



Showcase your Architectural Model

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AB5225 Autodesk Showcase is included in the Building Design Suites, however it still is not widely used. This session will show you how to migrate your Revit building models into Showcase effectively, allowing for easy management of the myriad objects in the model. Using Showcase you can quickly and easily create an interactive presentation to communicate and sell your design. We will show how to create animated transitions for enhanced visualization and navigation of the model and how you can explore various design options using material and model alternatives. We'll also show how to utilize cross sections and triggers to automate actions inside of Showcase.

Learning Objectives

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

- Utilize 3ds Max Design to more effectively migrate data from a Revit Model into Showcase
- Create and manage Materials in Showcase
- Create Transitions, Alternative lineups and Cross-section views in Showcase
- Use Storyboards to automate animation sequences

About the Speaker

Having been a registered architect with over 25 years of experience in Autodesk® architectural applications, Matt has worked with AutoCAD® Architecture since its initial release and Revit® Architecture since its purchase by Autodesk. Matt is an Autodesk Certified Instructor at an Autodesk Authorized Training Center. In addition to assisting customers in implementing Revit platform products, he has also consulted with Autodesk development staff in product design and usability for AutoCAD Architecture. He co-authored Architectural Desktop 2007—An Advanced Implementation Guide (Second Edition). In 2010, Matt was one of the recipients of Autodesk's Distinguished Speaker Award and has consistently been a highly-rated instructor at Autodesk University since he began presenting in 2000.

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Introduction

If you own any of the Building Design Suites, you also own Autodesk Showcase. If you own Building Design Suite Premium or Building Design Suite Ultimate, you own 3ds Max Design and Revit as well. Many, if not most building design professionals (architects, interior designers, etc.) have typically purchased the Building Design Suite because it is more economical to do so, the cost of subscription notwithstanding. Everybody knows what Revit is used for, most know what 3ds Max Design is used for (even if they don't know how to use it), but many do not really know what Showcase is for. There is also some confusion as to what differentiates Showcase from 3ds Max Design – they're both for rendering, right? Not exactly.

In simple terms, 3ds Max Design is focused mainly on rendering and animation, while Showcase is more of an interactive presentation tool. Three ways that Showcase can be differentiated from 3ds Max Design are:

- Showcase has a much shorter learning curve than 3ds Max Design. It is possible to become proficient with it in just a few hours
- Showcase is an excellent tool for quickly and easily exploring alternative designs (materials and finishes as well as model alternatives)
- Showcase is an interactive presentation tool; the building model and alternatives can be explored in real-time without having to generate a walkthrough animation or rendered still images.

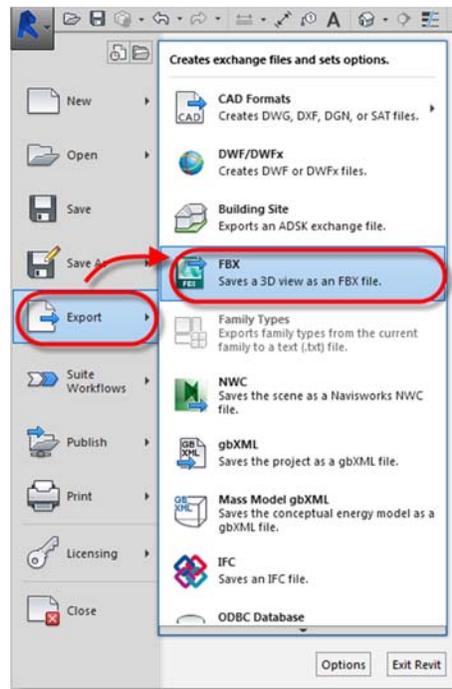
While Showcase is an effective tool for generating interactive presentations for visualizing building projects, it should be noted that it was originally developed as a tool for visualizing, exploring and presenting product designs. For that reason, the overhead of an entire building model vs. that of a mechanical part or product should be taken into account. Your choice of graphics adapter in particular is crucial for both performance and stability. You can find a list of certified and tested graphics cards as well as overall system configurations for Showcase, as well as other Autodesk products and Suites by entering "Autodesk Graphics Hardware List" in your Google search page and following the links.

For purposes of this class, we will be assuming that you are generating your model in Revit, and that you have access to 3ds Max Design as well – you will find that you may choose to actually use 3ds Max Design to "pre-process" your Revit model before importing it into Showcase, depending upon how you want to manage your objects in Showcase.

Note: A key concept to remember throughout this session is that Showcase is not necessarily a good application to use to visualize your design in its actual context. 3ds Max Design is much more suited for that, with superior rendering capabilities as well as the Camera Match Utility. Your goal in Showcase is again, to quickly create an interactive presentation that your client can use to easily explore your model and make decisions.

Importing a Building Model

You can bring a Revit model into Showcase one of two ways. You can either import the RVT file directly into Showcase, or you can export it to an FBX file first. The best way to export to FBX is to simply use the “Export” item on the Application Menu in Revit shown in the following image. You should be in a 3D view when you export the file. If it’s a camera view, the view’s camera will be exported with the FBX file and can be re-used in Showcase as a Transition Shot, which we’ll look at later in this document



Note: You may notice that there is also a “Suite Workflows” item on the Application Menu as well, and at first glance it may look like it will export directly to Showcase using one of three different presets. However what is happening behind the scenes is that it is actually exporting an FBX file, launching Showcase and importing the FBX file with some very minor changes in the import and environment settings. You will probably find on comparison that on balance the manual export method is more effective overall.

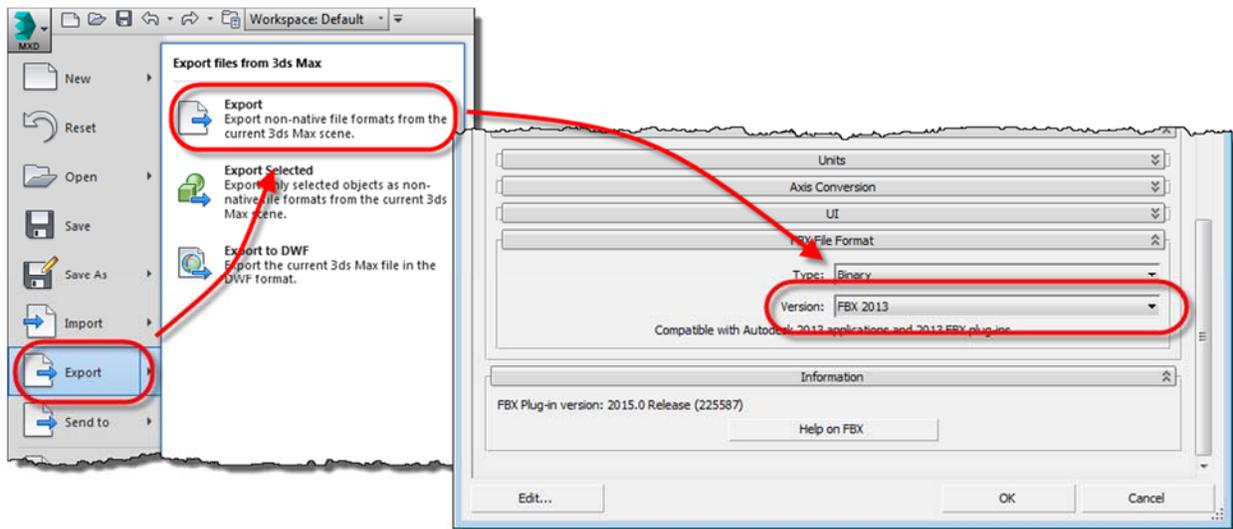
Once you have exported the file to FBX format, you can choose from two methods for importing a Revit model into Showcase. You can import the FBX file directly into Showcase, or you can first run it through 3ds Max Design, re-export from that application and import the resulting file into Showcase. There are advantages and disadvantages to both, depending upon what your intent is and how you want to work with the model geometry.

- Importing an FBX file into Showcase directly after exporting it from Revit, or importing a Revit project directly into Showcase will keep each Revit element as a separate object in Showcase.

This is good if you want to be able to manipulate each individual element, but it can also make object management and selection much more challenging. Linking the FBX file into 3ds Max Design first, using the “Combine by Revit Material” preset will group every element (and subcomponent) together by material assignment. The resulting FBX file exported from 3ds Max Design will in turn import into Showcase with the objects defined by material definitions and will be much easier to manage however less flexible than the other method.

- Importing an FBX file directly from Revit will only import the camera that was current in the view from which the FBX file was created as a Transition Shot. It will not include any walkthrough animations that may have been created in Revit. Importing from 3ds Max Design will include all cameras and animations created in 3ds Max Design as Transition Shots.
- Importing an FBX file directly from Revit or importing a Revit project directly into Showcase can come with a cost in performance and file size.

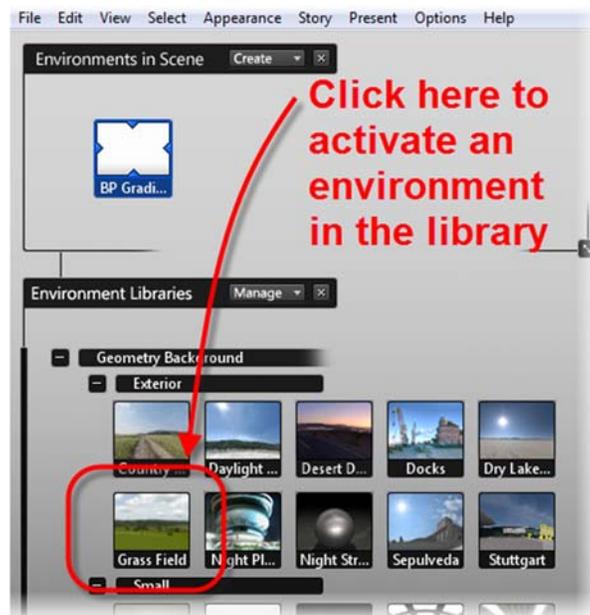
NOTE: If you choose to run the building model through 3ds Max Design and then export an FBX file from that application for import into Showcase, you should use the 2013 FBX exporter. As of the date that this document was written, later exporters will cause face-normal issues with the building geometry.



Exporting a file from 3ds Max using the 2013 FBX version.

Once your model has been imported, it's a good idea to go ahead and assign an Environment. Environments add more realistic lighting to your scene. You can get access to the Lighting Environment Libraries, like anything else in Showcase, by using the pull-down menus (in this case the “Appearance” pull-down menu), but like many commonly used tools in Showcase you can also use a hotkey. Typing “E” you will bring up the Lighting Environment Palette.

The default Scene typically includes a very generic Environment, however the Library that comes with Showcase contains several samples – usually you can find one there that will suit your needs. You can always create your own, of course, however creating a Lighting Environment can be an extremely complicated process and probably not time well-spent when using Showcase. Remember again, Showcase is not really intended to show your model in a realistic, contextual environment. That's more of a strength of 3ds Max and 3ds Max Design. A common Lighting Environment used for building models in Showcase is “Grass Field”, however there are several others you can experiment with. Simply click an Environment to make it current. Once it is current, you will see it in the Scene. Right-clicking on the copy in the Scene will allow you to adjust its properties (size, lighting values, etc.).



Adding a Lighting Environment to your Scene.

If you are exploring options for the exterior of your building model, chances are the only light source you will need is the Lighting Environment. If you are exploring interior options, you will need to work with Accent Lights as well. You will need to place spot lights and point lights at strategic locations for your interior scenes. The Accent Lights Palette can be activated with the “L” hotkey.

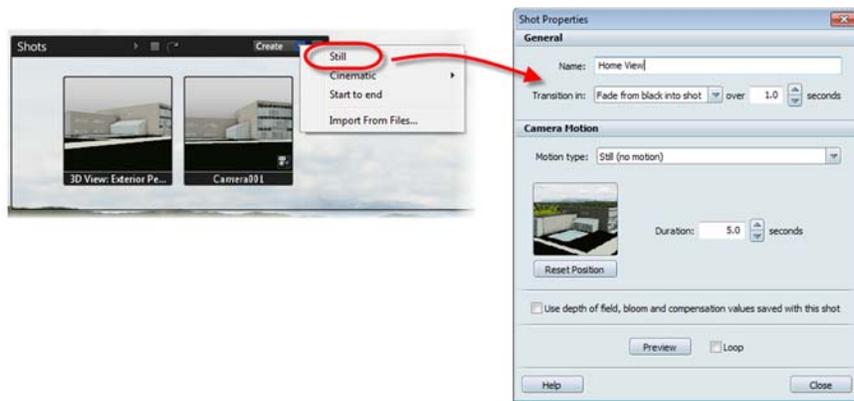
If you do need to create Accent Lights for interior options, you will probably want to set up at least one interior Transition Shot (or view) first.

Transition Shots

Transition Shots in Showcase are analogous to Views in Revit. Transitions are the way that the Shots are invoked. You can transition directly to a Shot, fade to a Shot or animate to a Shot. To activate the Transitions Palette, use the “T” hotkey.

Still Shots

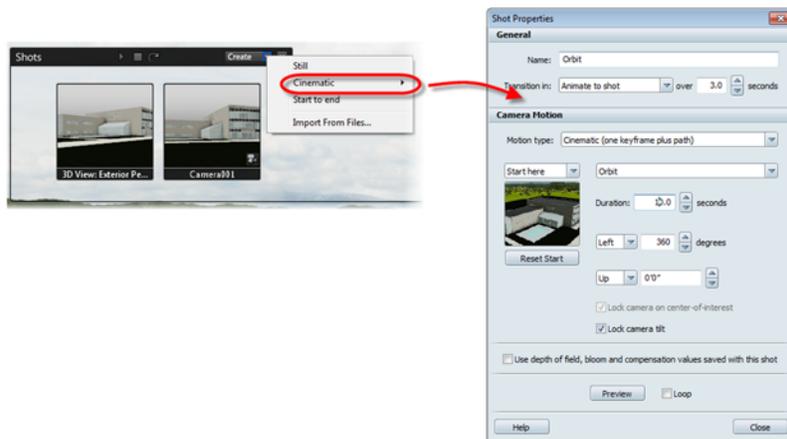
Stills are the simplest Shots to create – simply navigate to the view that you want to save and create the Shot. Provide a name, then specify the Transition method to the Shot. Once saved, it will appear in the Shots Palette. Cameras in 3ds Max will be converted to still Shots when the FBX file is imported into Showcase.



Creating a Still Shot. This Shot will be transitioned to with a simple fade.

Cinematic Shots

Cinematic, or animated Shots can be an “orbit” or a simple animation. If you have an animation saved in 3ds Max when you export your FBX file, that animation will come into Showcase as a Cinematic Shot.



Creating a Cinematic Shot. This shot will be an orbit.

Interior Lighting

If you are exploring an exterior scene, you probably won't need to add any additional lights; the Environment Light should prove sufficient. However if you are working with an interior scene you will need to add Accent Lights. You can activate the Accent Light palette by typing "L" at the keyboard. There are two types of Accent Lights:

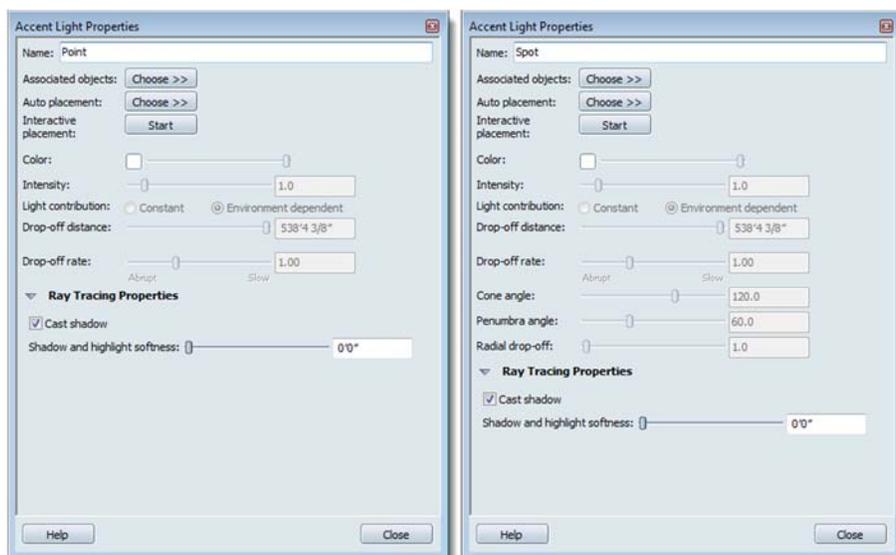
- Spot Lights – cast light to a specific location from the light source – both the source and the light target must be placed manually. The size of the light cone can be adjusted.
- Point Lights – cast light in all directions from the light source.

Placing Accent Lights in Showcase can be a bit of a challenge. One process that can simplify things is to do the following:

- Create a Shot that is looking straight down on the model, and another that is looking at it from one of the orthogonal elevation angles.
- Create a Cross Section to cut a plan section through the building, using the elevation Shot to position it at the location you need to work with the light.
- Create the Accent Light, then use the plan and elevation Shots to position it where you need.

Accent Lights will only cast light on objects that have been selected and added to them. If you have objects selected when you create a light, those objects are automatically added to the light. You can also add and delete objects from the light by right-clicking on the light in the Accent Lights Palette.

Accent Lights also have properties that are typical to lights in other applications that can be edited by selecting the Light in the scene or in the Palette and right-clicking.

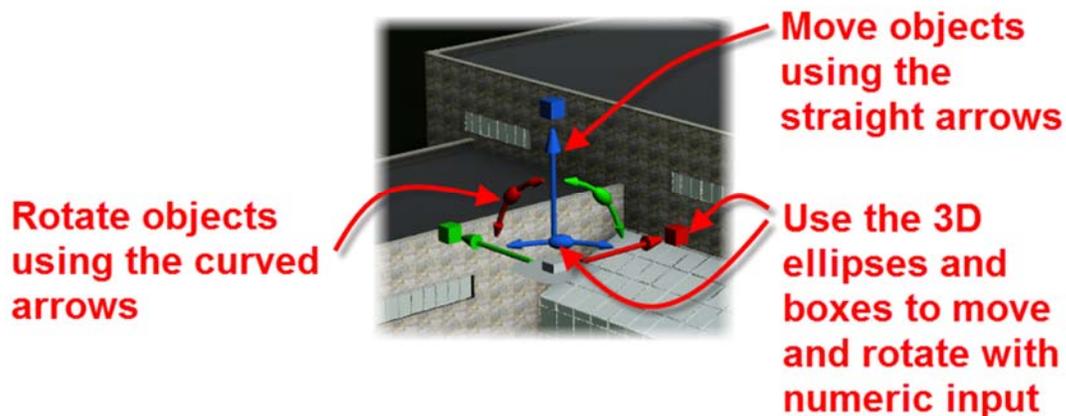


Point and Spot Light properties.

Cross Sections

Cross Sections are useful in Showcase, not just for the obvious reason of being able to create a cutaway view of your building, but again, to assist in the placement of Accent Lights in the interior spaces of the building. When you place an Accent Light its initial position is somewhat arbitrary. To place it where you want, it's best to work in elevation and plan, however when you view your model from the top or the side, you're outside, and cannot see the interior spaces without hiding a lot of model geometry. Using Cross Sections to cut away the parts of the building that are in your way can help you get the initial position of the lights, then you can work in your interior view to fine tune them.

To create a Cross Section, use the "X" hotkey. When you create your first Cross Section, you will most likely need to move it into position. This can be done by using the Transform Handle that is usually displayed whenever you select an object in Showcase.



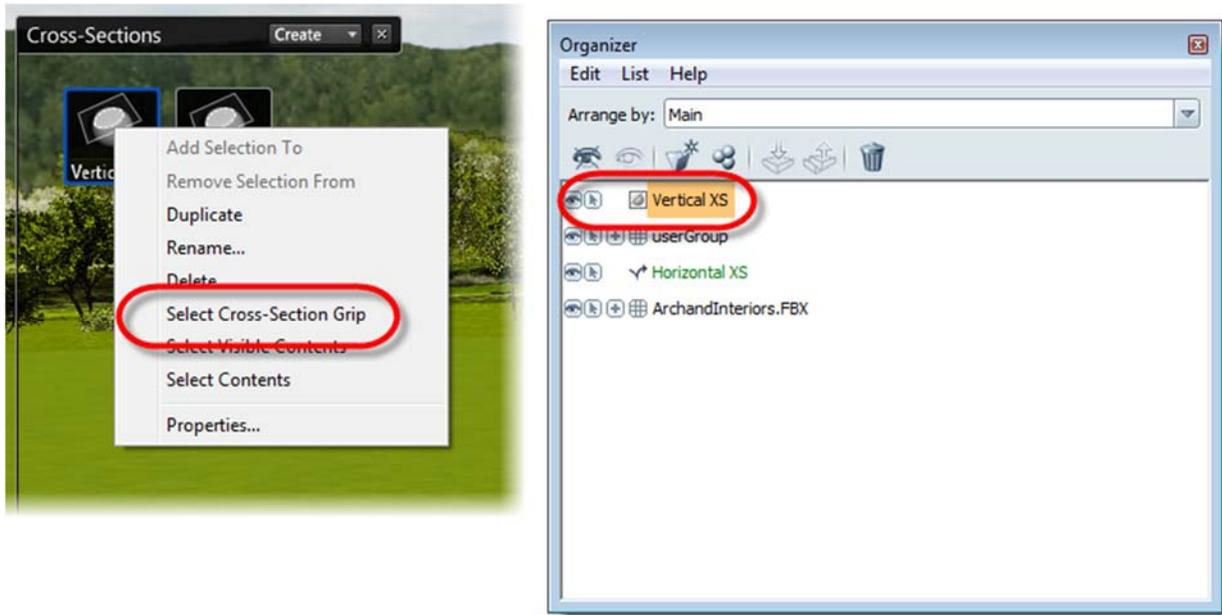
A Transform Handle will allow you to move or rotate objects that you have selected.

Note: You can turn Transform Handles on and off with the "H" hotkey. You may want to consider having them off by default, so that you don't accidentally move or rotate something.

As you move your Cross Section into place, you will see it begin to affect the model. You can create as many as you need, however for placing Accent Lights, you should find a single horizontal Cross Section will prove sufficient.

Cross Sections come with a "Catch 22", however. When you have a Cross Section in effect, its plane is visible. Since it is an object like any other, and since it will probably be in front of all other visible objects in your Scene, it makes object selection, while not impossible, a bit of a

challenge. This can be resolved easily by turning off Cross Section Grips from the Options pull-down menu or by using the <Shift>-X hotkey combination. Turning off the grips will not allow you to select the Cross Sections graphically in the Scene, however you can still select them by right clicking on the Cross Section you wish to manipulate in the Cross Section Palette and choosing “Select Cross-Section Grip” or by selecting the Cross Section in the Object Organizer (activated with the “O” hotkey).

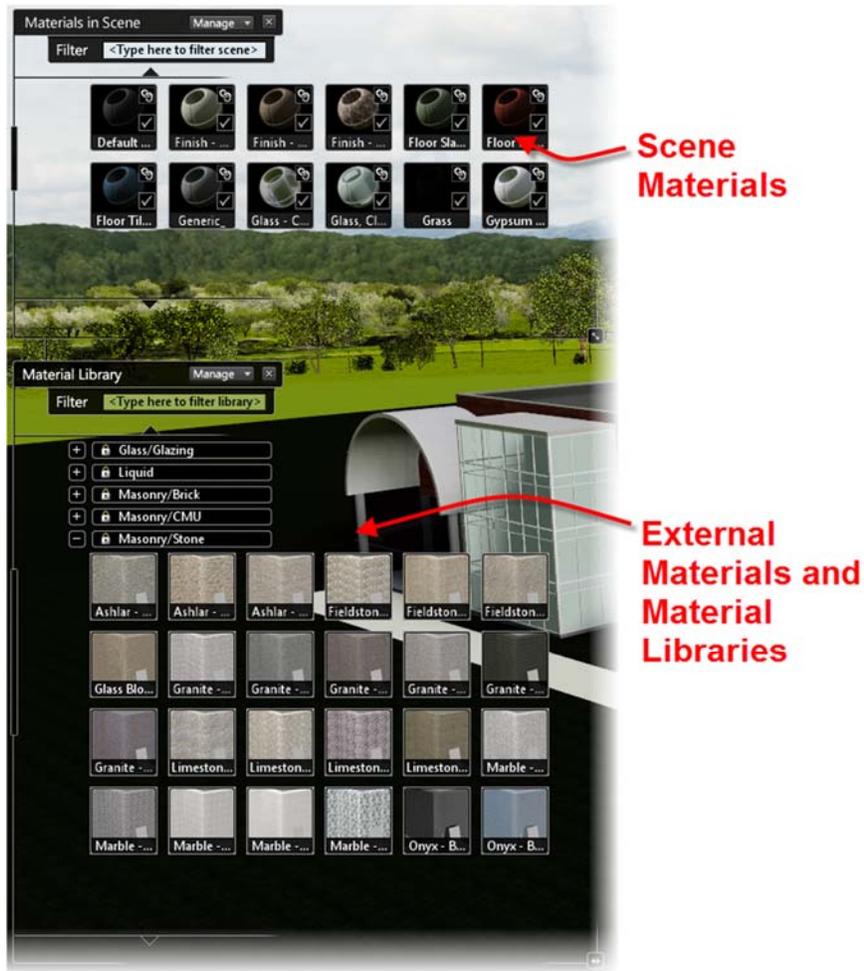


Alternatives for selecting Cross Sections to move or rotate.

If you no longer need the Cross Section visible, but would like to keep it for later use, you can disable it by hiding it from display. The easiest way to do this is to select it in the Object Organizer and clicking on the “Hide” button on the left.

Working with Materials

As with Shots and Cross Sections, the Material Palette in Showcase can be activated with a hotkey. Pressing “M” will bring up a listing of all Materials that are currently in the Scene, including those that were imported with the model originally, as well as a series of external Material Libraries.

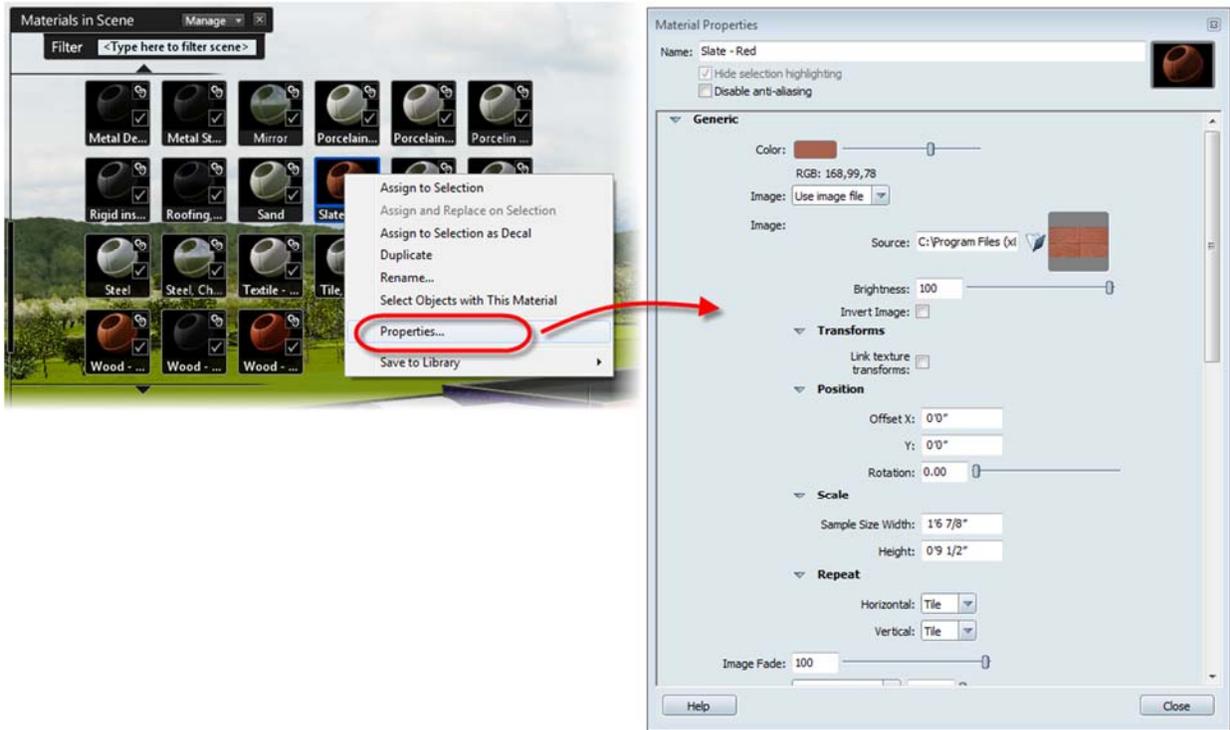


Materials must be in the current scene before they can be edited. You can add a Material to your Scene from an external library one of two ways:

- Select the Material from one of the External Libraries, right click and select “Copy to Scene”. Once it’s in the Scene, the Scene copy can be added to objects or edited.
- Select an object in Showcase, then pick a Material in an External Library. It will be copied to the Scene Materials automatically, and then the copy in the Scene Materials will be assigned to the objects you have selected.

Material Properties

Showcase Materials have properties similar to those in other applications such as 3ds Max Design and Revit. Once a Material exists in your Scene, you can edit it by right-clicking on it and selecting “Properties”. In particular, you will probably find that default Showcase and Autodesk Materials that use a texture map may need to have the map scale adjusted to something more appropriate for Imperial units.



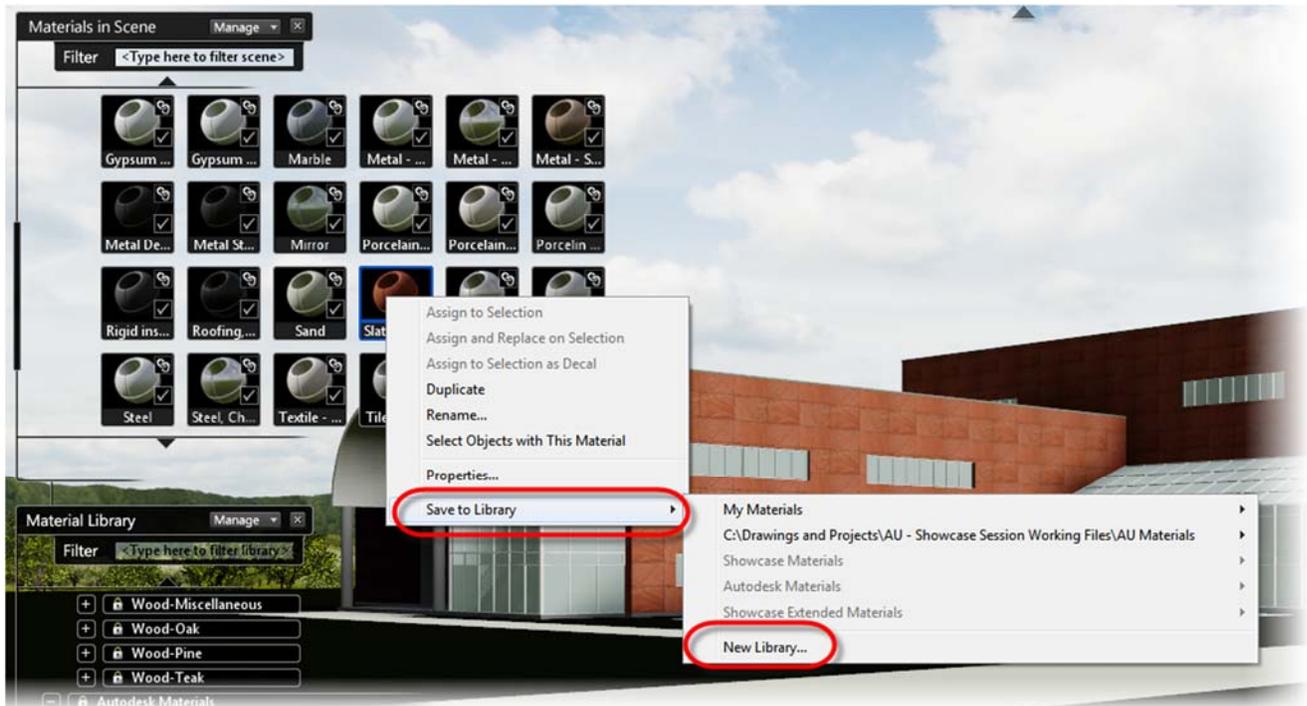
Material properties in Showcase.

Material Libraries

Showcase comes with three Material Libraries “out of the box”. While all three contain Materials that you can use on your building models, the one that has the most architectural Materials is the “Autodesk Materials” Library.

Once you start modifying properties of Materials and creating new Materials, you should store them in your own Material Library. Showcase also provides a “My Materials” Library that is located in your “My Documents” folder. You can store your custom and modified Materials there, or create a completely new Library anywhere you like, for example on a file server so that others in your organization can get access to it. To create a new Material Library, right-click on a Material in your Scene that you want to save and choose Save to Library -> New Library...

Note: Materials created in Showcase, like materials created in Revit, are compatible with 3ds Max and 3ds Max Design. So if you change material assignments in Showcase to a model that originated in Revit, you can export the Showcase Scene to an FBX file, link or import it into 3ds Max Design and the Showcase materials will render as well as the original Revit materials, although again, you may need to adjust the mapping properties of texture-map materials.



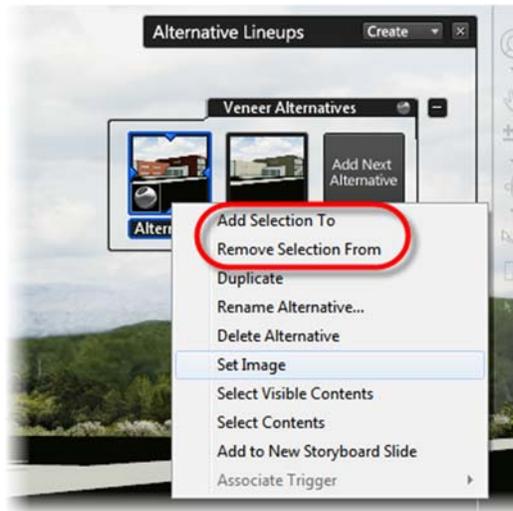
Creating a new Material Library

Alternative Lineups

If you are changing Materials in Showcase, then you should be working with Alternative Lineups as well. The ability to create Alternatives for Materials as well as Positional and Visibility Alternatives is one of the things that sets Showcase apart from other visualization tools.

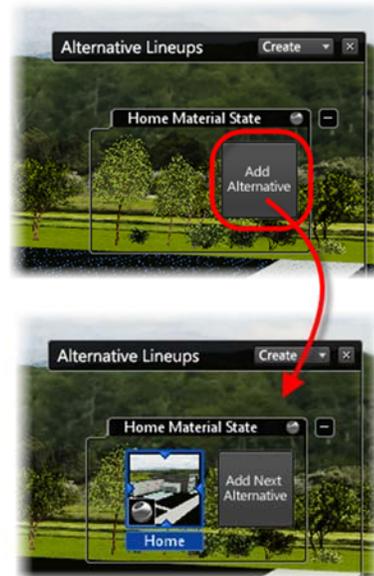
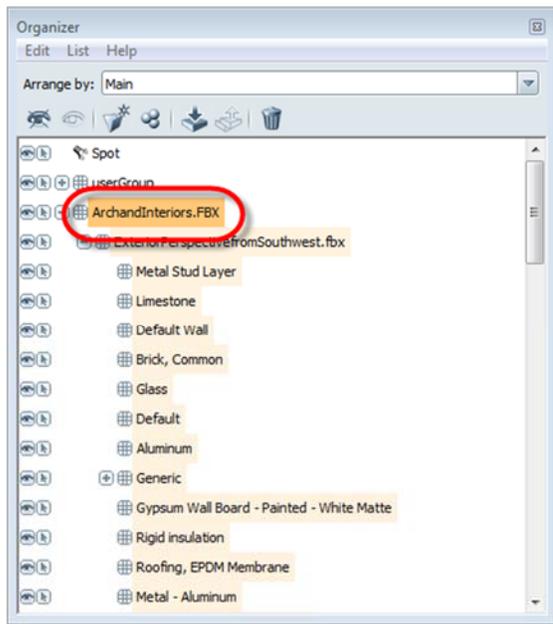
To create an Alternative Lineup and Alternatives, type “A” at the keyboard to activate the Alternative Lineups Palette. Click the “Create” button to create your first Lineup (series of Alternatives), then right click on the Lineup title to rename it. Click the “Add Alternative” button to create an Alternative for that Lineup.

When you create an Alternative, the only objects that are affected by that Alternative are those that have been explicitly added to it. If you have any objects selected when you create the Alternative, they are automatically added to it. You can also add and remove objects from the Alternative by using the right-click menu of the Alternative you want to modify.



Adding and removing objects from an Alternative

Before creating your first real Alternative Lineup, whether it's a Material, Positional or Visibility Lineup, it's a good idea to create a "Home" Alternative that captures the model in its original state, so you can easily return to it after making modifications. Use the Object Browser to select all objects in your Scene, then with those objects selected, create your Alternative.



By selecting the name of the FBX file originally imported in the Object Browser, you select all objects that are included in that model. With those objects selected, add an Alternative to capture the original condition of the objects before creating the rest of your Alternatives.

Note: You should capture the “Home” state for each type of Alternative Lineup that you create – Material, Positional and Visibility.

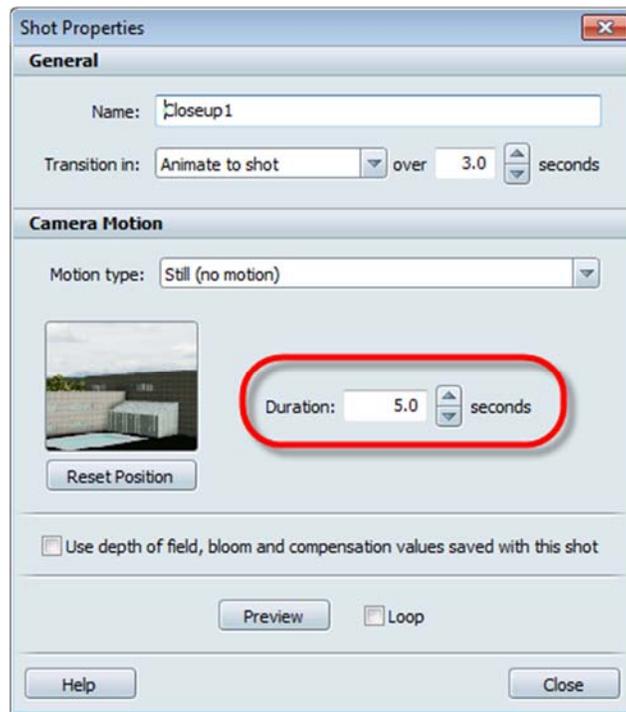
Presentation Tools

Once you have set up your Transition Shots and Alternatives, you are ready to present your Scene – or to set up an even more interactive presentation.

Storyboards

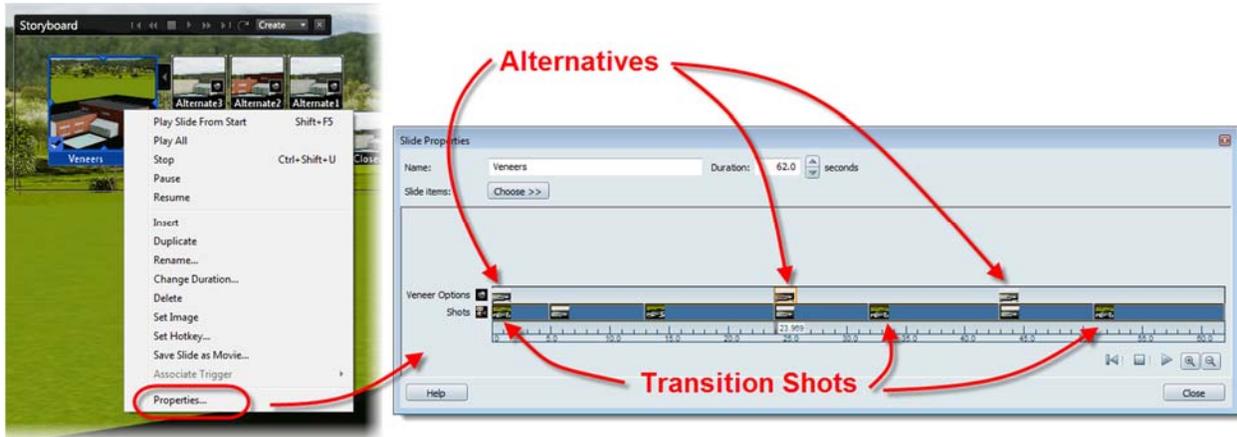
Using Storyboards, you can combine your Transition Shots and Alternatives into a self-running animation sequence that can be activated either by selecting a Storyboard Slide from the Storyboard Palette or by using a custom hot key.

To activate the Storyboard Palette, use the “U” hotkey. Once you have created your first Storyboard, add Transition Shots and Alternatives by right-clicking on them and choosing “Add to Current Storyboard Slide”. Alternatively, if you don’t have a Storyboard Slide yet, you will have the choice to “Add to a New Storyboard Slide”. Add your Transition Shots in the order you want them to play back. The length of each Transition Shot sequence is a property of the Shot itself.



The “Duration” property of a Transition Shot is the amount of time it will play when it is part of a Storyboard.

You can also add as many Alternatives to the Storyboard as you like. To adjust the timing of these, you need to edit the Storyboard Properties.



Editing a Storyboard Slide to adjust the timing of Alternatives

Once your Storyboard Slides are complete you can add a finishing touch by assigning a Hotkey to each. Simply right-click on the Storyboard and select “Set Hotkey” to bring up the Hotkey dialog.

Presenter Mode

When it is time to present your Scene, use the <TAB> key to enter Presenter Mode. When this is active, all functions that actually modify the scene are disabled. However Alternatives and Transition Shots can be selected from the palettes and Storyboards can be played. Additionally all of the navigation tools, including the Steering Wheel, are available for use. Your client can navigate the model and explore Alternatives without having to worry about damaging anything in the Scene.

Renderings and Visual Styles

If your client finds Alternative that they would like to see in a more rendered fashion, you can invoke Raytracing with the “R” hotkey. This may take some time to complete, however you will begin to see a more high-quality rendering begin to appear within just a few minutes. You can export the rendering to an image file (JPG, PNG, etc.) at any time, as soon as it is at a quality that you like. Remember however, that if you have 3ds Max Design, that may be a better alternative for a more high-quality rendering. Export your Scene with the desired Materials assigned to an FBX file, import that into 3ds Max Design and render from there.

You can also activate the Visual Styles Library Palette by using the “V” key. This will present you with several additional display options, including more abstract styles, such as “Cartoon”, “Tech”, etc.

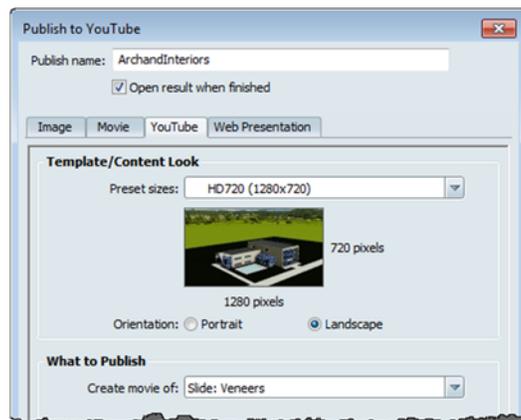


Additional Visual Styles are available – here is the same Scene using the “Shaded Textures” abstract style.

Note: The Visual Styles Library is available during Presenter Mode, so your client can experiment with different display modes if they like.

Publishing a Presentation

You can also publish your final presentation – Storyboards as well as still images – to a variety of formats – Web (HTML), Images (JPG, PNG, etc.), YouTube or to a movie file (AVI, JPEG sequence, etc.). To publish any sort of animation, it needs to be in Storyboard form, however still images can be exported using any of your Transition Shots.



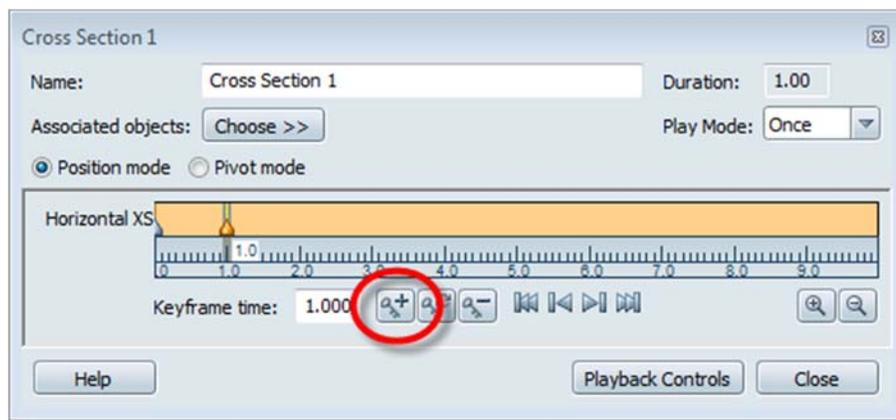
Use the Publish option to generate an animation or still image of your presentation.

Bonus Topic – Behaviors and Triggers

In addition to all of the things we have looked at so far, Showcase also has the ability to animate objects in motion. These animations are called “Behaviors” – and can be set to be “Triggered” by clicking on an object. While it is doubtful that you will want to animate parts of your building in Showcase, it is conceivable. And if you have created Cross Sections, you may decide that you’d like to include them in your presentation so that your client can activate them to see a cross-section or cutaway view. Triggers can also activate a Storyboard presentation. We will look at an example where we will animate a horizontal Cross Section moving down from above the building to a final position somewhere through the 1st floor.

First, make sure the horizontal Cross Section is visible and selectable, and position it above the building some distance. You may need to activate the Transform Handles with the “H” hotkey as described previously.

Activate the Behaviors Palette with... can you guess by now?... the “B” hotkey. This will also bring up the Triggers Palette. More on that later. Create a “Keyframe Animation” in the Behaviors Palette, which will create the Behavior and activate the Behavior Properties dialog box. Select the Cross Section, then right click on the Behavior and select “Add Selection To”. Next, use the Transform Handles to move the Cross Section down to the desired final position and in the Behavior Properties Dialog click the “Add Keyframe” button.



Adding a Keyframe to a Behavior animation sequence.

Use the Playback Controls to test the Behavior and if necessary, adjust the Keyframe by moving it on the time slider. Once you are satisfied with the Behavior, close the dialog

To make the Behavior a bit more accessible during Presenter Mode, you can associate with a 3D Trigger, which will allow it to be activated when the user selects a specific object. Create a 3D Trigger in the Triggers Palette. Next, select an object that you want the user to select to activate the Behavior. Right click on the Trigger and select “Add Selection To”. Next you need to specify what, exactly the Trigger is supposed to actually activate. Right click on it again and

select “Trigger Association”. Choose the operation to associate it with as shown in the following image.



Associating the “Cross Section 1” Behavior to a Trigger, specifying that it be played forward from the start. Note the other playback operations.

Now that the Trigger is established to activate the Cross Section Behavior, it would be a good idea to create a second Trigger to return the Cross Section to its original position. Simply create a new Trigger, add the Cross Section to it, add an object to select to activate the Trigger and associate the same Behavior to it, specifying the option to “Play backward from end” or “Stop and reset to start”.

Summary

We have covered quite a bit in 18 pages. Hopefully this document and class have given you enough information to begin to learn to use Showcase effectively to assist in presenting, exploring and visualizing your own building models. Remember to use it for its strengths – interactive presentations and easy exploration of design alternatives. You should find that the learning curve is actually quite short – it won’t be long before you are creating your own presentations quickly and easily. Remember this simple process:

- Import the Building Model
- Add an Environment for general context (not realism) and external lighting
- Create Transitions and Shots
- Create Interior Lights if necessary, use Cross Sections to assist
- Create Alternative Lineups
- Add Storyboards
- Add Behaviors and Triggers if desired
- Publish your presentation if desired