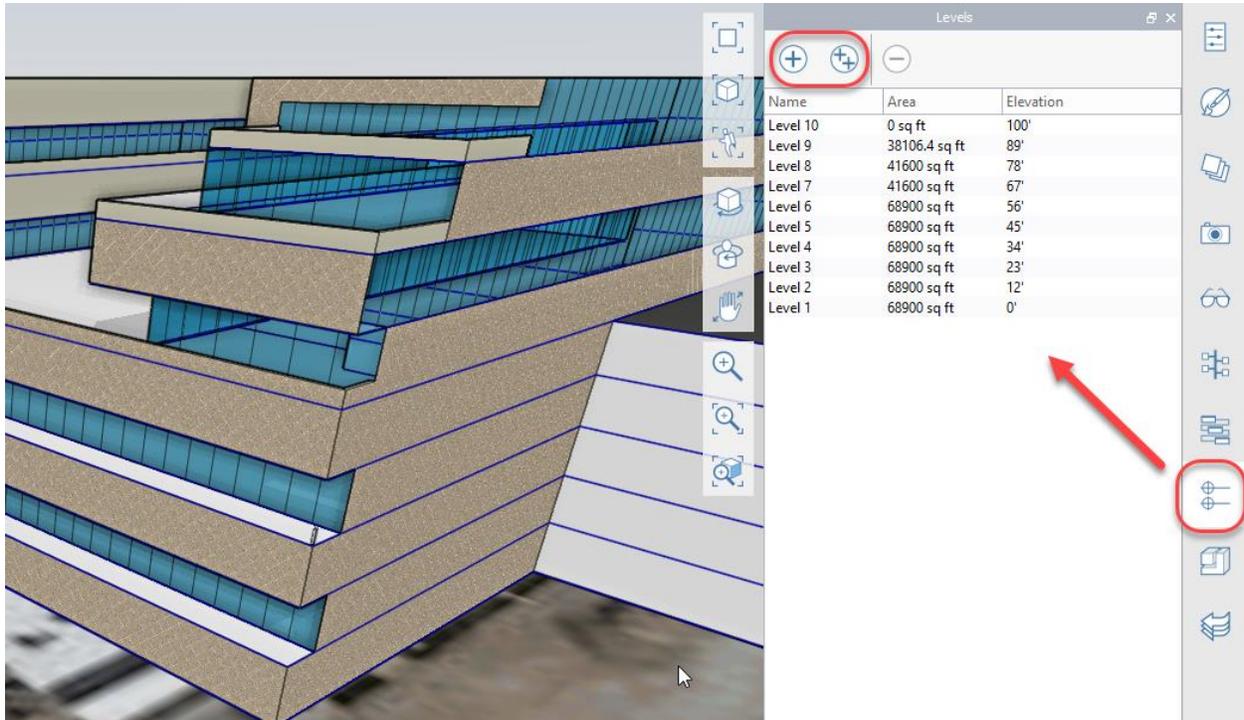


This method can also be used in conjunction with the Offset tool. In this example, it was used to flush out the design intent for the window frames.



Levels

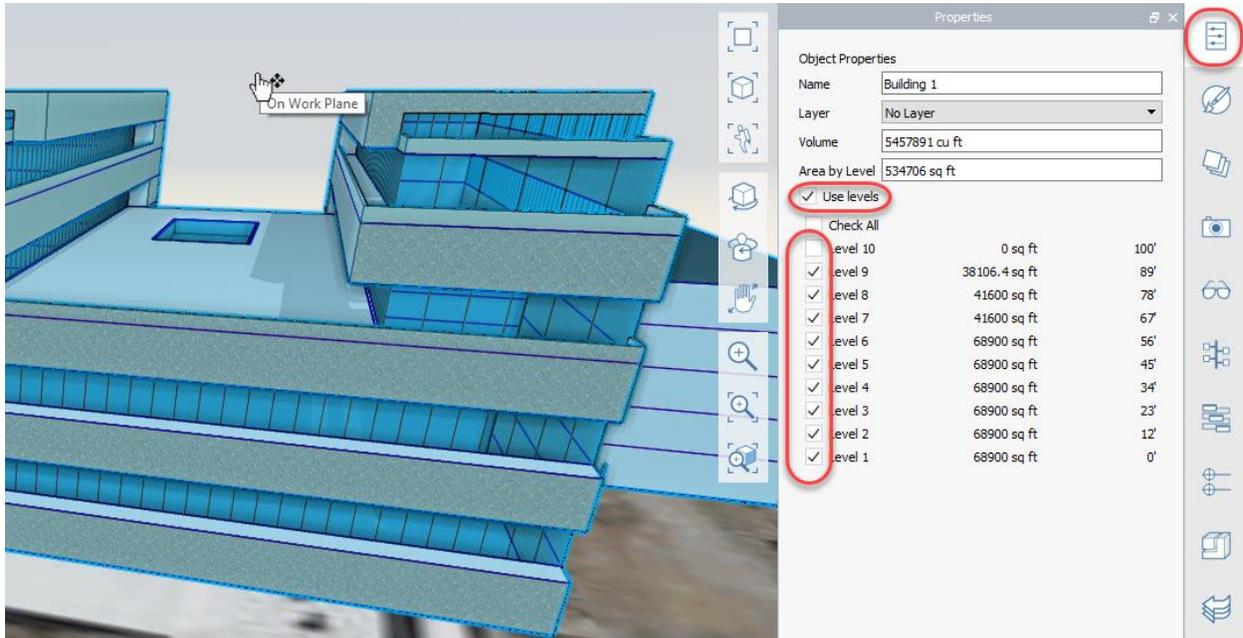
You can add levels to the model so you can start to get information for cubic feet and total square footage. On the right is a toolbar to open the Levels palette. Pick on Add Level or Add Multiple Levels to start adding or editing the levels.



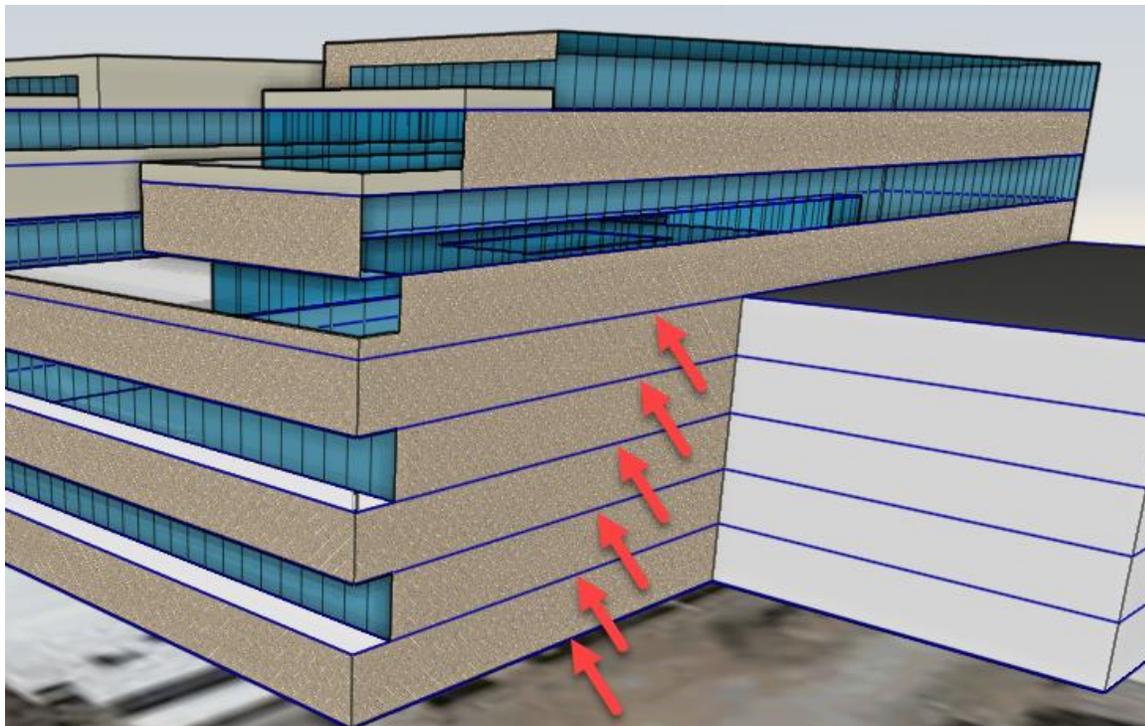
Name	Area	Elevation
Level 10	0 sq ft	100'
Level 9	38106.4 sq ft	89'
Level 8	41600 sq ft	78'
Level 7	41600 sq ft	67'
Level 6	68900 sq ft	56'
Level 5	68900 sq ft	45'
Level 4	68900 sq ft	34'
Level 3	68900 sq ft	23'
Level 2	68900 sq ft	12'
Level 1	68900 sq ft	0'

Add Levels to the Model

To add the levels to the model, click or double-click the model and open the properties palette. Now, pick on the properties tab on the top left of the palette and check mark the area by level option.



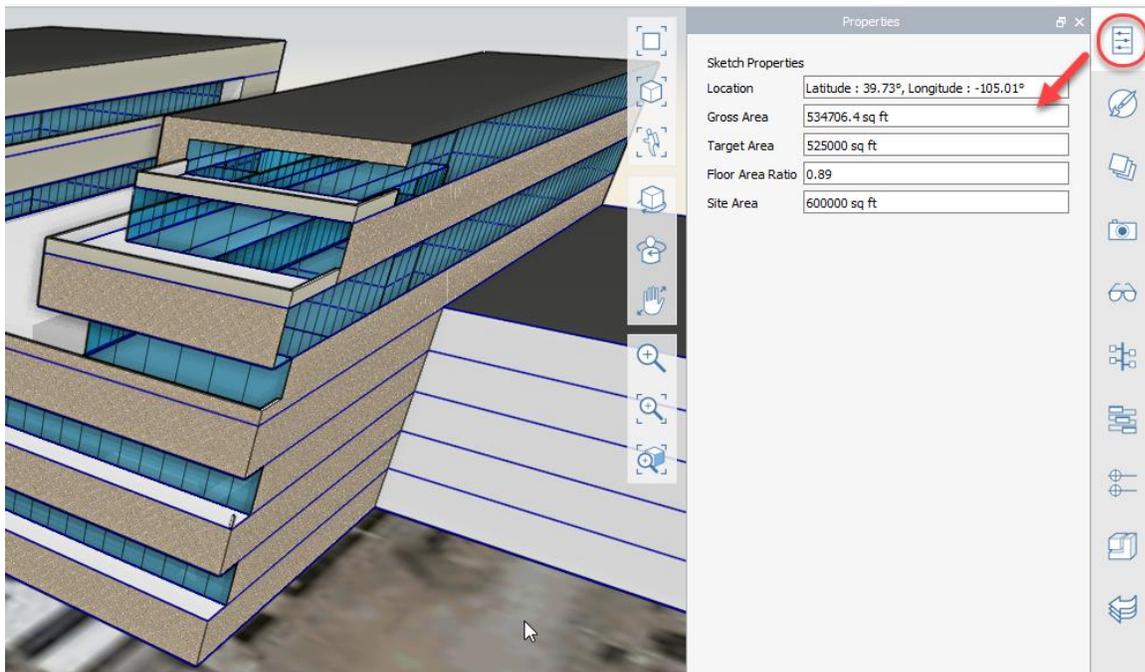
Notice how the model now has blue lines encompassing your model. What is really nice is you can draw lines to the level line edges or align items to those edges.



NOTE: Using the visual style tools you can turn these lines Off, or type "DL".

Gross Area

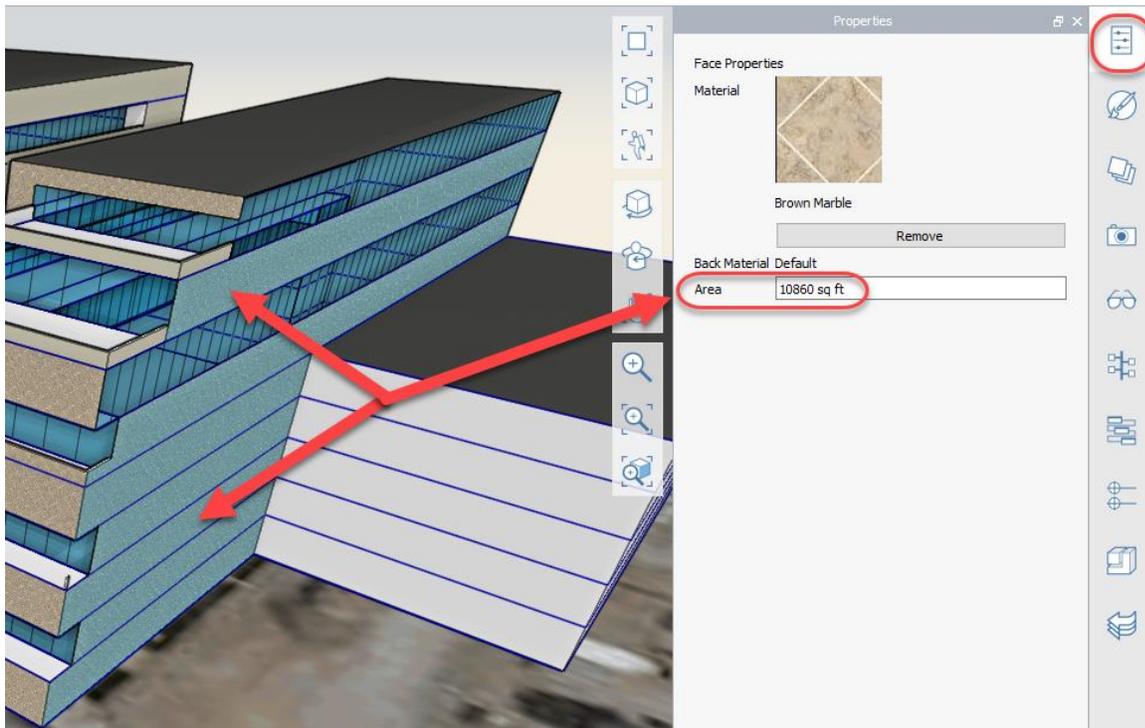
With the levels now part of the model notice that FormIt is showing you the total sq. ft., you can add a target area and FormIt will warn you.



Floor Area Ratio

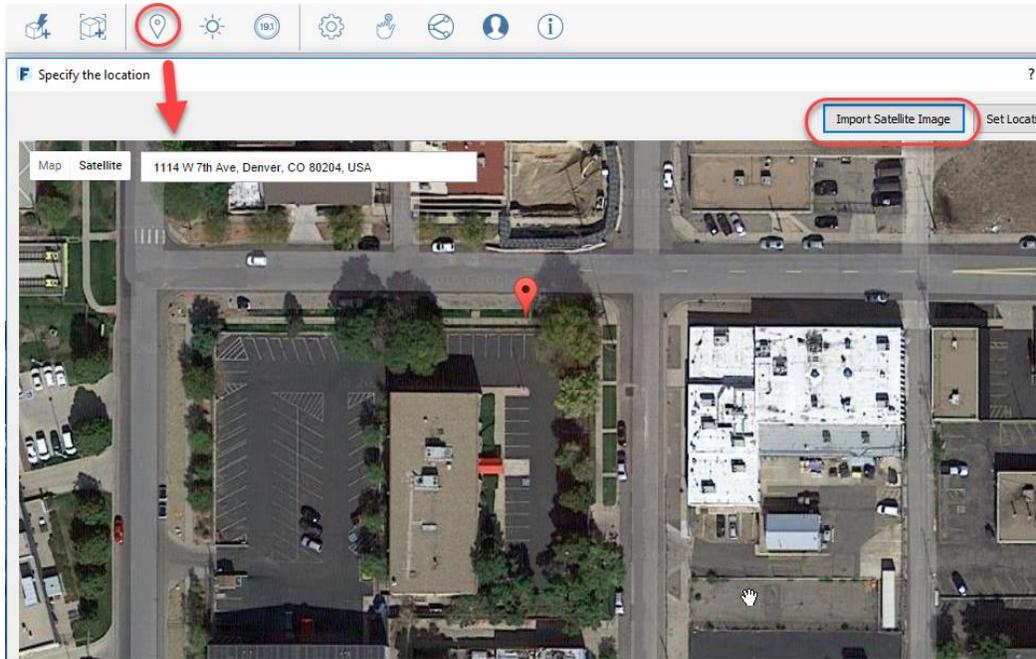
You can also add site area so you can see what the floor area ratio is.

NOTE: You can select a single surface or use the CTRL key and select multiple surfaces to get the total square footage.



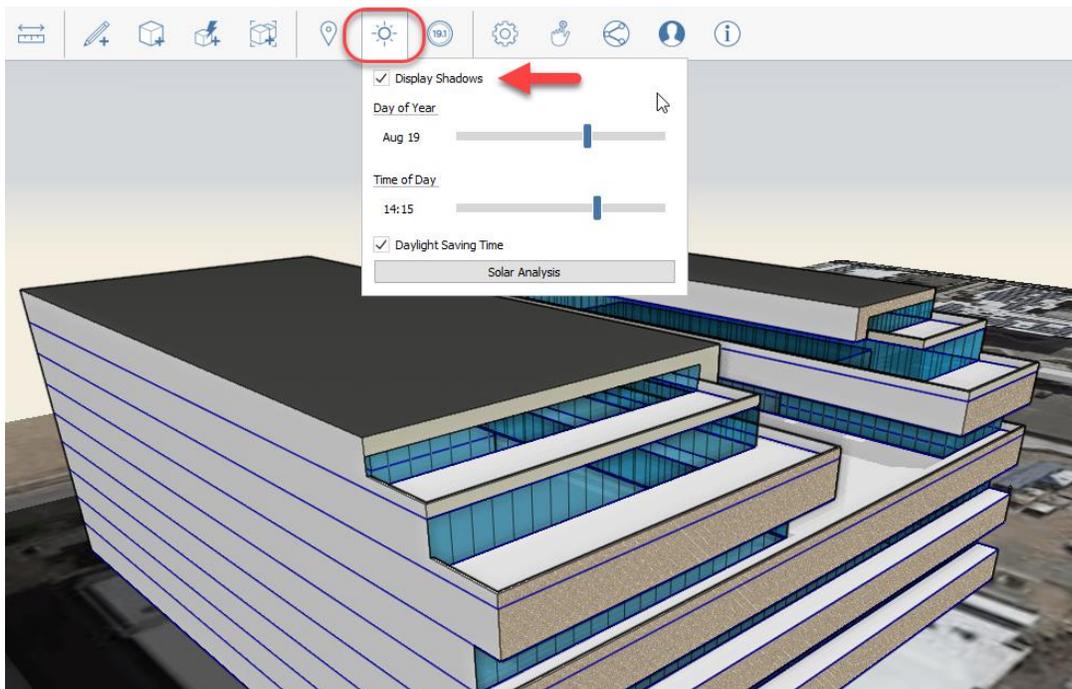
Site Image

Putting context to the shape that you are creating you can bring in a site image initially to help with design intent. On the bar at the top is the ability to set the location of your design which will give you accurate shadows.



Sun Settings

You can adjust the sun settings using the top bar to get a real-time daylight study.



Scenes

Use the scenes to create and navigate back to saved viewpoints. The viewpoints can remember camera position, layers, sun and shadows, visual styles, and visual environment, including animation settings.

Scene Properties

Name:

Camera

Layers

Sun And Shadows

Visual Styles

Visual Environment

Include In Animation

Pause Time: Seconds

Transition Time: Seconds

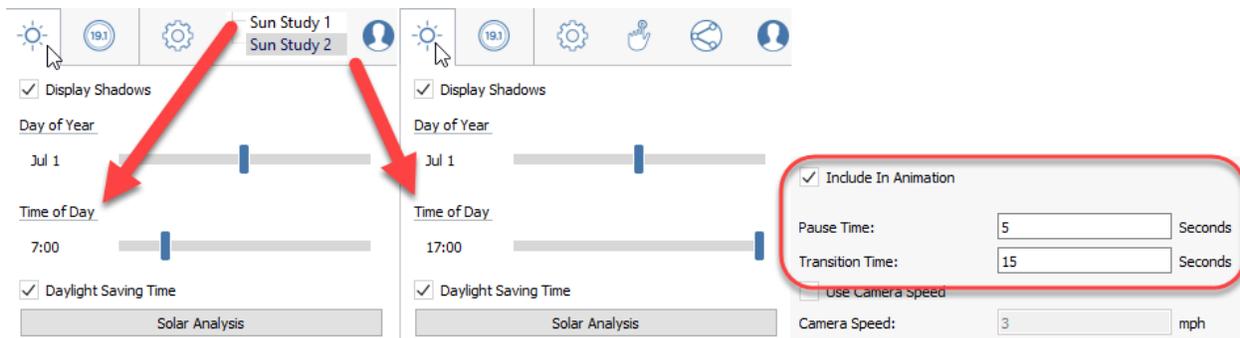
Use Camera Speed

Camera Speed: mph

Create and Modify Scenes

- Click the Add Scene button  in the Scenes palette.
- At bottom of the palette you can rename the scene.
- Click the Update button  to update the scene based on the currently visible viewpoint and settings.
- Click the Edit Scene Camera button  to adjust or see the camera in the scene. It is best to setup an overall viewpoint to best see the cameras.
- Click the Delete button  to delete the current scene.
- Use the check boxes under each scene to determine whether camera position, layer state, sun position, or visual styles will be applied to the scene.

NOTE: To show a shadow study create (2) scenes, one has the Time of Day set early and the other with other will have the time set late in the day.



Sun Study 1
Sun Study 2

Display Shadows

Day of Year

Jul 1

Time of Day

7:00

Daylight Saving Time

Solar Analysis

Display Shadows

Day of Year

Jul 1

Time of Day

17:00

Daylight Saving Time

Solar Analysis

Include In Animation

Pause Time: Seconds

Transition Time: Seconds

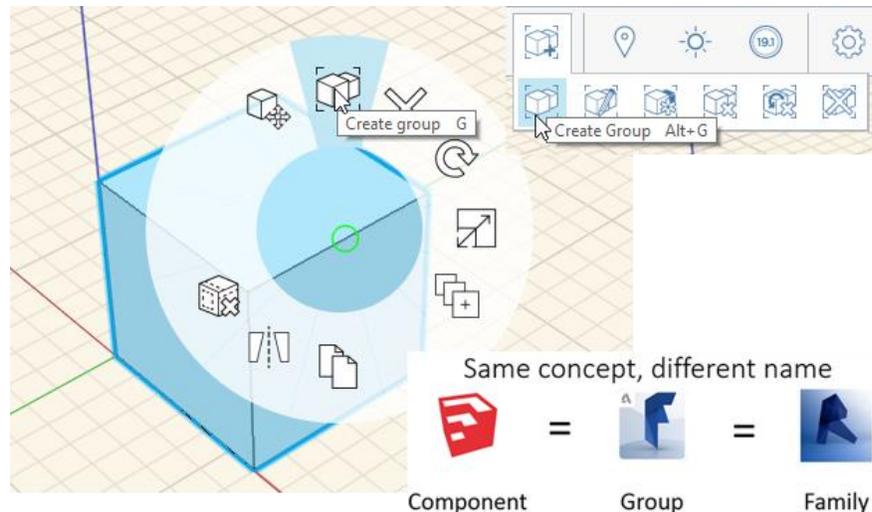
Use Camera Speed

Camera Speed: mph

Sharing the FormIt Model with Revit

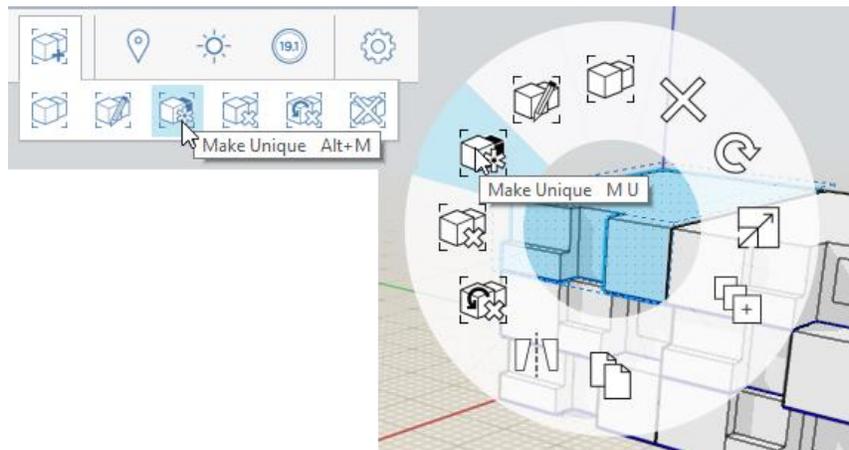
Groups

In this section, we will learn how to take FormIt models into Revit for further study. We can bundle together one or more objects into clusters so that you can easily manipulate them and help create geometry more efficiently. You can copy a group to create instances, these copied groups are linked, so making a change to one will update the others. You can also use the Ribbon, Right-Click Menu or the keyboard shortcuts: G, E, F (Group, Edit, Finish) plus U (Ungroup) and M (Make Unique).



You can nest groups within a structure or hierarchy. Nesting groups gives you a way to cluster “like” elements within a design. For example, your design may use an array of columns that you can group so that editing that part of design becomes easier. Without grouping the columns, editing them would require you to edit each individual column, which might prove impractical if the design used hundreds of columns.

You can copy a grouped object and make it unique so that changes to the original object do not update the copies. Making a group unique gives you a way to edit some of the columns in your multicolumn design, but not all.



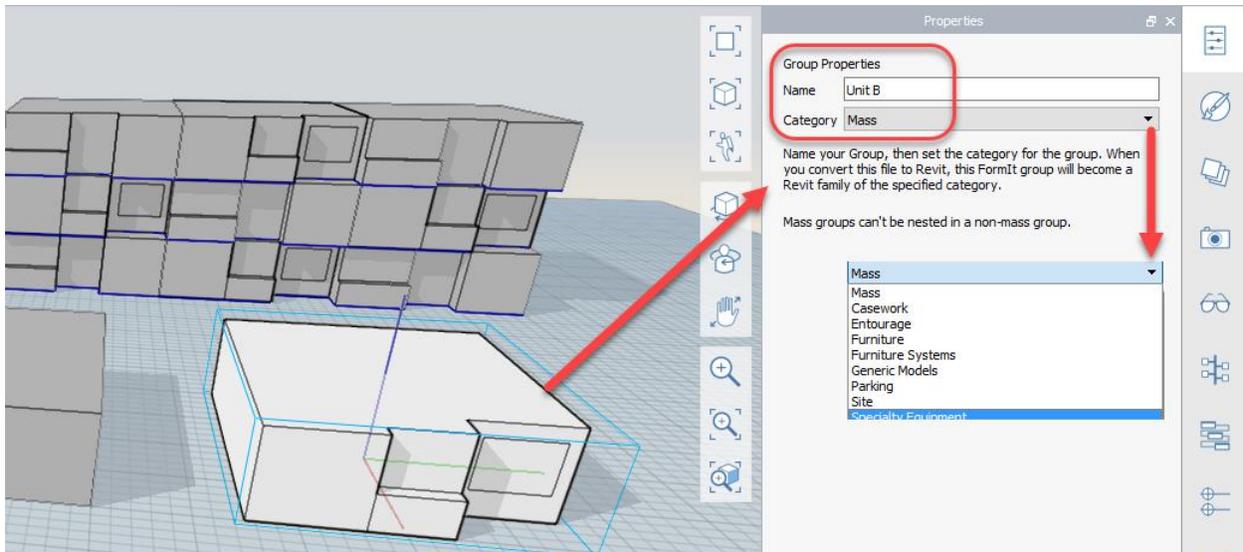
NOTE: You can apply levels to grouped objects, and apply materials to elements inside of the group which will update all instances.

NOTE: When you open a FormIt file in Revit, Revit converts those grouped objects into Loaded Mass Families and Nested groups become Nested Mass Families.

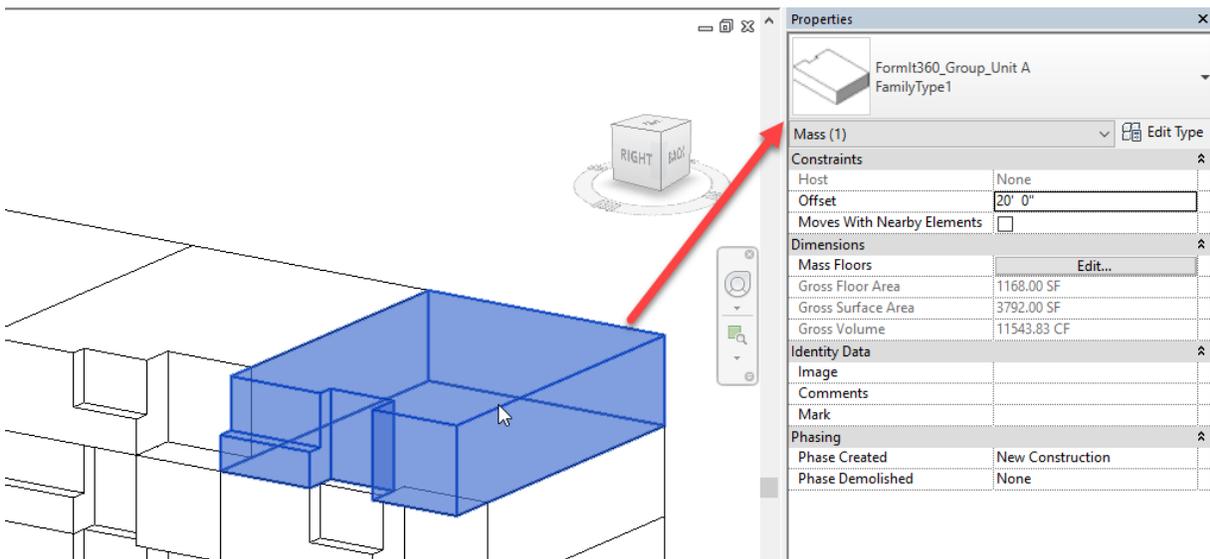
Group Name/Category

One of the unique items in FormIt is giving the Groups a name and category. This is really nice because it gives us control on the behavior of the objects back in Revit.

To see this option, you must be in “edit mode” of working on the Group. If you double-click on a Group, you can see on the Properties palette the option. You must give it a name before you can set the category.



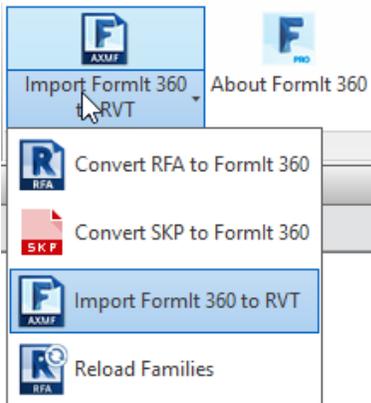
Back in Revit is where you will see that Groups are using the correct name and category and the object will have the appropriate behavior either as a Mass or Family.



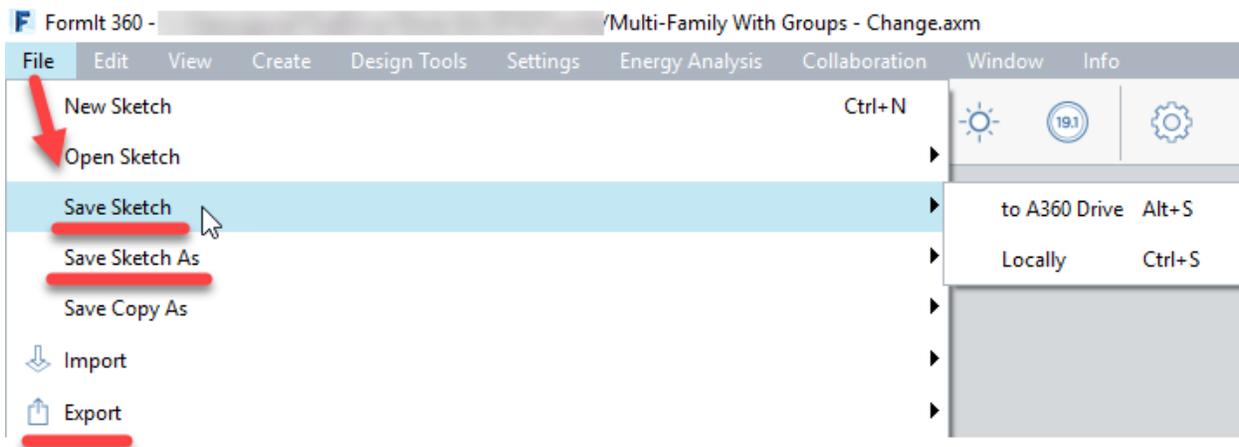
NOTE: If you use “Generic Model” category, back in Revit you can re-assign it to a different category, example would be a column switched to the “Structural Column” category.

FormIt to Revit

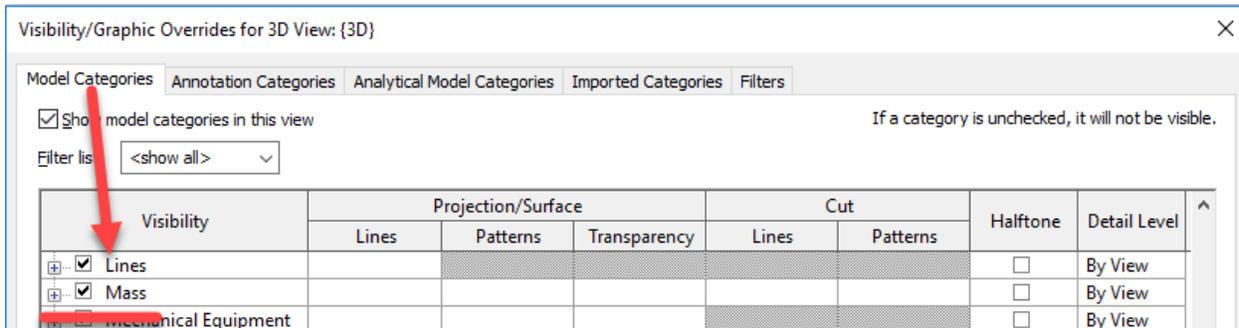
Steps to convert from FormIt 360 AXM file to Revit RVT file is simply using the Add-ins plugin inside Revit. Start a new file using your favorite Revit template and get into a 3D view. Now use the “Import FormIt 360 Sketch to RVT” to import the FormIt model into Revit.



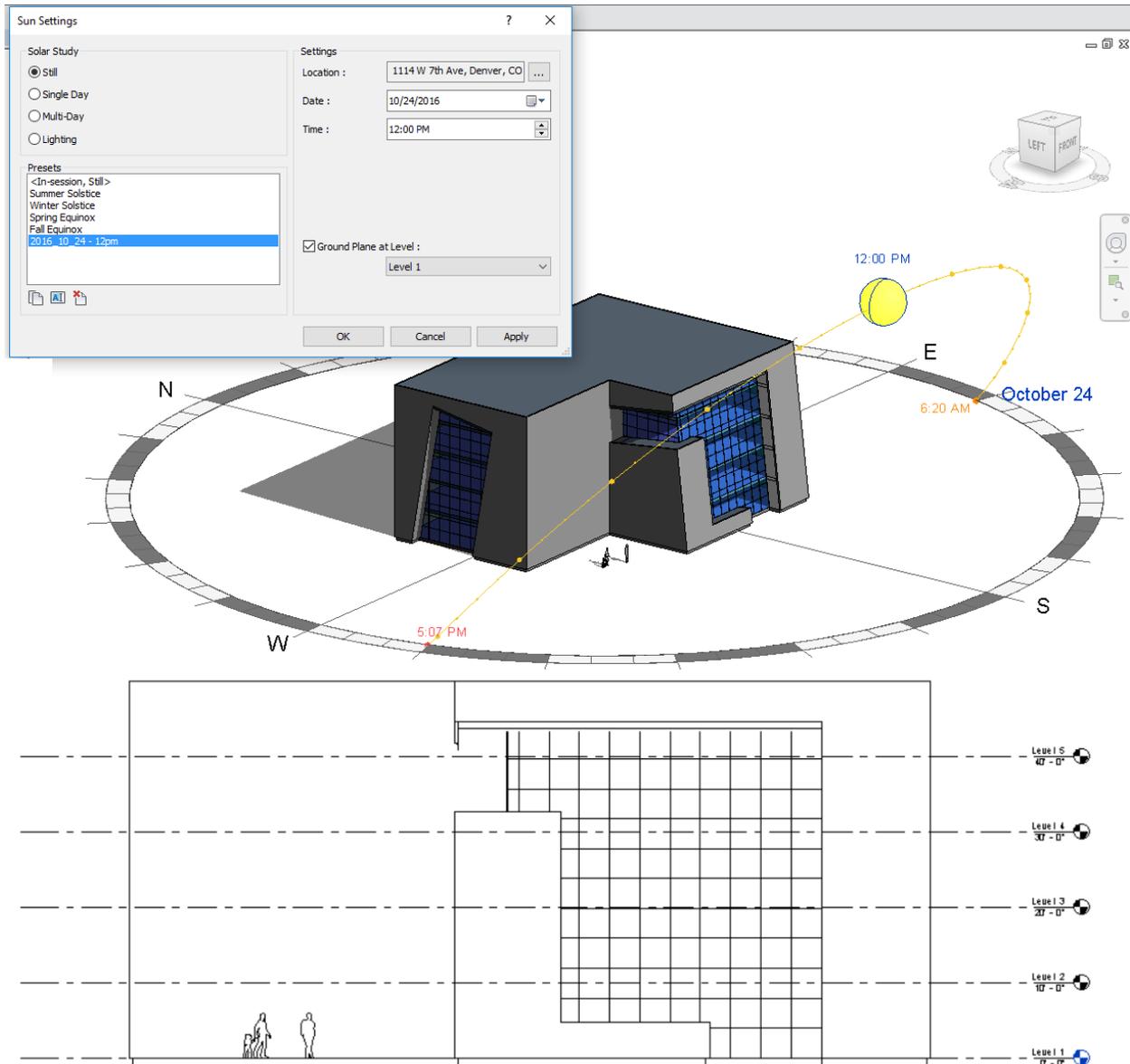
You can use the Save Sketch, Save Sketch As, or Export to save the AXM file locally to your computer.



In most cases, you'll need to make sure that Mass category visibility is set to display in your view. Type in VV or VG in Revit and in the Model Categories tab check mark the Mass category.



NOTE: The add-in will proceed to convert the geometry in the FormIt 360 file and place it in the currently open RVT file. The location information is translated along with the current shadow settings including the levels.



Grouped Objects = Families

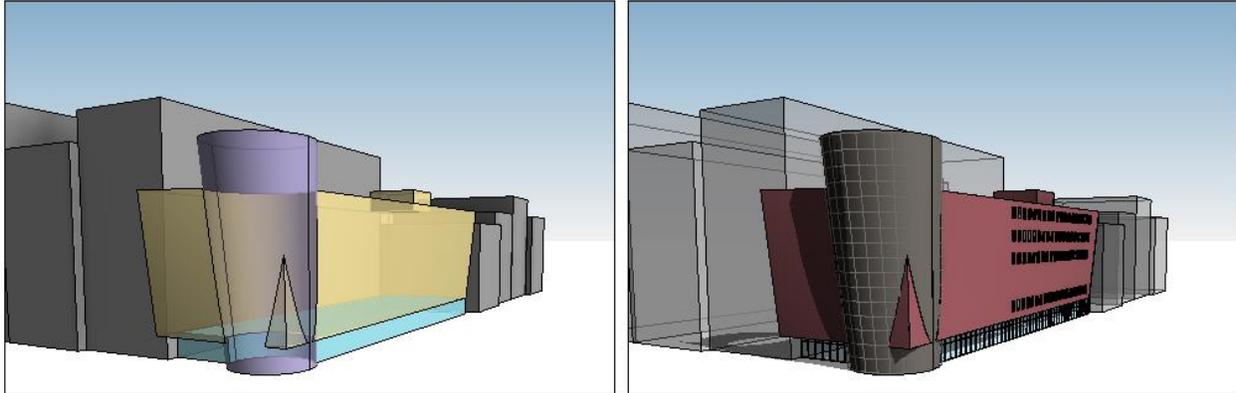
Grouped objects that are copied will be placed as instances of that same Mass family

Groups that are assigned a specific Category within FormIt 360 will be placed as a family of that same Category. You may manually replace these families with any other Revit family of that same Category.

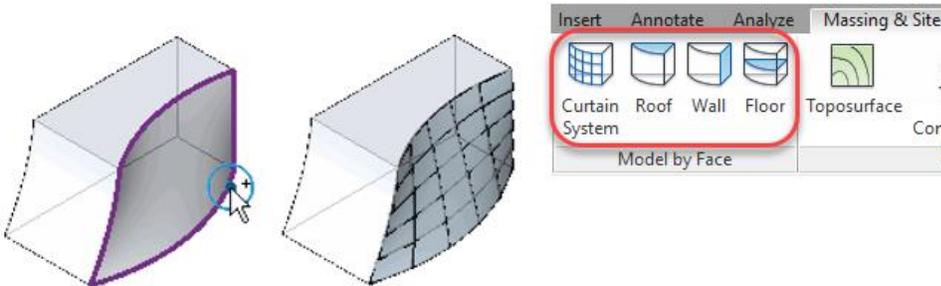
Content that was converted with this add-in will be placed as a family of that same Category. You may use the Reload function to replace these families with the proper RFA file.

Add Revit Elements to Mass

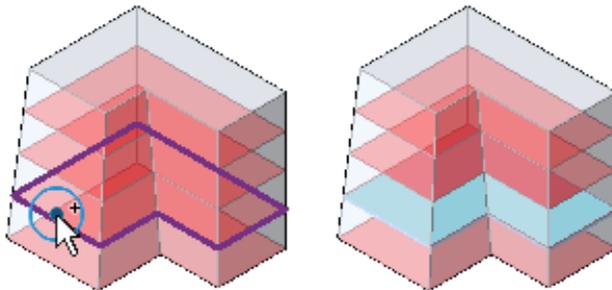
You can create building elements from the faces of mass instances.



Using the Mass & Site Ribbon tab you can add roofs, curtain walls, floors, and walls to the surfaces of the mass model. In this example, a mass surface becomes a curtain wall. Learn more here: <http://tinyurl.com/MassToBuilding>

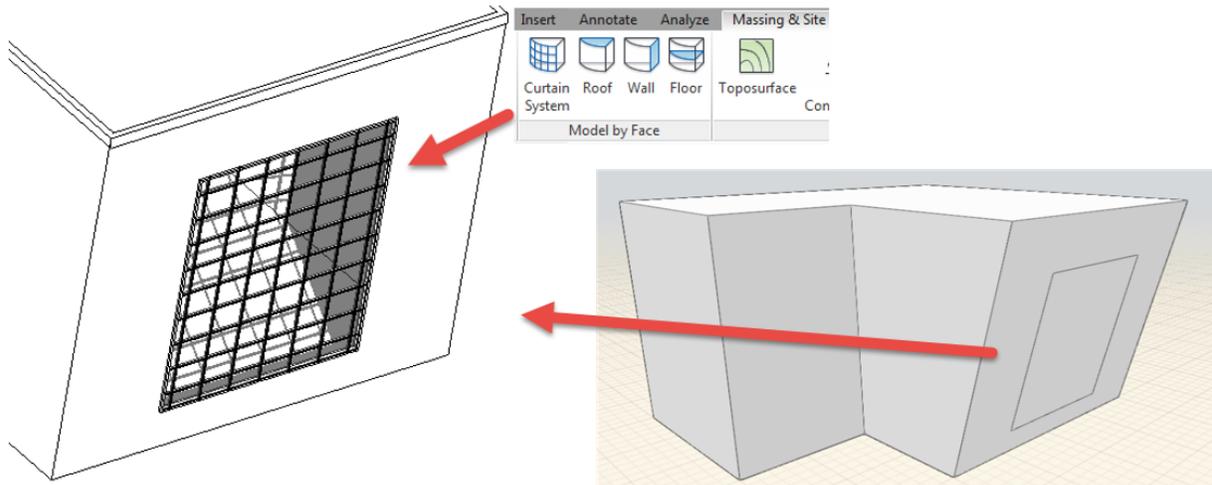


In this example, a mass floor is created at each level of the mass, and the mass floors are converted to floors.



Surface Trick for Revit Elements

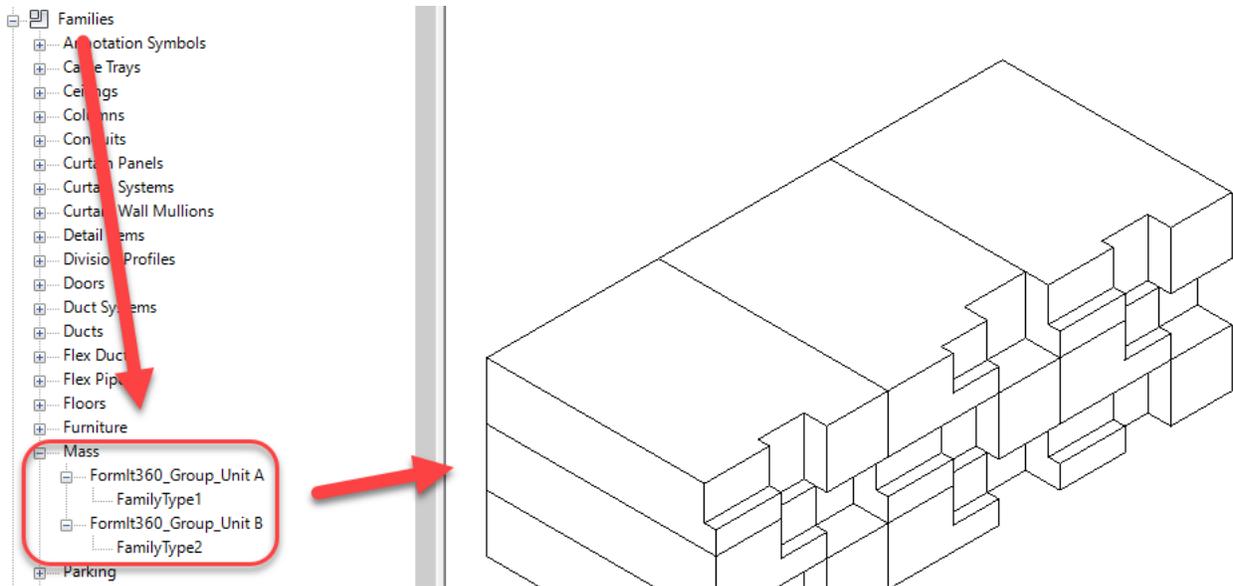
Even if you don't recess/bump the surface, the individual face will come into Revit. Since Revit can see that surface you can attach a wall or curtain wall to it.



Update Revit Model with Updated FormIt Group

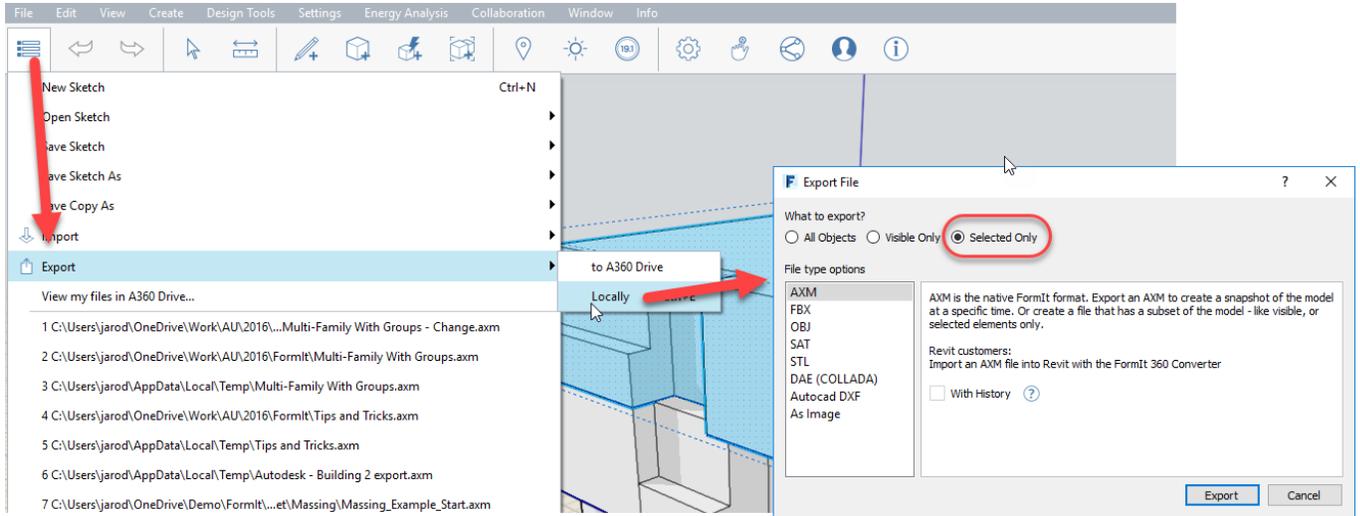
We all know that this is going to happen, you go back to the FormIt model and make some updates. Can you then want to take those updates and bring them into your Revit model that you created earlier? And guess what? You Can!

The trick is to use Groups and Nested Groups when developing your FormIt model. When this gets converted inside your Revit model the FormIt groups are turned into Massing Types or Families.

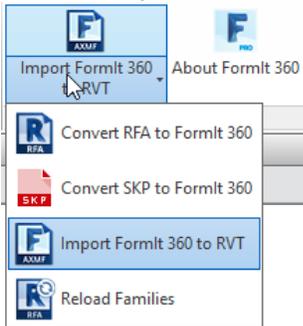


Use the "Tab" key to hover a mass to select to see the name or create an instance in your model so you can see what each one is. Back in FormIt if you update the model and want to refresh your Revit model then follow these next steps.

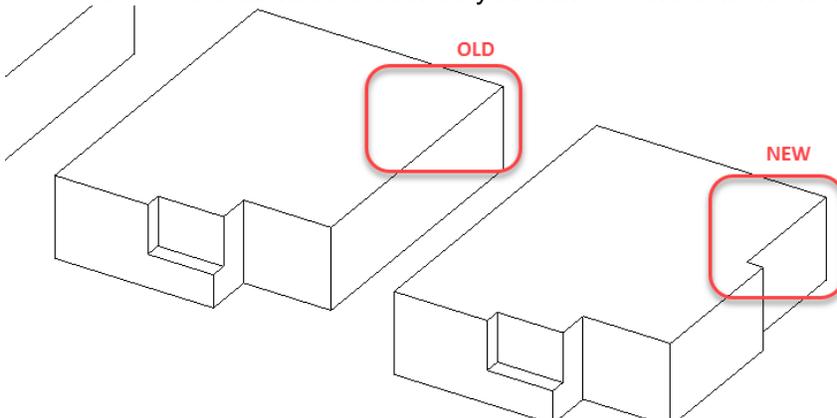
- Go back to the FormIt model and modify the correct group so it is updated and save the file.
- Select the modified Group.
- Now use the Export > Locally and choose “Selected Only” option.



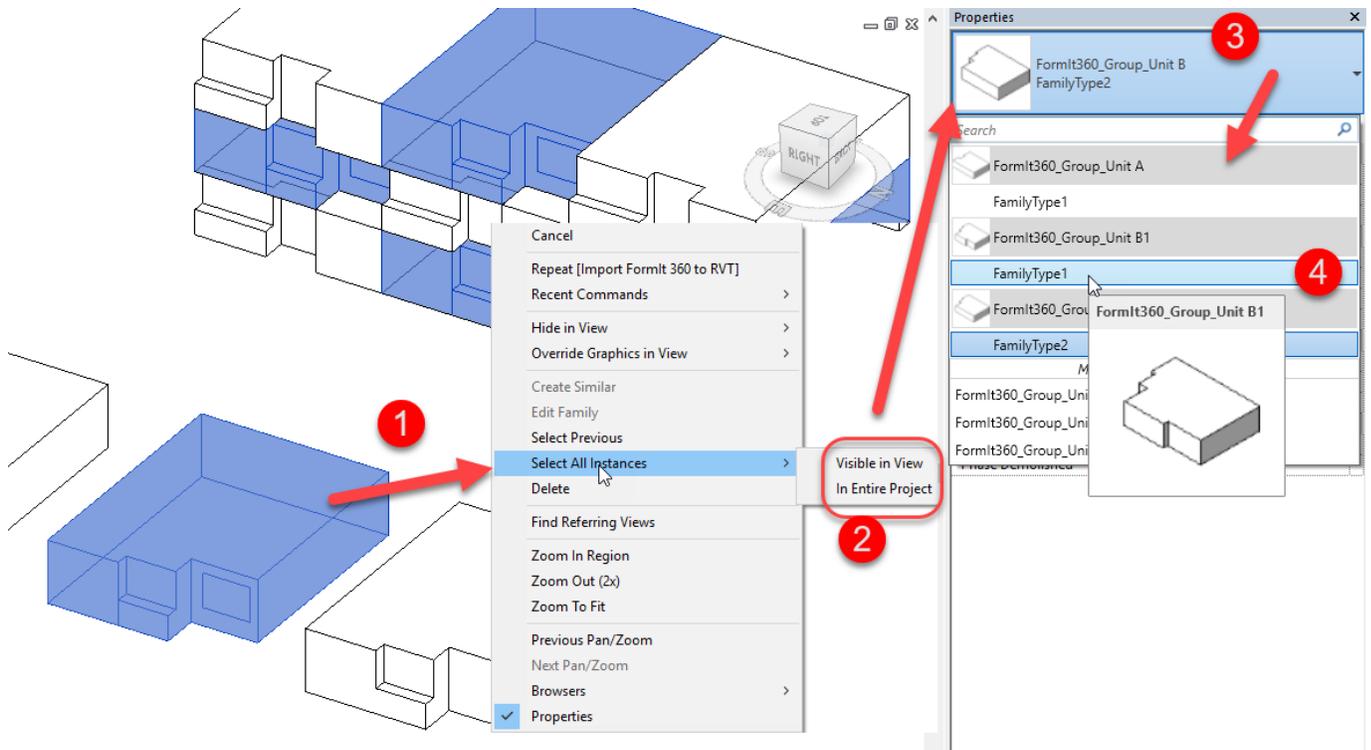
- Open the Revit model that needs to be updated.
- Go to the Add-In's tab - FormIt 360 Converter panel - from the drop-down list choose "Import FormIt 360 Sketch to RVT"



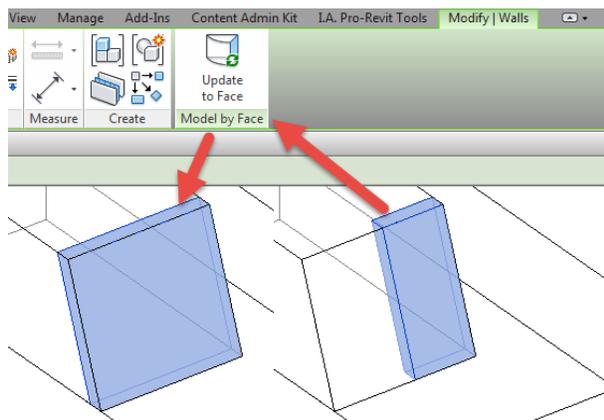
- Navigate to where you saved the updated AXM file.
- Click OK
- The updated Mass family will import into the same location as where it first came in at.
- Select it and move it over so you can see that it is the new updated Mass.



- Depending on what your needs are you can selectively pick on the old Mass families to change them to the new Type or you can select one of the old Mass families and use the right-click menu and choose “Select All Instances” and then change them out to the new Type.

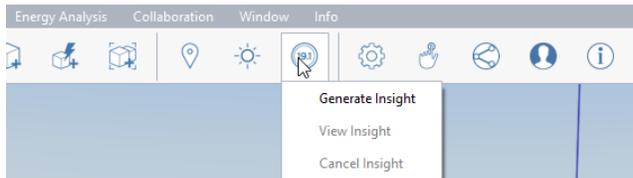


- Since the new Mass family does not have a new name it is up to you on how you want to handle the updates. Giving them good names you can keep track of the revisions and the design changes.
- If you added Building Elements to the Mass select the appropriate Build Elements and use the Update to Face tool.

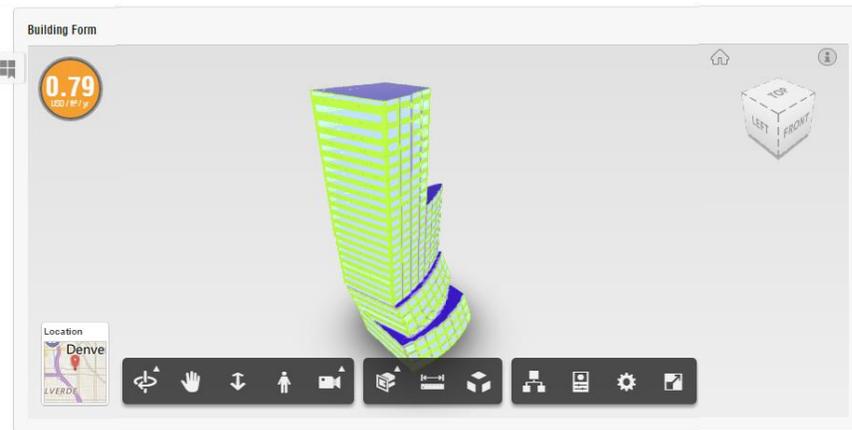


Insight 360 with FormIt

You can model with FormIt 360 Pro, or Revit, or together, to generate insights using robust automatic analytical model creation and visualization of performance information directly in the modeling environment. Visualize and interact with key performance indicators, benchmarks, factors, ranges and specifications with real time cause and effect feedback to guide you towards better outcomes.

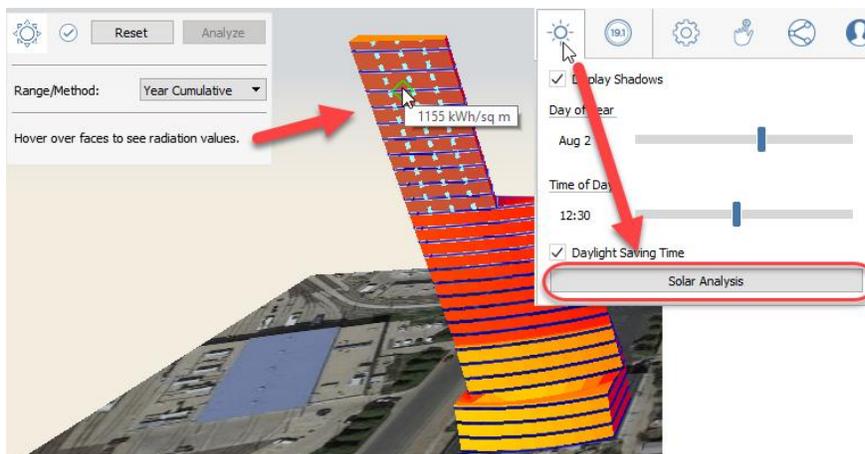


From FormIt 360 you can take your model directly into Insight 360, by-passing Revit for quicker feedback.



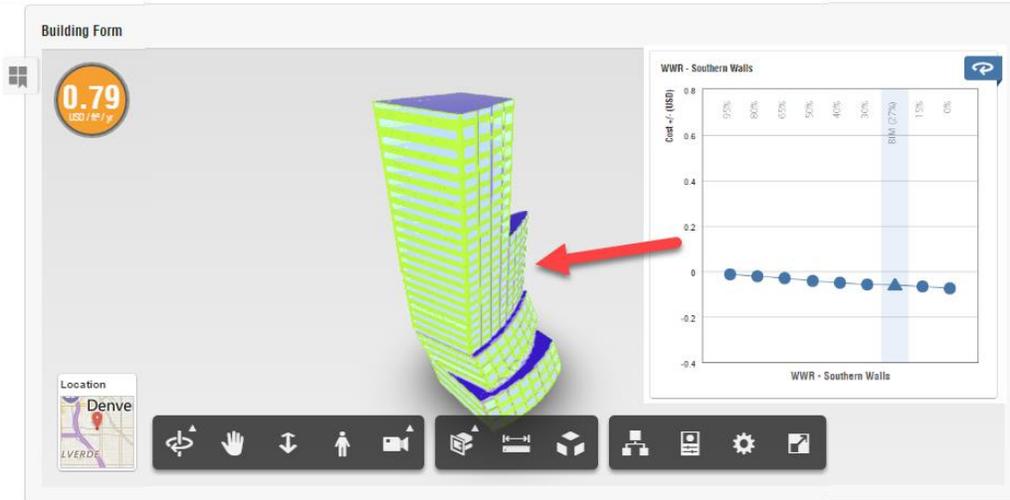
Solar Analysis

FormIt can also do solar analysis to visualize the amount of solar radiation that your model receives. Pick on the Solar Analysis under the Sun and Shadow button. Double-click to select the entire model or use the CTRL key and select just the surfaces in question and then choose Analyze.

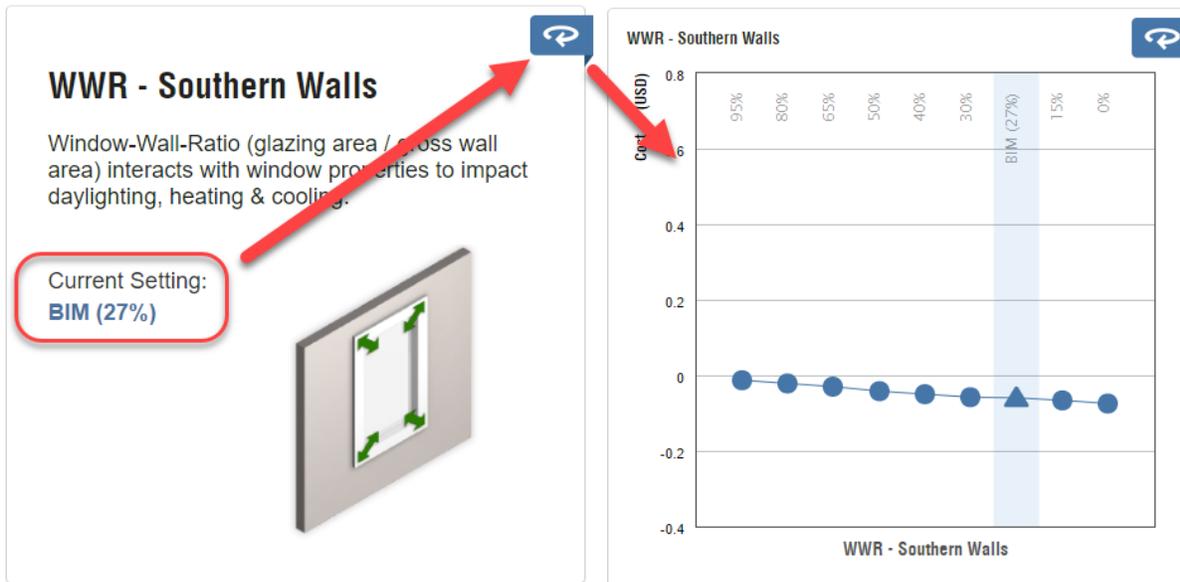


Feedback on Façade

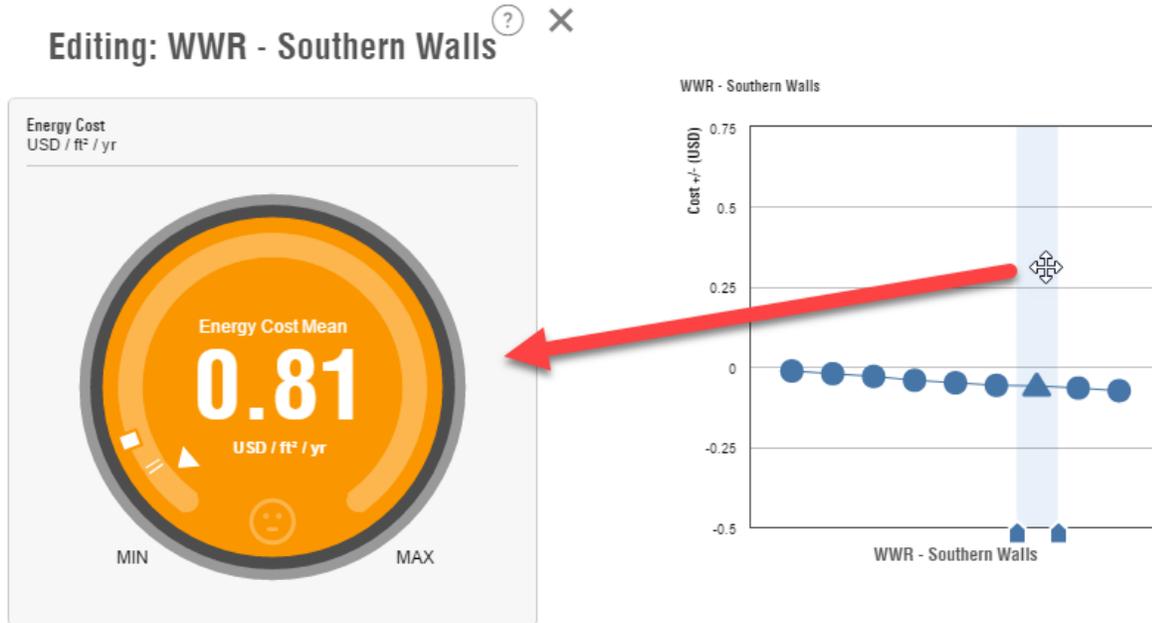
Once the model is in Insight 360 there are tools to examine wall surfaces on the North, South, West and East side of the building. As you change the percentage of how much glazing would like to have on each side Insight 360 will show how that affects the model performance.



Scroll down to find the different settings that you can change, for this focus we are looking for the tiles that start with “WWR”, hence “Window-Wall-Ratio” settings. Notice that it has chosen a default percentage, pick on the round arrow icon that is at the top right of the tile to make a change.

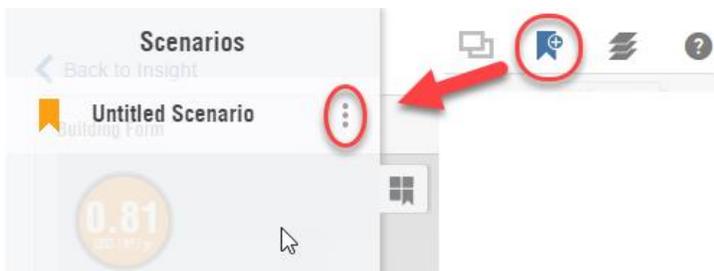


If you pick on the tile it will open the tile to give you the ability to move the slider. As you make those change you are getting instant feedback on how that is affecting the model performance.



NOTE: Currently there is no designation in FormIt to apply a parameter to a surface so Insight 360 looks at it as a punched opening or glass facade. At this level of the design the percentage is the best that we have currently, stay tuned on improvements on this.

Insight 360 gives you the ability to compare options as you are changing the settings for performance feedback. To save your settings per design change pick on the “Add Scenario” at the top right of the interface. On the left is a palette where you can rename the scenario.

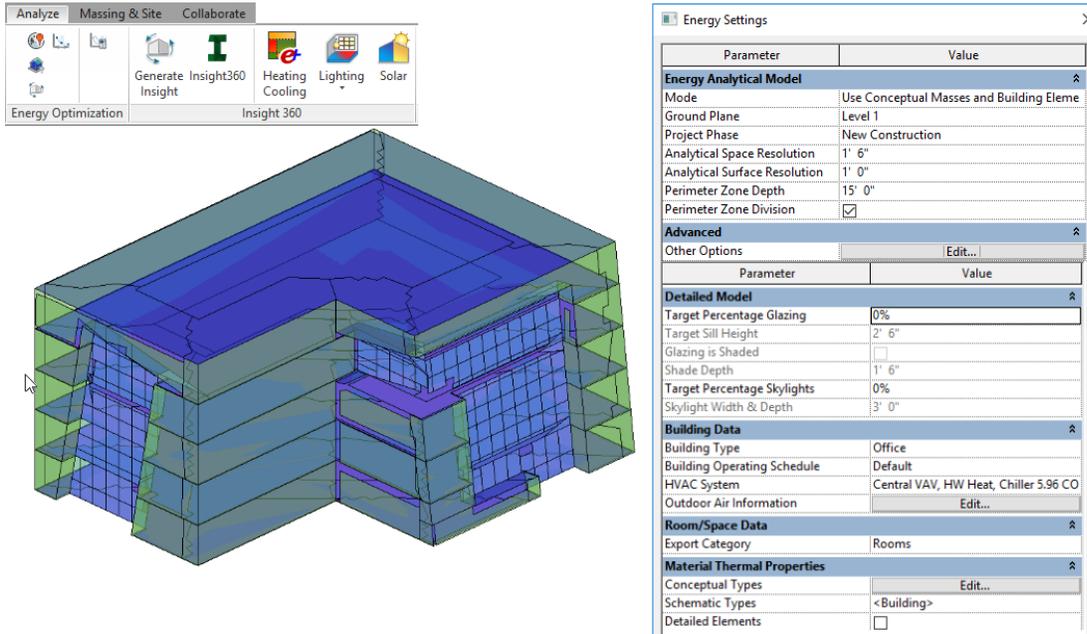


Insight 360 with Revit

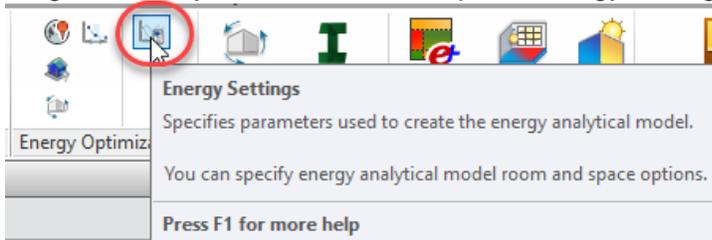
Early we discussed how to take the FormIt model into Revit. Revit has Insight 360 tools built in so even if the model is moved further down the design path you can continue to get feedback on how that is affecting the model performance.

Energy Settings

Using the Analyze tab in Revit will lead into all the tools for energy optimization for your model.

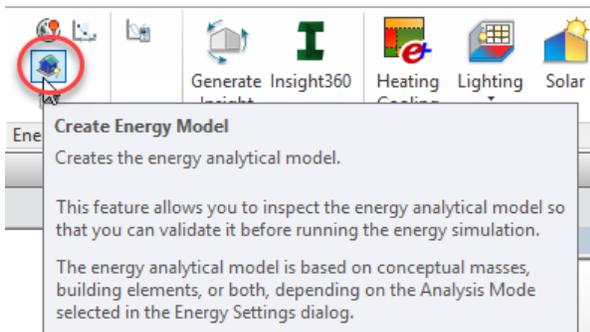


To get started you will need to setup the Energy settings for the model.

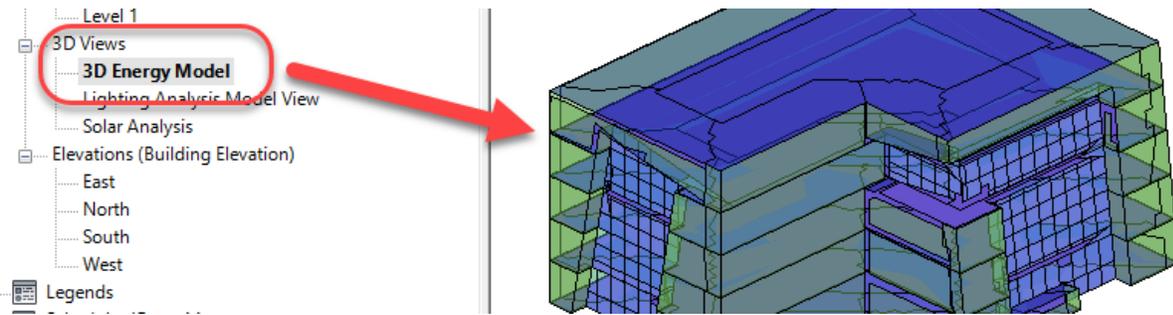


Energy Model

Now pick on the Create Energy Model tool to generate the energy model.



This is creating a unique 3D model view in your Revit file.

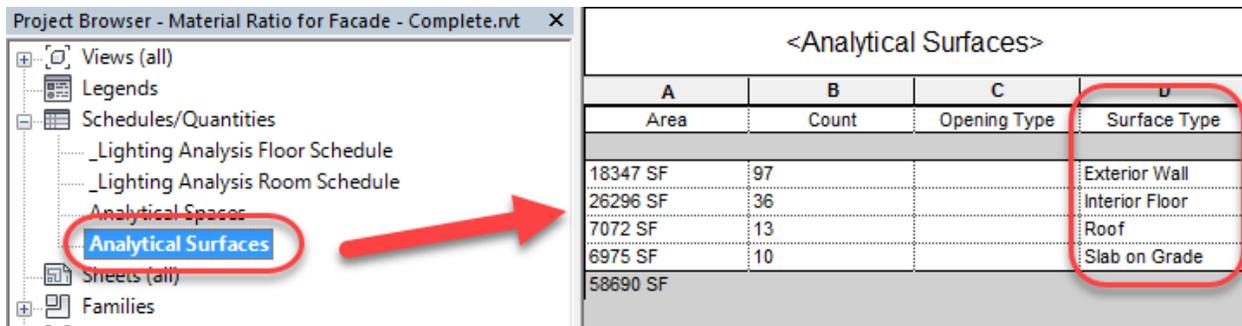


Punch Opening/Glass Facade

Like FormIt, if you sent this to Insight 360 it would not know what surfaces are punched openings or glass façade. The trick here is to simply add a few curtain systems to the appropriate surfaces of the model.

Analytical Surface Schedule

There is a schedule that gets automatically built when creating the energy model, take note there is nothing about openings as of yet.

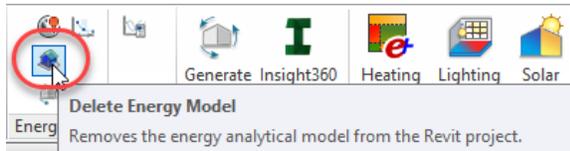


The image shows the Revit Project Browser on the left with 'Analytical Surfaces' selected under 'Schedules/Quantities'. A red arrow points from this selection to a table titled '<Analytical Surfaces>' on the right. The table has four columns: A (Area), B (Count), C (Opening Type), and D (Surface Type). The 'Surface Type' column is circled in red.

<Analytical Surfaces>			
A	B	C	D
Area	Count	Opening Type	Surface Type
18347 SF	97		Exterior Wall
26296 SF	36		Interior Floor
7072 SF	13		Roof
6975 SF	10		Slab on Grade
58690 SF			

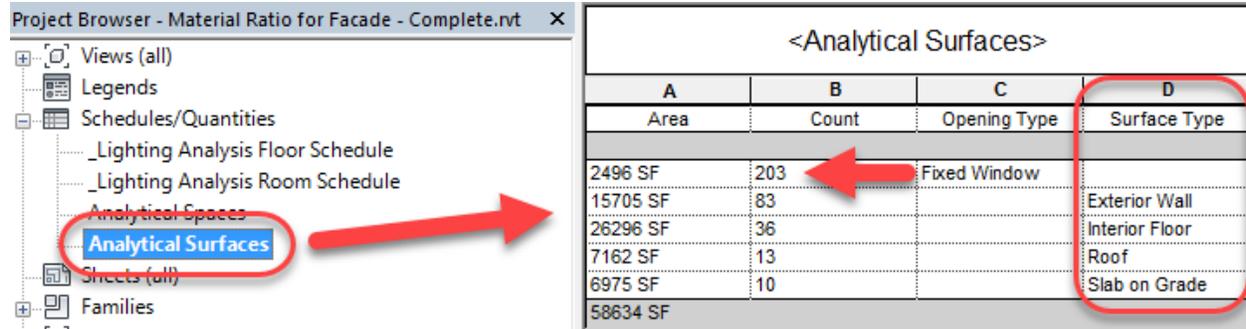
Energy Model Update

Once we add the new curtain systems onto the surfaces the energy model will need to be updated. To do that we need to first delete the old energy model and use the create energy model again for it to see the new curtain walls systems that are now on the surfaces.



Updated Analytical Surface Schedule

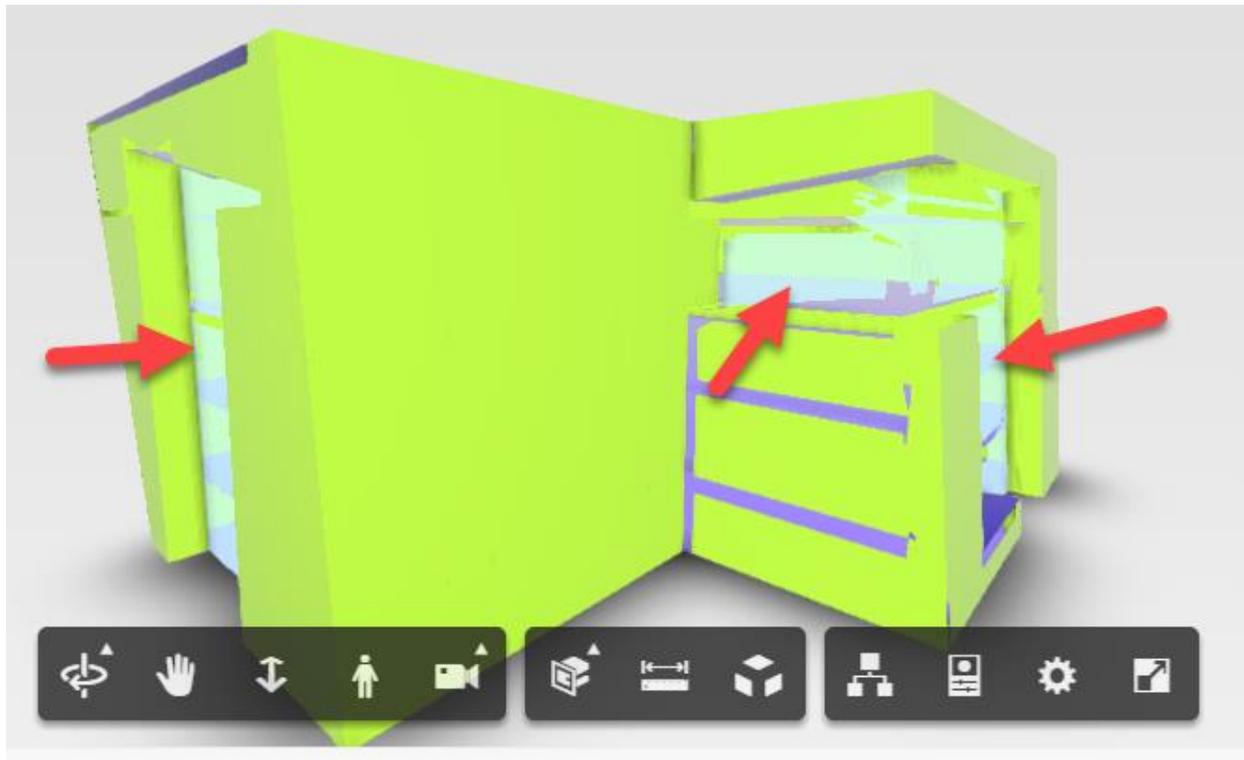
Now notice the new Surface Types in the schedule after the energy model has been deleted and recreated. Now we are getting somewhere further with the feedback and data from the energy model!



<Analytical Surfaces>			
A	B	C	D
Area	Count	Opening Type	Surface Type
2496 SF	203	Fixed Window	
15705 SF	83		Exterior Wall
26296 SF	36		Interior Floor
7162 SF	13		Roof
6975 SF	10		Slab on Grade
58634 SF			

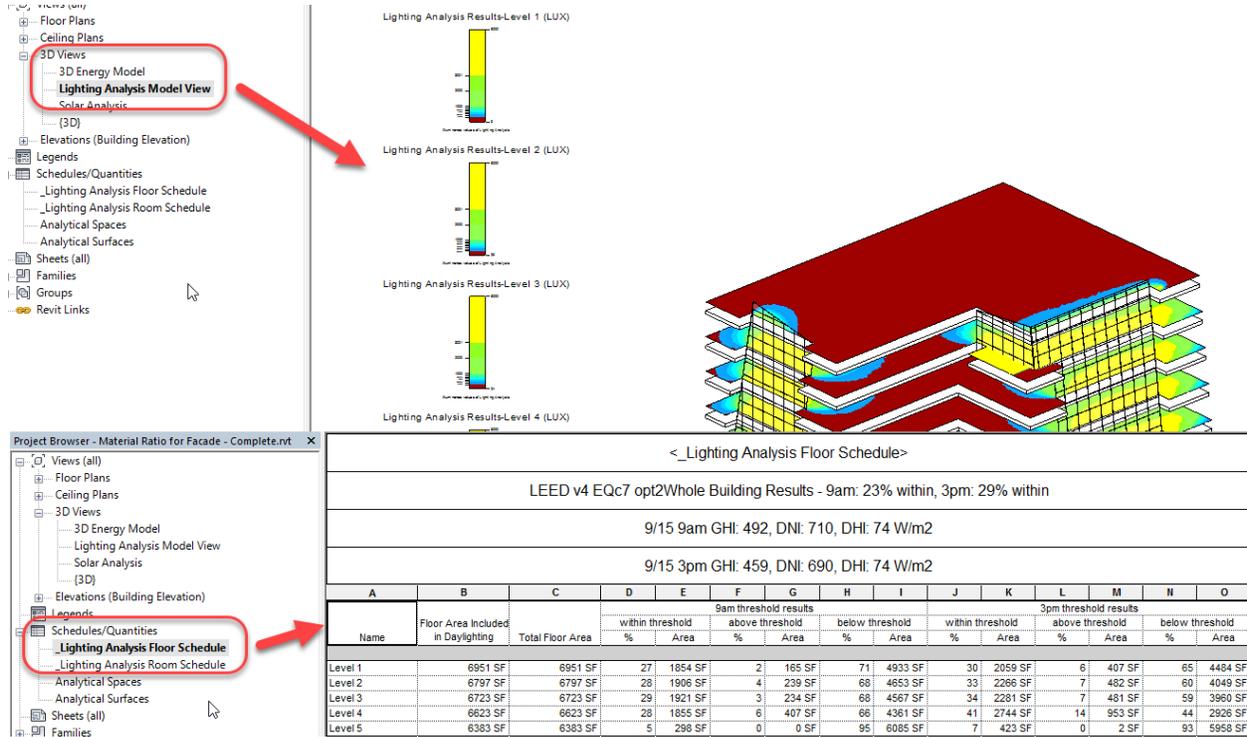
Insight 360 Model Update

Now if send it to Insight 360 the glass facades are being analyzed, so now we are getting better feedback. As the design percolates, we can continue to run the analysis just making sure to delete and recreate the energy model.



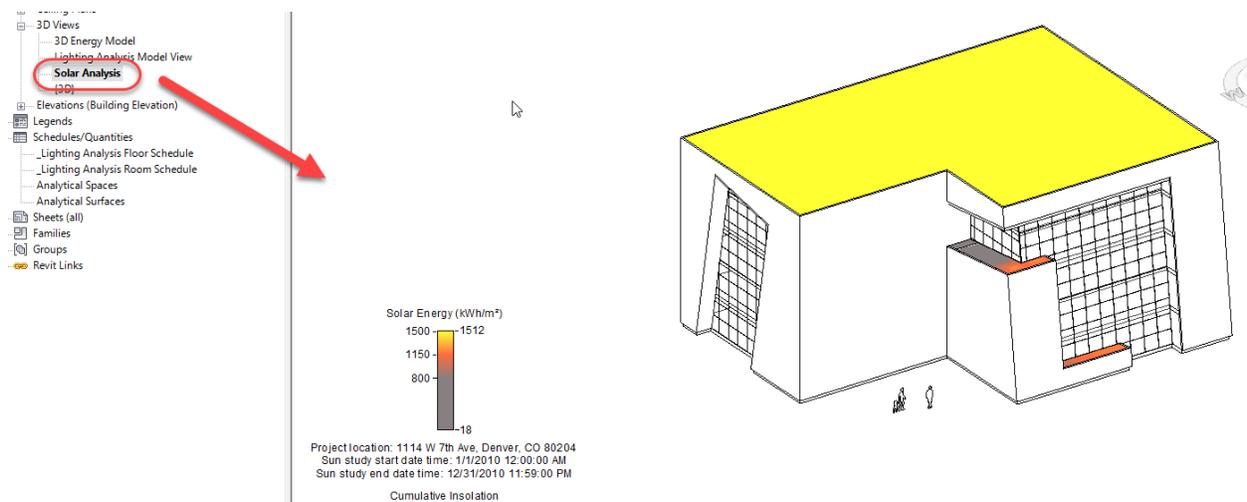
Lighting Analysis

There is also Lighting Analysis as part of the Insight 360 tools. This provides LEED IEQc8.1 2009 and LEED v4 EQc7 opt2 results for most models in less than 15 minutes once the analysis is started. This will create an additional 3D view along with a schedule of data based on how many floors you chose.



Solar Analysis

There is a Solar Analysis tool like the one in FormIt.



Shading Device Design Example

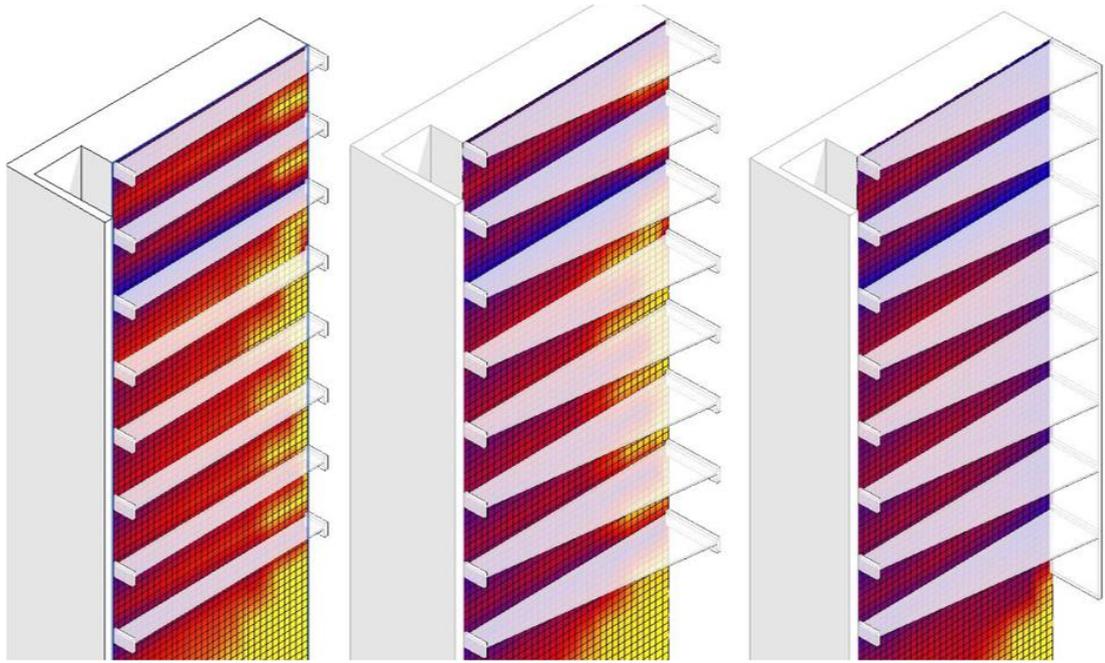
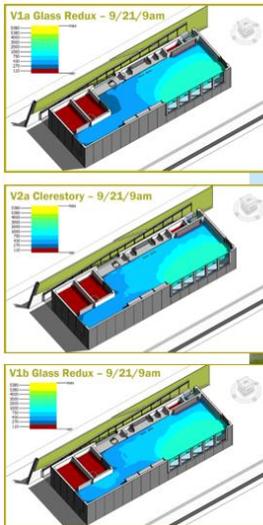


Image courtesy of Andrzej Szumilas

Window Placement & Glazing Selection for Daylighting Example



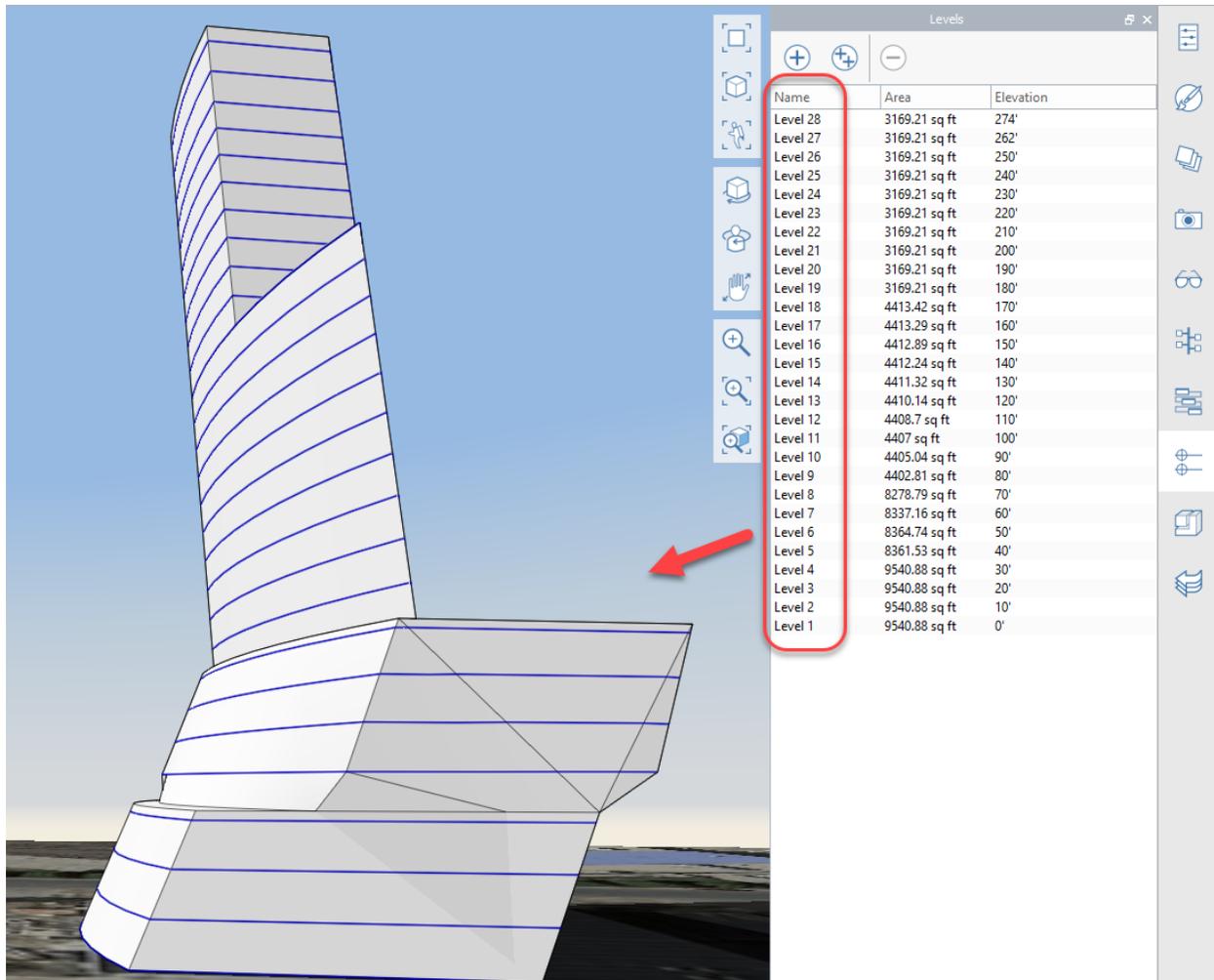
Images courtesy of Eskew+Dumez+Ripple

Revit to FormIt

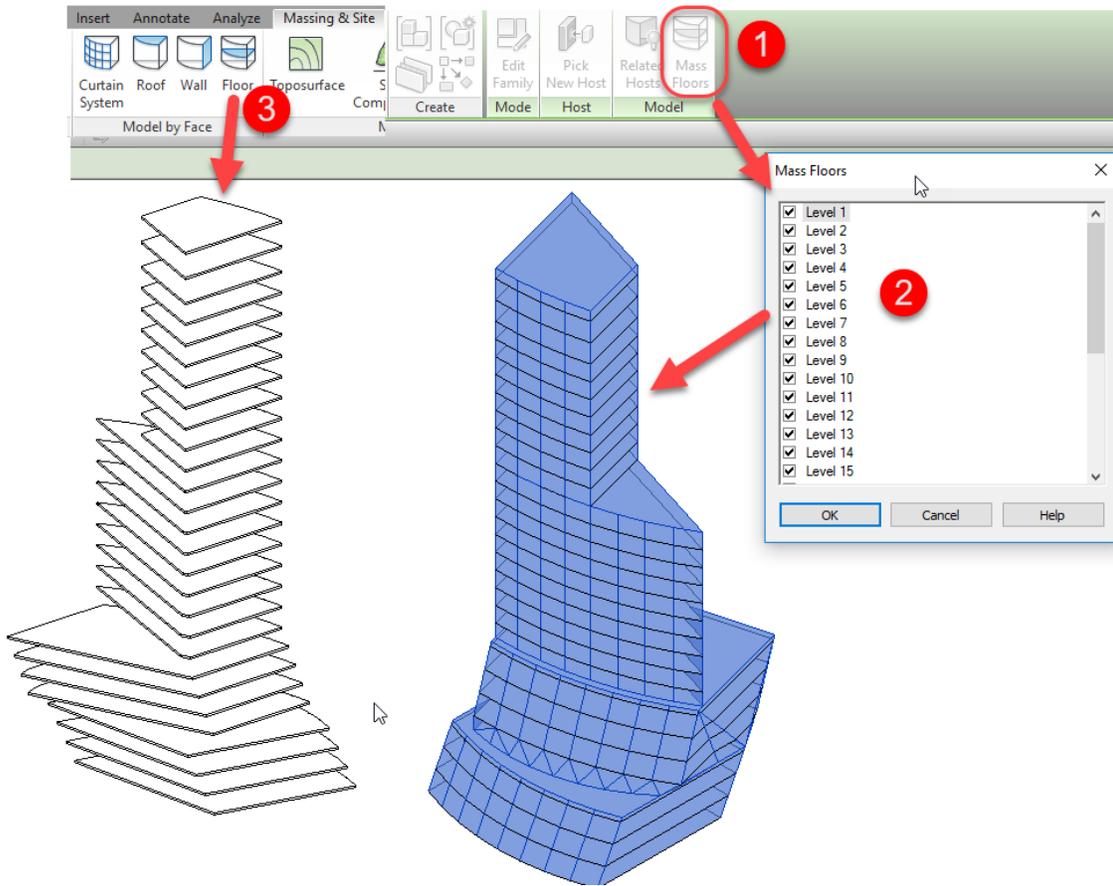
One item that gets brought up is there ways to take Revit content and bring into FormIt. In the future, this workflow will be more transparent but it can be done today with few extra clicks. The two items that I go through is Revit Floors and Curtain Walls.

Revit Floors back to FormIt.

As I'm working with FormIt I will need or want floors in FormIt. Now this can be done back in Revit with a simple boundary and a push/pull to create an extrusion. Where it gets time consuming is when you have a multi-storey building that has over 5 floors and each floor has a different boundary.

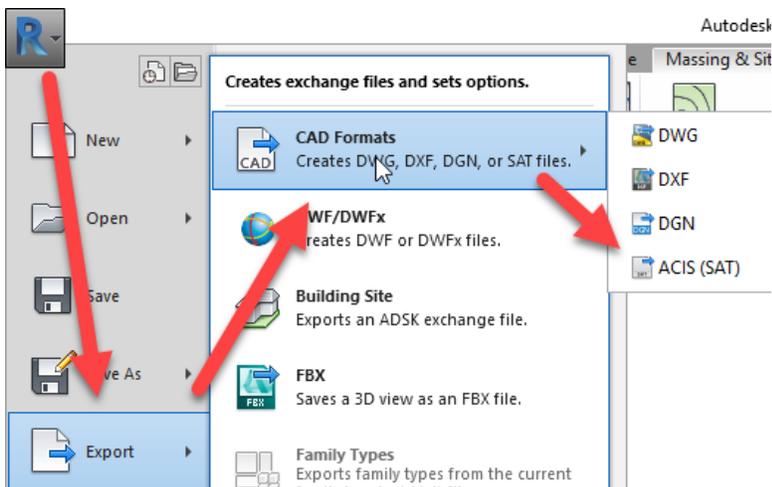


What I find easiest is to save this as a AXM and import it into Revit. Since it is a Mass and the levels come in and can now slice the mass with those levels. This is taking a few clicks to get here but is painless and fast.



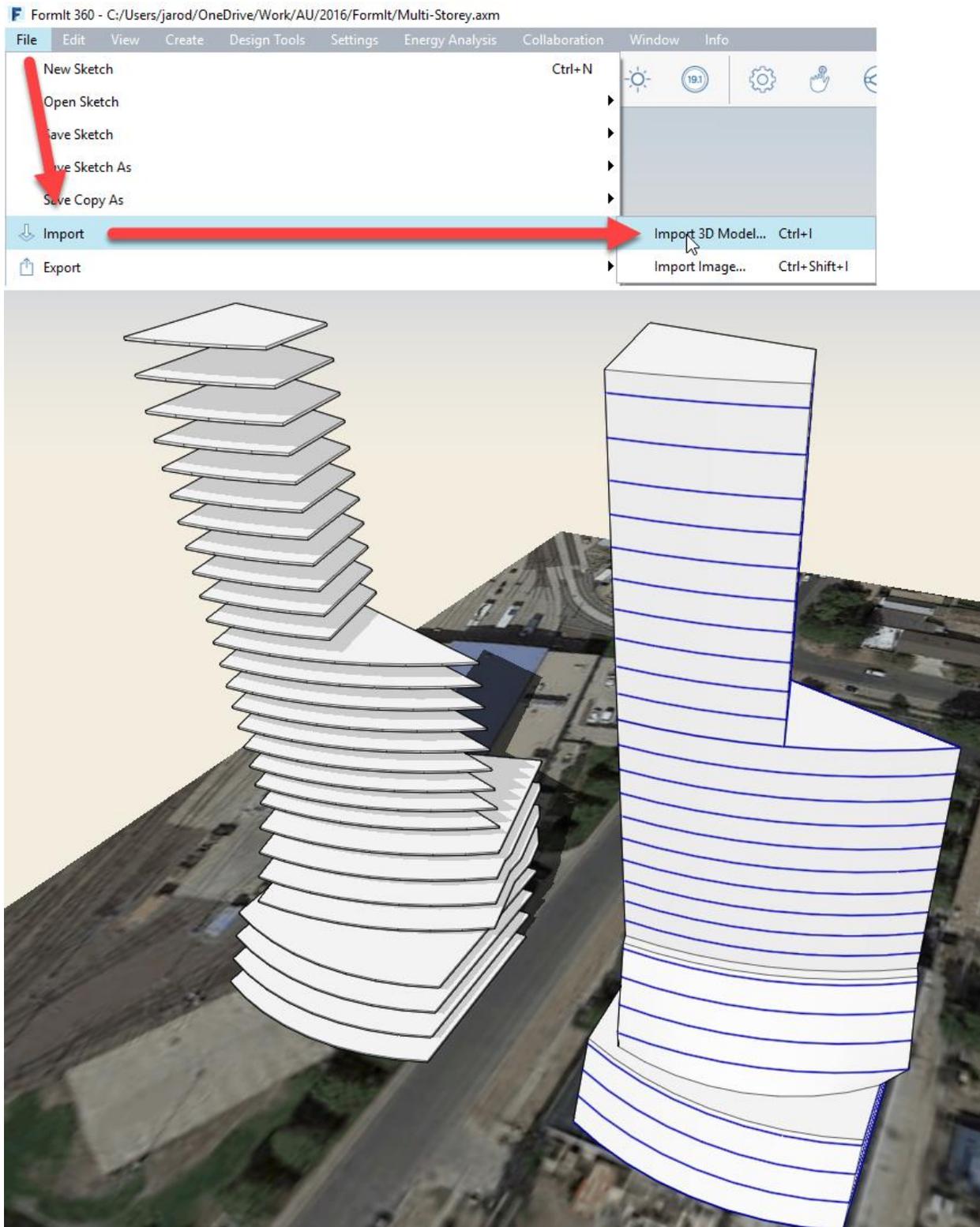
Export from Revit to FormIt

With the floors now created I can export them out as SAT and import the SAT file into FormIt. Make sure that only the floors are shown before starting the Export to SAT.



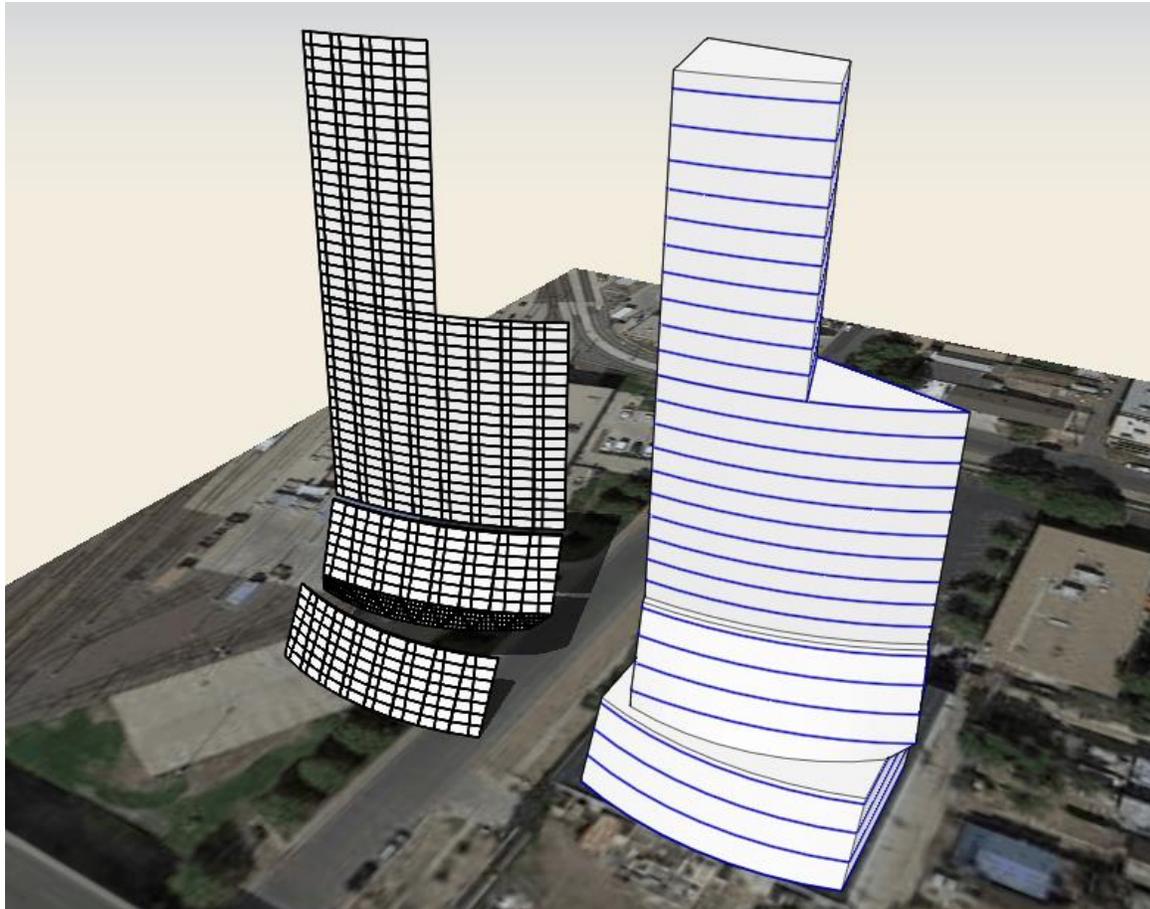
Import into FormIt

Back in FormIt I will use the Import 3D Model to bring in the SAT file. What is great is that the new floors are brought in at the same location and they are placed in a Group.



Revit Curtain Walls back to FormIt.

Another place where I might do this same situation is for Curtain Walls. We have already gone through the process to convey design intent but if we wanted to take the model to another level of detail we can. This workflow is the same as above.



3D Terrain to FormIt

And one last item, I get asked if it is possible to have 3D terrain in FormIt. We can but it will take the other design tool to pull it off. Create a SketchUp file that has the 3D terrain that you need and then use the Import 3D Model like we did before to bring it in.

