

# No More Photo-CAD: Using an AutoCAD® Architecture Template with Autodesk® Impression for Presentations

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**AB3017** Put an end to the laborious, repetitive coloring of plans using image editing software and create presentation drawings with DWG™ files that continue to be useful in design documentation. Autodesk Impression software enables you to create beautiful presentation drawings that can emulate pencil, pen, watercolor, or many other types of media. This class will provide step-by-step instructions to create an AutoCAD® Architecture template that makes use of AEC objects and layers (though many of the concepts will apply to AutoCAD as well); create an Impression style template that automates the application of styles; and finally, apply the process to quickly incorporate design changes and update the presentation drawing. This workflow will enable you to quickly creating presentation drawings that look consistently beautiful and that rapidly adapt to change.

## Learning Objectives

At the end of this class, you will be able to:

- Create an AutoCAD Architecture template prepped for Impression
- Create basic visual styles in Impression
- Apply styles while importing a DWG file into Impression
- Update an Impression file with changes to the imported DWG file

## About the Speaker

*Dustin Fike, AIA is a Senior Associate Architect with Morris Architects in Orlando, FL where he has served as the Project BIM Coordinator on numerous projects through all phases of design and construction. Dustin helped pioneer the Morris Orlando office's transition into BIM via AutoCAD Architecture and is an office vanguard for exploring new technology. In addition to helping develop the office CAD/BIM standards, he created the concept presentation CAD standard using Impression and AutoCAD Architecture. He is a licensed Architect in Florida and has 8 years of experience working in various project types. He has a degree in Interior Design from the University of Florida where he taught elective classes on 3d rendering while attending; and a Masters in Architecture from Georgia Tech specializing in Visual Arts and Design Computing. Much of his thesis work involved exploring the representation of design ideas and testing them with new methods, including game engine technology.*

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## Introduction

Autodesk Impression is a great tool to create quick presentation drawings. Especially if you take the time to set up a template for your most common project types. I developed this process while working on a series of separate hotel design competitions with very little time to complete the design much less prepare the booklet of presentation images for the contest entry. Once I had a template to start from and a defined set of styles to work with, creating and updating the presentation images went much faster and allowed for a more developed and refined design.

Autodesk Impression is free to subscription members of any of the AutoCAD, AutoCAD Suite, Autodesk Revit® or Autodesk Revit Suites. It is used to create presentation drawings that imitate traditional hand rendered drawings in mediums such as colored pencil, marker or watercolor. It works CAD information in DWG™ or DWF™ format and stays linked to the CAD file for updates. You can think of Autodesk Impression as an extension of AutoCAD's layout paperspace, but with more presentation tools.

## Creating an AutoCAD Architecture Template

Creating a starting point for future projects requires two parts that work together: an AutoCAD template and an Autodesk Impression template.

### Pre-Planning Your Template Contents

The first thing you must do before even opening any software is to plan out what you want to accomplish. You need to decide what types of projects you are going to want to use Autodesk Impression with. This will help you decide if you need separate templates for different project types. This can be anything from listing different industries such as hospitality, entertainment, residential, etc... Or scopes of service such as Master Planning, Interior Furnishing Layouts, Concept Plans, etc... This will help you decide how many templates you may need.

Next you need to list the possible items that could be included in each of the templates you will make. This could include:

- Space Types (Back of House, Retail, Circulation, etc... for color coded plans)
- Equipment types (Counters, Mechanical, Appliances, Fixtures, etc...)
- Standard Blocks (Trees, Cars, Furniture, etc...)

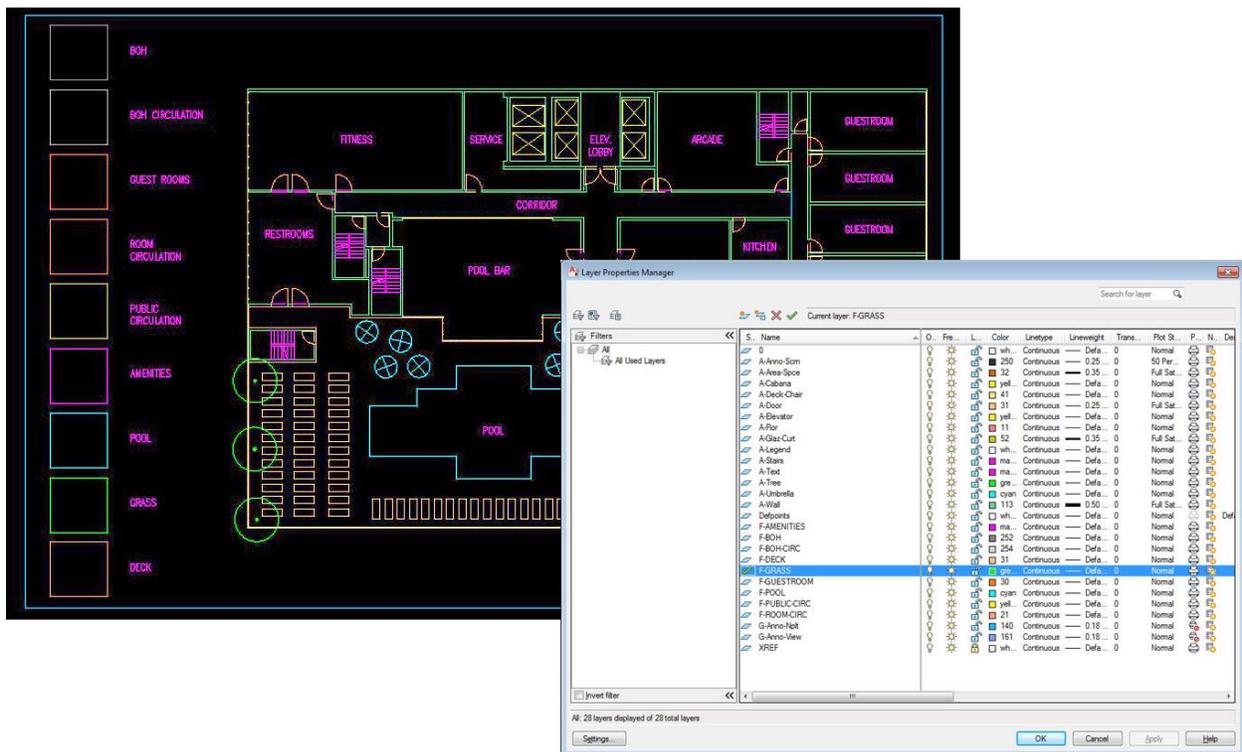
This list is to distinguish anything that you wish to have its own look or style. If for instance you don't care if the linework or color fill of a refrigerator looks different than a toilet, then there is no need to list them as separate. Try to be as thorough as you can, but do not worry if you forget something, it can always be added later.

## Laying Out a Sample Drawing

### Creating the Drawing

Consult the list of items you made and create layers for each item type that you will want to distinguish with different styles. You can name the layers anything you wish, but I would recommend using something that easily identifies what they are for. You can also place them in a group filter if you wish as that does not affect the Autodesk Impression import.

Draw a simple plan that contains all of the elements you will want in the Autodesk Impression template. Make sure to use the tools for wall, door, window, curtainwall, column, grid, etc... so that you get all of the layers they create in your template. Also, make sure you have at least one room for each type you want to include.

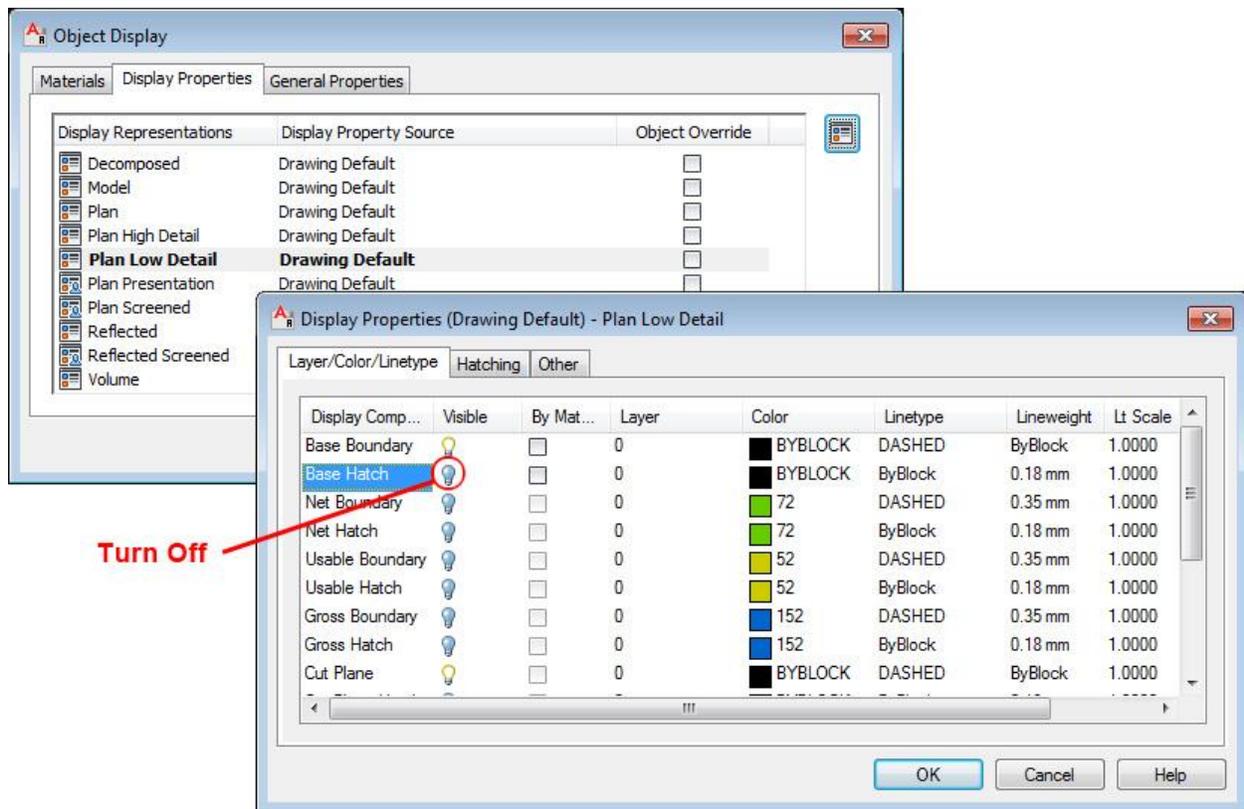


Fill the rooms with spaces and change the layer of the spaces to match the corresponding room type. You can also use polylines to outline areas that you would like to have a fill in Autodesk Impression.

*TIP:* Spaces with curved edges can sometimes import incorrectly into Impression. To remedy this, you will have to either facet the curved edge of the space, or use a polyline instead.

### Preparing the Drawing for Autodesk Impression

Set up a Display Representation that makes the geometry linework appear the way you wish. For example, if you wish to create a sketchy concept plan, you would want to start with the “Low Detail” representation so that you did not have lines for the door frames. You will want to modify the display representation of spaces so that they are not hatched. Otherwise the hatch will carry through into the Autodesk Impression file.

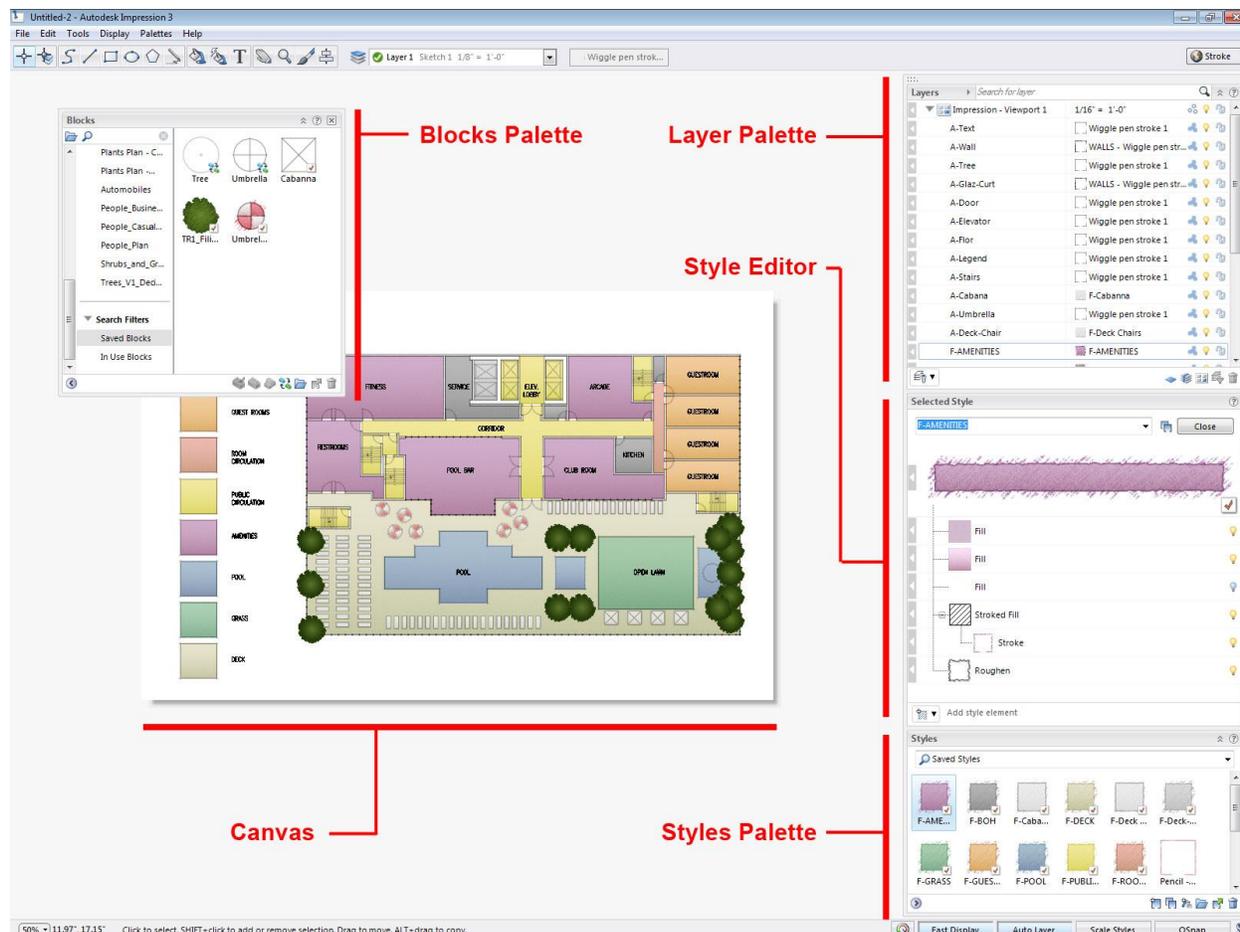


You have more control when importing into Autodesk Impression when using a layout. So, before moving on, you need to set up a layout tab to the page size you want and with a viewport at the scale you desire. Make sure to set the desired display representation within the viewport.

Remember, think of impression as an extension of this layout tab.

## Getting Started with Autodesk Impression

First, a quick overview of the portions of the interface we will be dealing with. The main drawing area is known as the *Canvas*. The *Dashboard* contains the three palettes we will use most: *Layer Palette*, *Style Editor*, and *Styles Palette*. The other palette we will be using is the *Blocks Palette*.

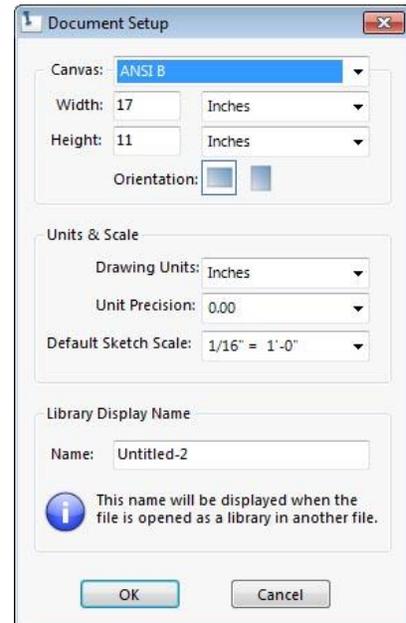


## Importing the AutoCAD Drawing

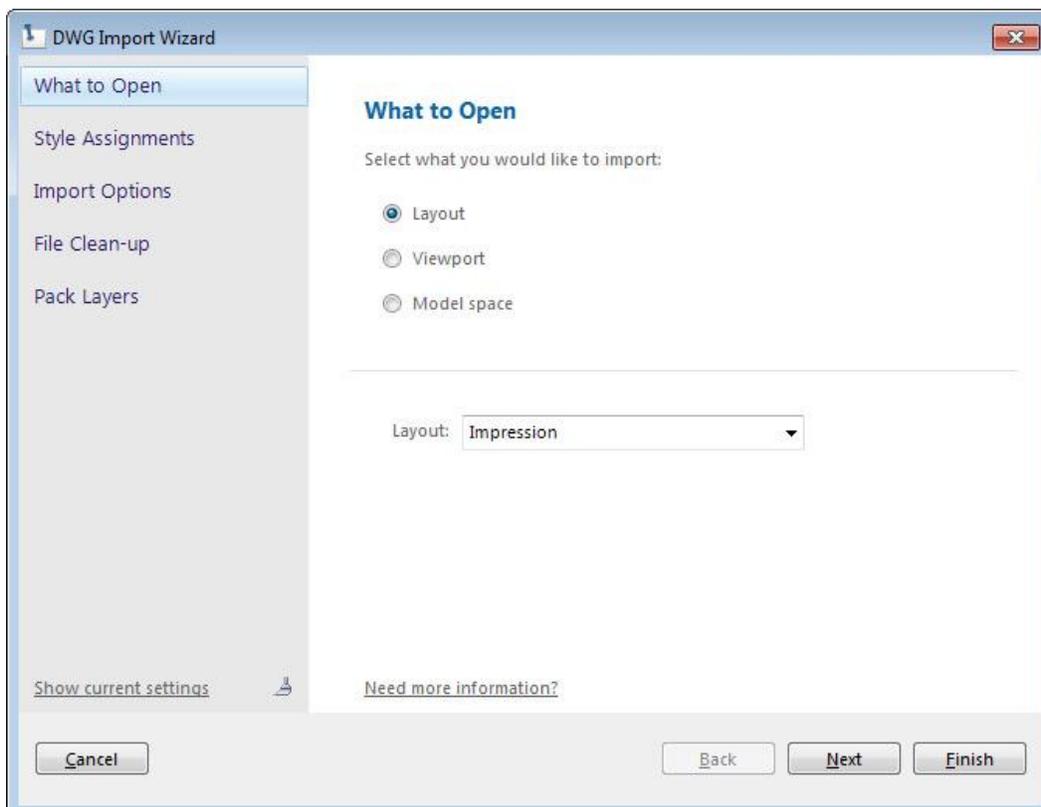
The first thing to do in Autodesk Impression is to modify the canvas to match the layout from AutoCAD. Go to the *File > Document Setup* menu option and adjust the settings to match your layout page size in AutoCAD. Choose the proper scale to match your AutoCAD viewport scale.

Next, start the import process by going to the *File > Import* menu option. In the *Import* window select the DWG™ file that you saved in AutoCAD.

In the *DWG Import Wizard* window, the first page, *What to Open*, allows you to select either a layout, viewport, or model space to import. Since we set up a layout in AutoCAD, choose *Layout*. If your AutoCAD drawing has multiple layouts, select the layout you wish to import.

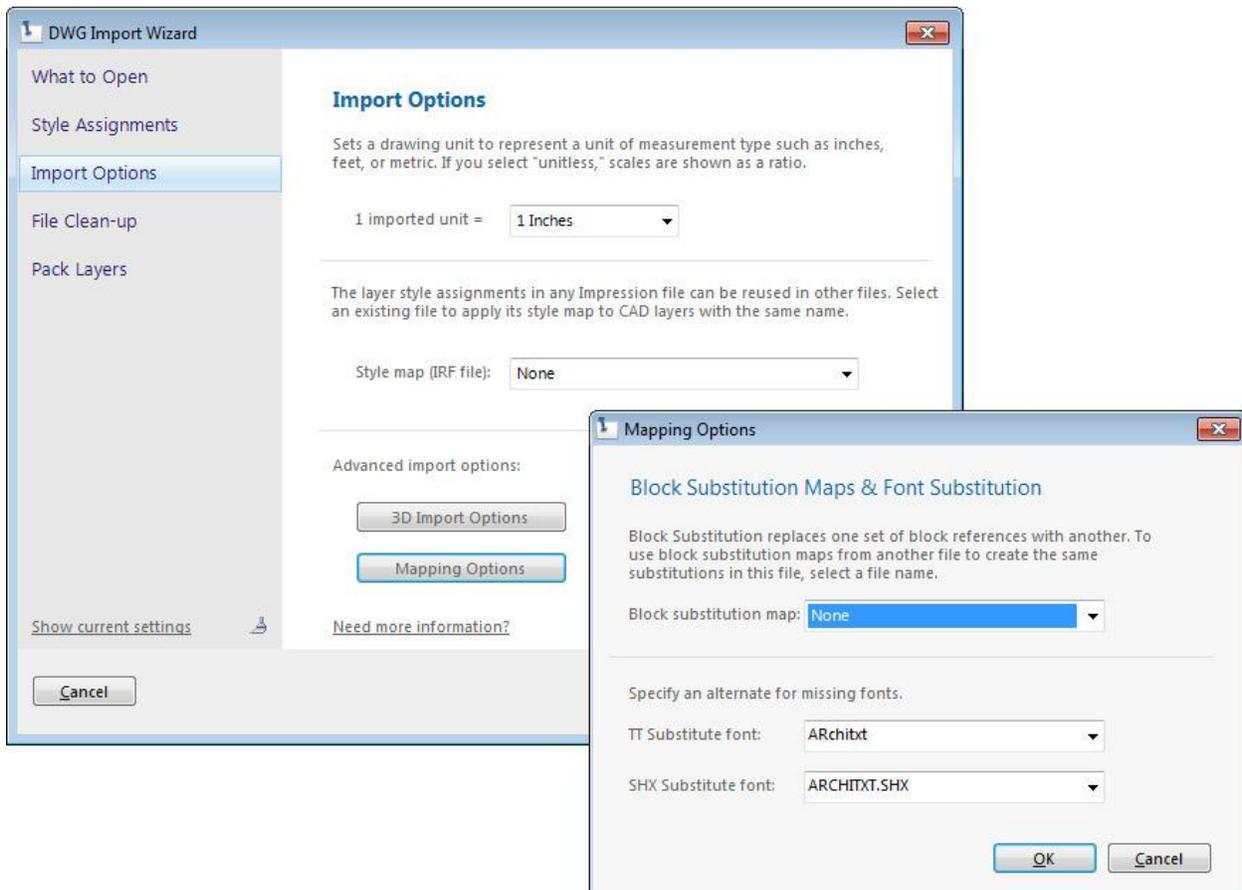


*TIP:* You can arrange multiple viewports in a single AutoCAD layout and work with all of them in one Autodesk Impression canvas if you use the layout import option here.



On the next page, *Style Assignments*, select none for the *Plot style table*. For *Stroke type*, select a stroke to assign to all linework as a starting point that can be edited later. If you select *None*, Autodesk Impression will create styles for every line color and thickness in the CAD file.

On the subsequent *Import Options* page, check to make sure the units match your AutoCAD units and select *None* for *Style map (IRF file)*. Click on the *Mapping Options* button and make sure that *None* is selected for *Block substitution map* and select a font to use if Impression is unable to find the font used in the AutoCAD file.



Go on to the next page, *File Clean-up* and select the options you want to discard from import and click *Next*.

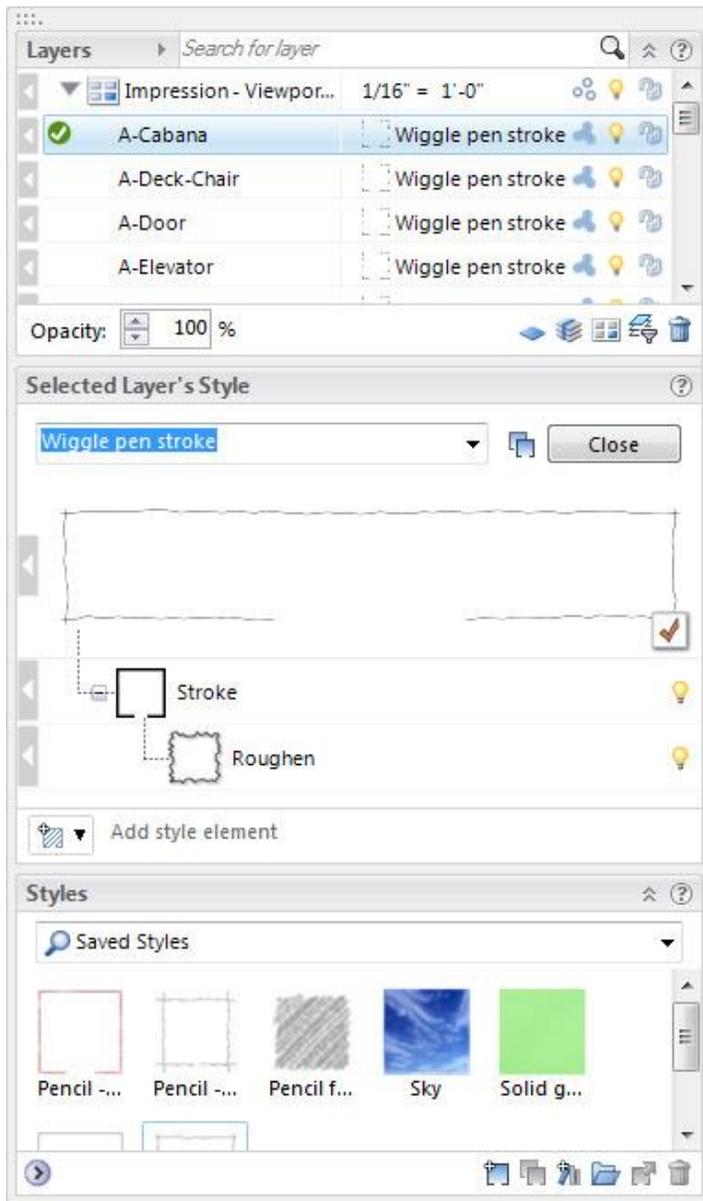
On the final page, *Optimize Performance: Pack Layers*, select *Pack all layers (recommended)*. This will group all of the items in one layer into one item in Autodesk Impression. It greatly improves performance and you can unpack individual layers as needed later. So, there is no reason to not take the performance boost.

Click *Finish* and watch as your AutoCAD drawing shows up on the Autodesk Impression canvas. Check to make sure everything looks right and then move on to making styles.

## Customizing the First Autodesk Impression Styles

### *Customizing the Default Stroke Style*

We will start by customizing the stroke style you selected during import. If you look in the *Layers Palette* you should see that stroke listed next to every layer name. To select the style to edit it, you can either find it in the *Style Palette* or click on a layer that it is assigned to. It will then show in the *Style Editor* and the title of the *Style Editor* will say either *Selected Style* or *Selected Layer's Style* depending on which method of selecting you used.



If the *Style Editor* has a button that says “Edit” next to the name of the style, click it to enable editing of the style’s properties.

The *Style Editor* has a preview of the style at the top with a list of strokes, fills, or effects below that have been applied to the style. You can add more to this list using the icon in the lower left with the label *Add style element*. You can turn elements on and off using the light bulb next to it, and you can edit any of the elements in the list by hovering over the arrow to the side of the element. This will reveal a flyout with various options that can be edited for that element. Getting into the specifics of these options is beyond the scope of this class, but the best way to learn about them is to open up a sample file and just start changing them to see how they affect the style.

Modify the default stroke as you desire and create additional stroke types if you wish for different layers. For example, if you want to make the wall linework thicker, you could create a style with a heavier weight stroke and apply it to the A-Wall layer. Then move on to the *Styles Palette*.

### *Selecting a Starting Fill Style*

The *Styles Palette* contains thumbnails of various styles you can work with. The drop down at the top of the palette allows you to select various sets of styles to view. The list in this drop down is divided into different sections. The first section contains the various style libraries that are installed with Autodesk Impression and contain a wide variety of styles to start with. The second section has two selections: *Saved Styles* and *In Use Styles*. *Saved Styles* are all of the styles that are saved in the currently open drawing. *In Use Styles* only shows the styles saved in the drawing that have been applied to a layer or object. The third section of the list shows the different blocks saved in the drawing and allows you access to the styles in each of them. The final section allows you to open styles saved in another Autodesk Impression file or to search for styles.

Select one of the default style libraries in the list and select a style that looks close to the kind of look you would like to achieve. Right-click on it and select *Add to Saved Styles*. You will use this as a starting point for your various fills. To make it easier to visualize your modifications to the style, you need to make it visible on the drawing canvas. You can do this by either dragging the thumbnail of the style from the *Styles Palette* onto a layer name in the *Layer Palette*, or by right-clicking on a layer and selecting *Assign Style > The Style Name*.

It may be helpful to organize your styles by renaming the style to match the name of the layer it is applied to. This can be done either at the top of the *Style Editor* or by selecting the style in the *Styles Palette*; then right-clicking and selecting *Rename*.

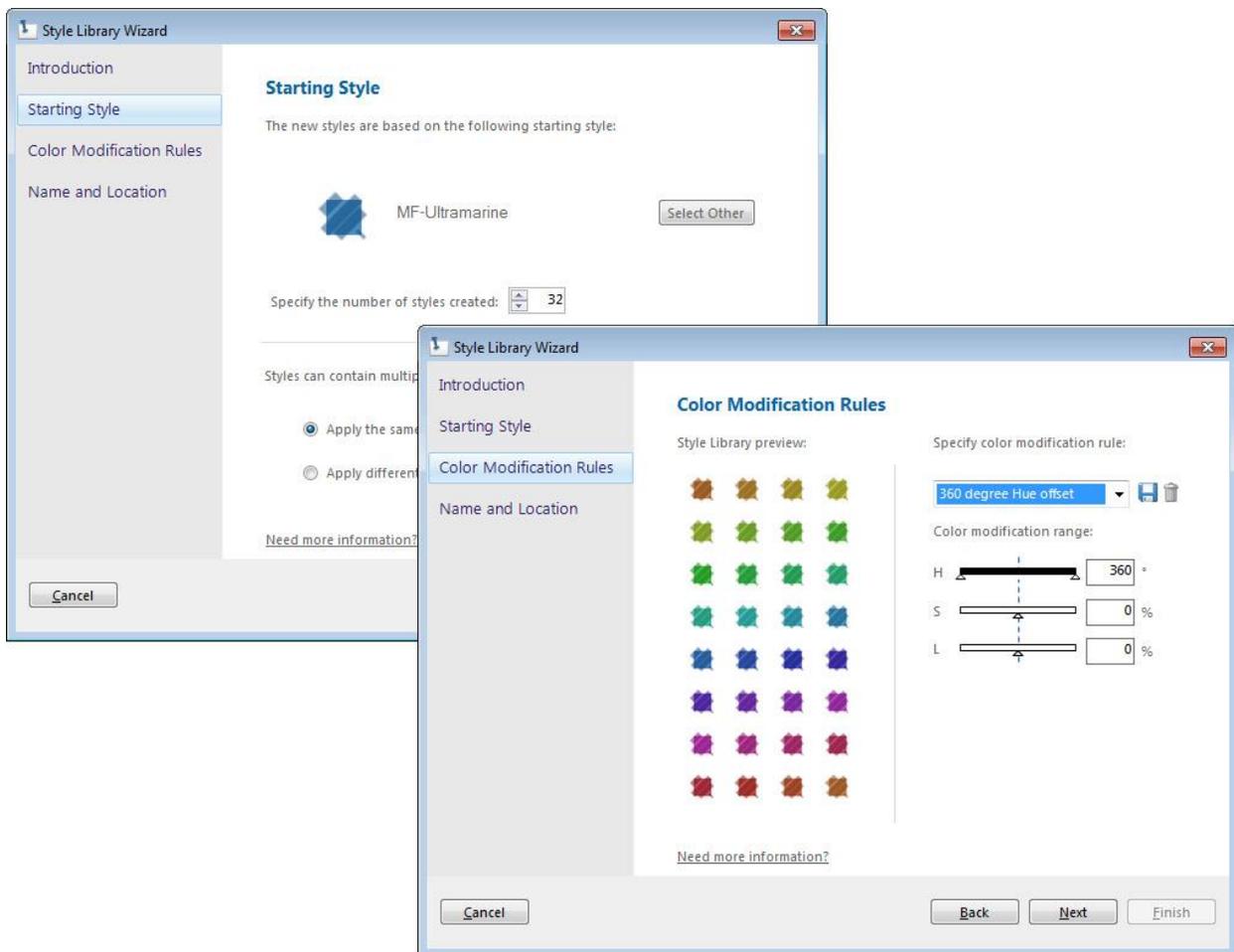
At this point, use the *Style Editor* to customize the style to your desired tastes. When you are done you will use this style to automatically generate other variations to use for the other layers.

#### *TIP: The Parts of an Autodesk Impression Style*

- Stroke
  - o Standard, Marker, or Pencil
- Fill
  - o Uniform, Gradient, or Texture
- Stroked Fill
- Hatched Fill
- Outline Stroke
  - o Stroke & Fill, Stroke only, or Fill only
- Effect
  - o Roughen or Drop Shadow

### *Using the Style Library Wizard to Create Multiple Versions of a Style*

Once you are happy with the way your style looks, right-click on it in the *Styles Palette* and select *Create Library from Style Selection*. This will open the *Style Library Wizard*. The first page is an introduction that you can hide in future uses by selecting the checkbox at the bottom. The second page confirms which style you are using as a basis and how many versions you want to create. It is better here to select a higher number than you actually need so that you have more variation to choose from, making it easier to select one that more closely resembles the final look you desire for each layer. The lower half of this page allows you to select whether you want to apply the color modification rules to the entire style as a whole, or if you want to apply different rules to each element of the style. This is a judgment call and you can always run the wizard a second time and try both ways to see which gives you better results for your application. The third page specifies what properties you want to offset and by how much. It can offset Hue, Saturation, and Luminosity and various combinations of those. There are presets you can select in the dropdown or create your own using the sliders.



The final page allows you to name the resulting library and styles and specify where you want to save the library file. The library will then be added to the list of libraries in the *Styles Palette* dropdown. Select the styles you would like to use, right-click on them and select *Add to Saved Styles*. You can modify these styles if they don't match exactly what you want. They were just a quick way to get a family of related styles to work with.

If you want to make another style from one you already have, but don't need enough of them to use the *Style Wizard*, you can duplicate a style either by right-clicking on it and selecting *Duplicate*, or by clicking the icon in the *Style Editor* between the style name and the *Close* button. You can then globally edit its color in a similar manner to the *Style Wizard* by using the tools in the flyout arrow next to the preview of the style such as *Modify Style Color...*

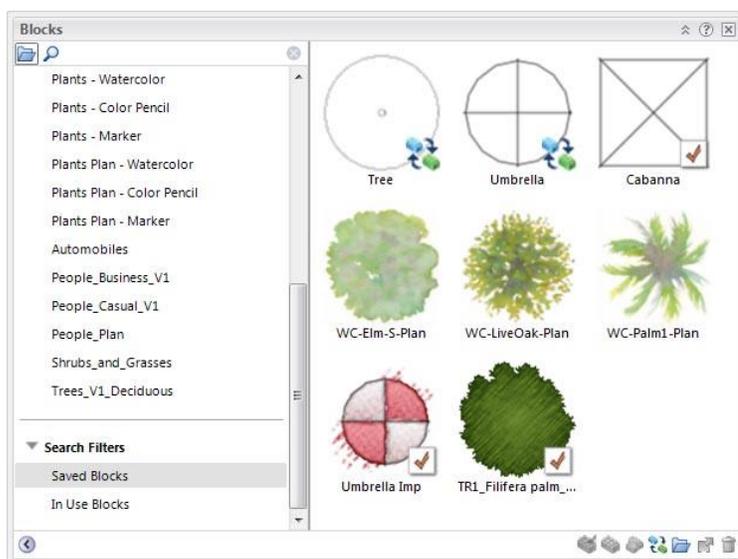
### Adding Styles to the Autodesk Impression Template

At this point you can start renaming the new styles and assigning them to their respective layers. As you do this, you may start to notice that objects are being hidden by other objects on the drawing canvas. This is because of the layer order. The layers in Autodesk Impression are stacked. This means that a layer that is higher in the layer list will appear to be on top of the layers below it on the drawing canvas.

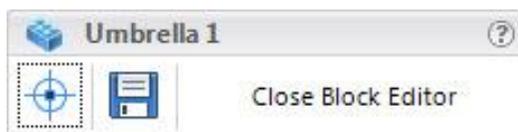
The layers will be arranged on import in the manner they were arranged in the AutoCAD file on import, most likely alphabetically. You can rearrange their order by dragging them within the *Layer Palette*. Autodesk Impression will remember this rearranged order in the template and will use it if applied during import of future drawings.

### Autodesk Impression Block Substitution

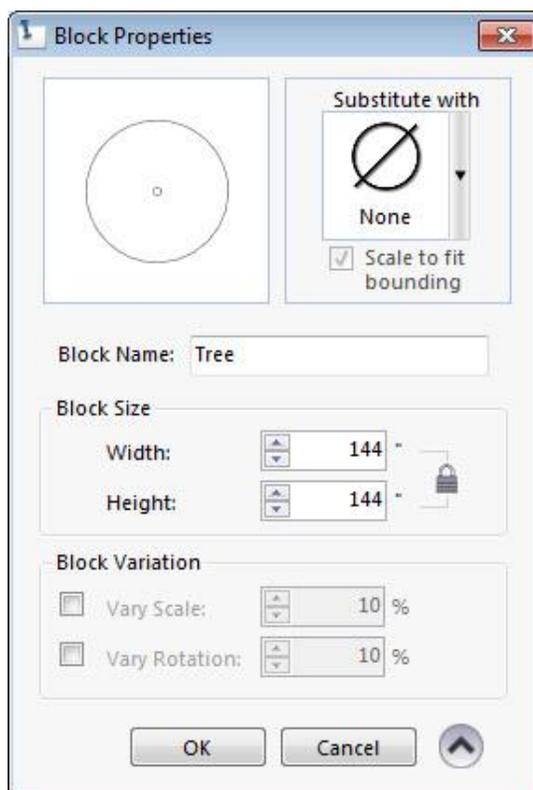
The *Blocks Palette* allows you to edit blocks and create block substitution maps. This allows you to have very simple block geometry in AutoCAD that gets replaced when imported into Autodesk Impression. The *Blocks Palette* is comprised of a list of libraries and thumbnails of the blocks in the selected library (similar to the *Styles Palette*). Whatever blocks that were in your imported AutoCAD file will already appear in the *Saved Blocks* and *In Use Blocks* sections.



Look through the block libraries and select blocks that you would like to replace your CAD blocks with. Right-click on them and select *Add to Saved Blocks*. You can also create your own blocks by right-clicking on the blocks you imported with your AutoCAD file and selecting *Duplicate*. Then you can right-click on the new block and select *Edit Block* to open the *Block Editor*. Any layers that were in the block will now show in the *Layer Palette*. You can assign styles like normal. When you are done, click on *Close Block Editor* in the new floating palette that opened.



Select a block that you want to replace with another, right-click on it and select *Substitute With*. A *Block Properties* window opens with the block on the left and another area to select which block you want to replace it with on the right. The check box below that determines if you want the new block to scale up/down to match the size of the block it is replacing; or if you just want to replace it using the insertion point and retain its original size.



Once you have selected a block you want to replace with, the two options at the bottom allow you to vary the size and rotation of the blocks randomly up to a certain percentage. This can be helpful with blocks such as trees that you don't want to all look the same.

The thumbnail of the block in the *Blocks Palette* will now have a little icon in the lower right indicating that it has been substituted for.

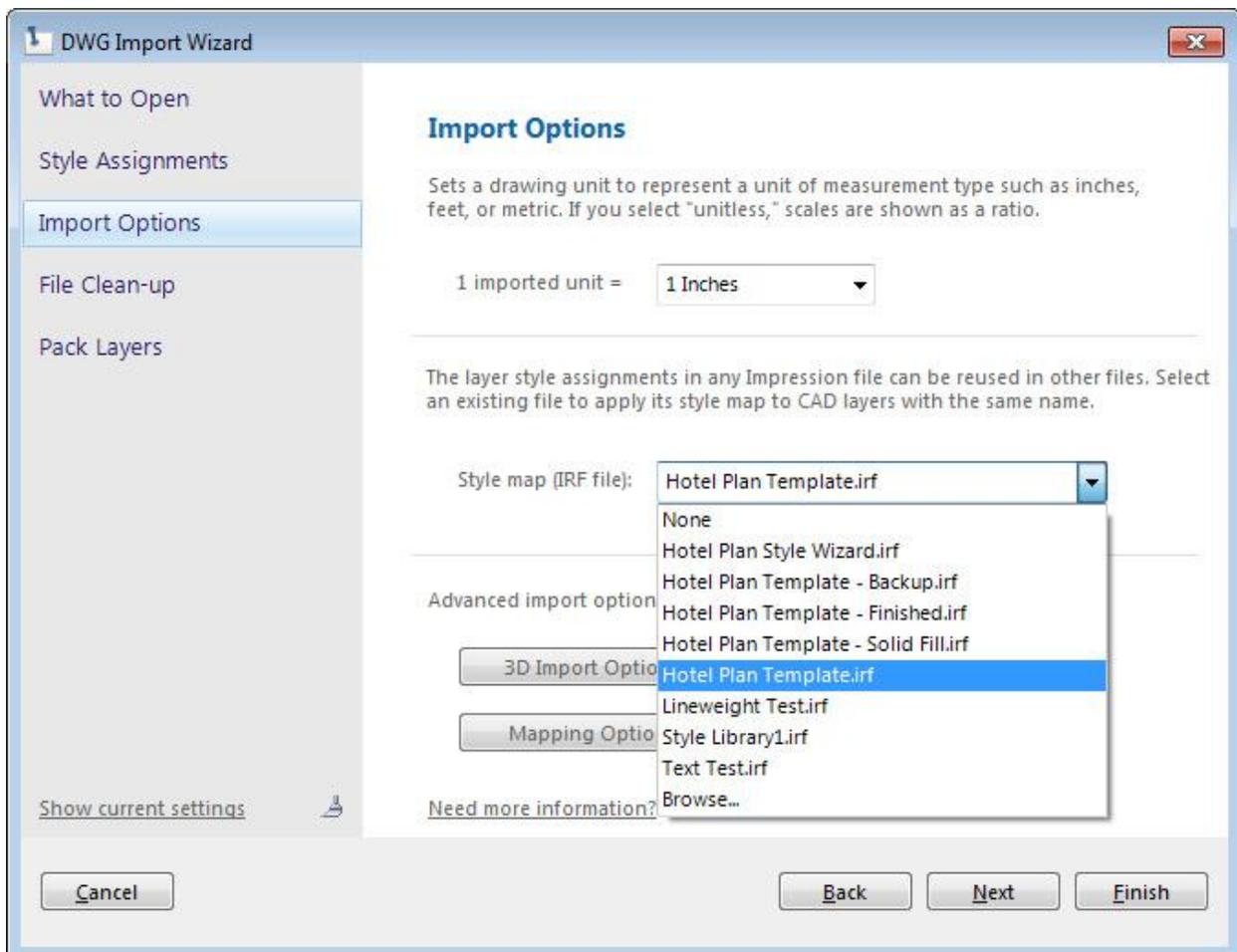
After applying styles to all of your layers and creating substitutions for all your blocks, you should now have an impression file that is ready to be used as a style map for importing.

## Using a Style Map During DWG™ Import

When importing an AutoCAD file that you wish to use the style map on, select your Autodesk Impression template file for the *Style map (IRF file)* on the *Import Options* page of the *DWG Import Wizard*. This will apply all of the styles to the proper layers and rearrange the layer order as well.

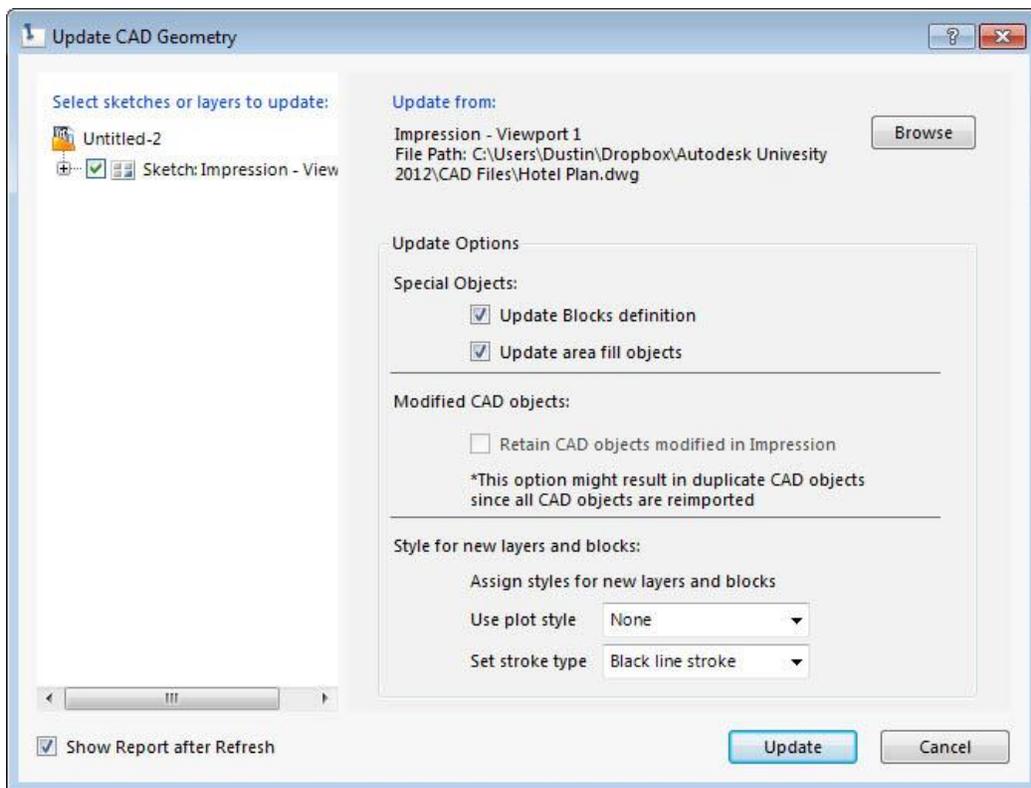
Also click on the *Mapping Options* button on the same page of the import dialogue and select the Autodesk Impression template file for the *Block Substitution Map*. This will apply the block substitutions that you saved in the template file.

Finish the import dialogue and you should be looking at a finished drawing with all the styling already applied. If there is anything new or different, you can modify and apply styles as needed and save the new file as your new template. This way the template can evolve and adapt as your design needs change.



## Updating Changes to an AutoCAD File

One of the best parts of Autodesk Impression is that you don't have to start your presentation drawings over every time the design changes. Updating those changes in Autodesk Impression is as simple as going to the *File > Update CAD GeometryFile > Update CAD Geometry* menu option. There are three options in that menu: *Entire file*, *Sketches*, and *Layers*. *Entire file* reloads the entire CAD file maintaining style assignments and such. *Sketches* allows you to reload only a single viewport if you have multiple viewports in your layout. *Layers* allows you to select the layers you wish to be reloaded. For instance, if the pool outline changed and you only wish the reload the pool layer.



Take note of the options at the bottom of the *Update CAD Geometry* window. They define what styles should be used for new layers and blocks that have been added to the CAD file.

Once the update finishes, check to make sure that everything updated properly and then you are free to move on to other things instead of wasting time redoing parts or all of your presentation drawing with Photo-CAD.

## Some Quick Autodesk Impression Tips

- Use *Save As* to export images.
- Save as a PNG to make the background transparent or a different color.
- If you save as a PSD, you can preserve the CAD layers as Photoshop layers.
- Once you have your styles set up the way you want, use the *Fast Display* button on the *Status Bar* at the bottom of the screen. This turns off a lot of the effects of the styles and improves performance, but does not affect printing or saving images.
- Styles that are partially transparent, such as stroke fill only, and are intended to show the paper behind may require an opaque fill at the bottom of the element stack to hide other layers below, or else you may need to cut holes out of outlines on layers below
- If you want to fill in the walls, turn on the solid hatch fill in the display representation. The fill will come into Impression on the wall layer, but it will be assigned its own style that can be edited. HOWEVER, it will create a new style that must be customized again every time you update CAD geometry.

## Conclusion

So, you've explored how to set up a template in AutoCAD Architecture and Autodesk Impression that will allow you to quickly create presentation drawings in the future. Explore the styles and create a palette that works well for your types of projects and you may never have to do Photo-CAD again!

Thanks for attending!