Presenting Your Model inside SketchUp

IN THIS CHAPTER

- **Walking around inside your model**
- **Creating scenes to capture particular views**
- **Making animations with scenes**
- **Cutting slices through your model with section planes**
- **Generating plans and sections**

After you make a model, you probably want to show it to someone. How you present your work depends on the idea you want to convey. The tricky part about using SketchUp to present a model isn't actually using the tools; it's choosing the *right* tools to get your idea across without a bunch of extra information distracting your audience. Most 3D models have so much to look at that the real challenge is finding a presentation method that helps you focus on the stuff you want to talk about.

In this chapter, you learn about three ways to show off your models without ever leaving SketchUp. If you've made a building, you can walk around inside it. You can even walk up and down stairs and ramps — just like in a video game. You can create animated slide shows by setting up scenes with different camera views, times of day, and even visual styles. If you want to talk about what's *inside* your model, you can cut sections through it without taking it apart.

As you read this chapter, think about what you want your model to communicate. Think about how you might use each method to make a different kind of point and think about the order in which you want those points to be made. As with everything else in SketchUp (and in life, we suppose), a little bit of planning goes a long way. That said, presenting a model live in SketchUp is undeniably sexy; you can't really go wrong, so have fun.

Exploring Your Creation on Foot

Few experiences in life are as satisfying as running around inside your model. After you make a space, you can walk around it, go up and down stairs, bump into walls, and even fall off ledges. You can check to make sure that the television is visible from the kitchen, say, or experience what it'd be like to wander down the hall. In a potentially confusing building, such as an airport or a train station, you can figure out where to put the signs by allowing someone who's never seen your model to explore the space "on foot." The following sections, uh, walk you through how to use these features.

These tools were made for walking

A couple tools in SketchUp are dedicated to moving around your model as if you were actually inside it. The first step (no pun intended) is to position yourself so that you seem to stand inside your model. This can be tricky with just the Orbit, Pan, and Zoom tools, so SketchUp provides a tool just for this: Position Camera. After you're standing in the right spot (and at the right height), you use the Walk tool to move around. It's as simple as that.

REMEMBER The Position Camera and Walk tools enable you to walk around inside your model.

Standing in the right spot: The Position Camera tool

The Position Camera tool precisely places your viewpoint in SketchUp in a particular spot. That's really all it does, but it works in two ways.

»  **You want to stand right here.** Choose Camera ⇒ Position Camera from the menu bar or click the Position Camera tool. (You find it on the Large Tool Set in both Windows and Mac OS X.) Then click anywhere in the modeling window to automatically position your viewpoint 5 feet, 6 inches above wherever you clicked. Because this is the average *eye height* of an adult, the result is that you are, for all intents and purposes, standing on the spot where you clicked; see Figure 11-1. After you use Position Camera, SketchUp automatically switches to the Look Around tool, assuming that you may want to look around. We talk about Look Around in the "Stopping to look around" section of this chapter.

TIP You're not stuck being five-and-a-half-feet tall forever. After you use Position Camera, type the height you'd rather be and press Enter. Type **18"** to see a golden retriever's view of the world, or type **7'** to pretend you play for the L.A. Lakers. Keep in mind that the Measurements box (the spot in the lower-right corner where numbers appear) displays your eye height as a distance from the ground, and not from whatever surface you're "standing on." To set your eye height to be 5 feet above a platform that's 10 feet high, you'd type **15'**.

- **You want your eyes to be right here, and you want to look in this direction.** Select Position Camera, click the mouse button while in the spot where you want your eyes to be, drag over to the thing you want to look at (you see a dashed line connecting the two points), and release the mouse button; see Figure 11-2. Try this technique a couple times; it takes a bit of practice to master. Use Position Camera in this way if you want to stand in a particular spot *and* look in a particular direction. This technique works great with scenes, covered later in this chapter.

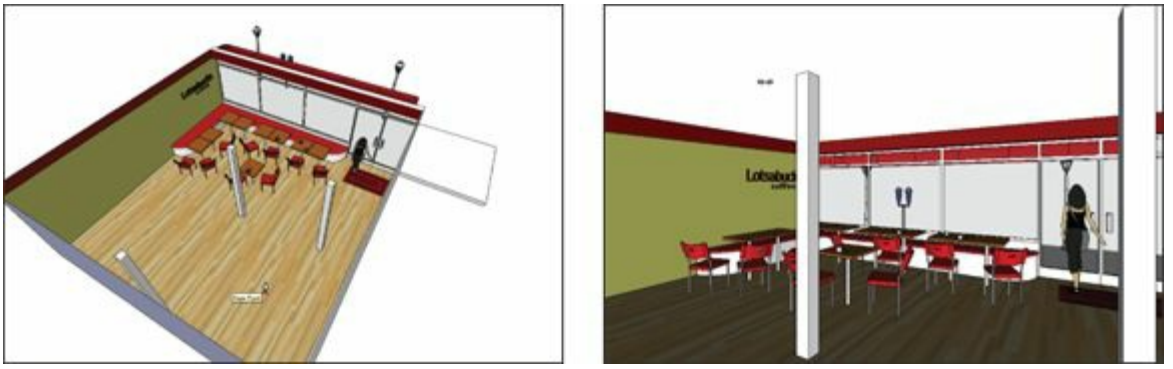


FIGURE 11-1: Drop yourself into your model with the Position Camera tool.

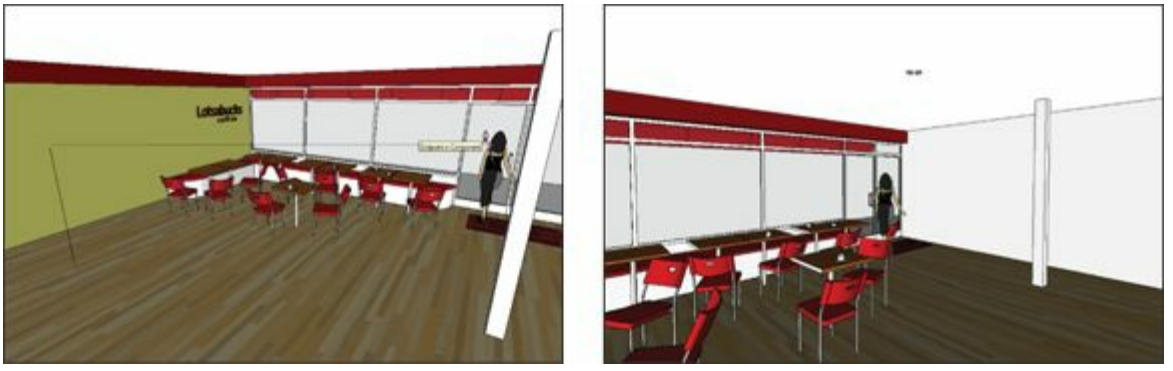


FIGURE 11-2: Aim your view by using Position Camera in another way.

Stepping out with the Walk tool

After you use Position Camera to place yourself in your model, use the Walk tool to move through it. You find the Walk tool on the Camera menu or the Large Tool Set.

To walk around, click and drag the mouse in the direction you want to move:

- Straight up is forward.
- Straight down is backward.
- Anything to the left or right causes you to turn while you walk.

The farther you move your cursor, the faster you walk. Release the mouse button to stop. If you've

ever played video games, you'll get used to it quickly. If Scrabble is more your speed, it'll take a few minutes to get the hang of things.

TIP You can even use the Walk tool to walk up and down stairs and ramps. Keep in mind that the highest step you can climb is 22 inches — anything higher and you get the "bump" cursor, just like you walked into a wall. Also, if you walk off a high surface, you fall to the surface below. It's times like these that we wish SketchUp had cartoon sound effects… .

Using modifier keys in combination with the Walk tool makes SketchUp even more like a video game:

- **To run instead of walk,** hold down the Ctrl key (Option on a Mac) while you're using the Walk tool with your mouse. This may be useful if you're trying to simulate what it'd be like if a werewolf were chasing you through your model.
- **To make the Walk tool change your eye height or move sideways,** use the Shift key. To move straight up like you're growing, hold down the Shift key while you move your mouse up. To get shorter, hold down Shift and move your mouse down. To move sideways like a crab, hold down Shift and move your mouse left or right.
- **To disable collision detection so that you can walk through walls,** hold down the Alt key (Command on a Mac). Burglars find this handy for entering models without breaking any windows.

Stopping to look around

Look Around is the third tool in SketchUp that's dedicated to exploring your model from the inside. If using Position Camera is like swooping in to stand in a particular spot and Walk is like moving around while maintaining a constant eye height, Look Around is like turning your head while standing in one spot. It's pretty well named, we think; it does exactly what it says.

Using Look Around is so simple it hardly merits these steps:

1. **Choose Camera ⇒ Look Around.**
2. **Click and drag around in the modeling window to turn your virtual head.**

   Don't move too fast, or you'll strain your virtual neck.

TIP When you're using any of the navigation tools, context-click to access any other navigation tool; this makes switching between them a little easier.

When you use Look Around with the field of view tool discussed in the next section, you get a pretty

darned realistic simulation of what it'd be like to stand in your model.

Setting your field of view

Field of view is how much of your model you can see in your modeling window at one time. Imagine your eyesight kind of like a cone, with the pointy end pointing at your eyes and the cone getting bigger as it gets farther away from you. Everything that falls inside the cone is visible to you, and everything outside the cone isn't.

If you increase the angle of the cone at the pointy end, the cone gets wider, and you see more of what's in front of you. If you decrease the angle, the cone gets narrower, and you see less; see Figure 11-3.

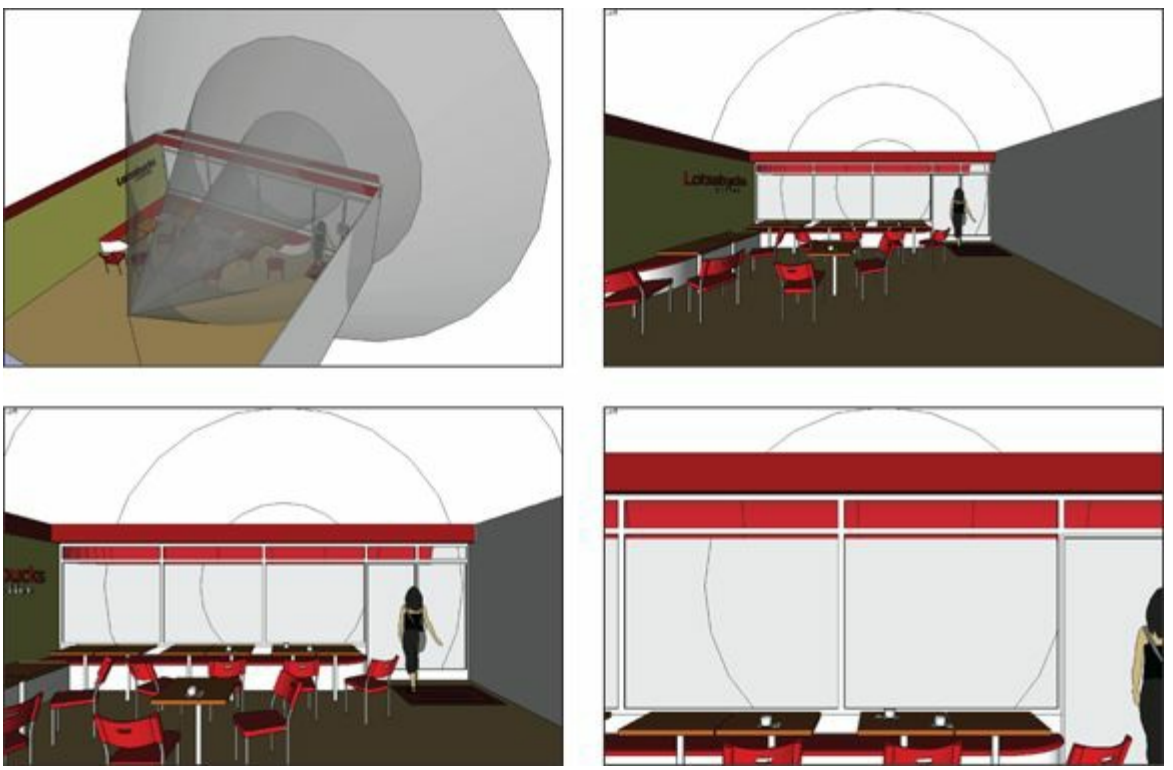


FIGURE 11-3: The wider your field of view, the more you can see.

Measured in degrees, a *wide field of view* means that you can see more of your model without having to move around. The bigger the angle, the more you can see. A wide field of view comes in handy when you're inside a SketchUp model because working on a model you can't see is hard.

It's a good idea to fiddle with your field of view while walking around inside your model. Follow these steps to do so:

1. **Choose Camera ⇒ Field of View.**

   Notice that the Measurements box in the lower-right corner of your modeling window says `Field of View` and that the default value is 35 degrees. This means that you currently have a 35-degree cone of vision, which is kind of narrow.

2. **Type** 60 **and press Enter.**

   Your field of view increases, and you now have a wider view of your model. The trade-off is that you see more distortion at the edges of your modeling window as more information is displayed in the same amount of space.

TIP A good guideline for setting your field of view is to strike a balance between quantity and quality; a wider view always means more distortion. For views of the *outside* of something, try a field of view of 35 to 45 degrees. For interior views, you can increase the field of view to 60 or 70 degrees.

TECHNICAL STUFF If you know something about photography, you can express field of view in millimeters, just like you're using a camera lens. Typing **28mm** gives you a wide-angle view, as if you're looking through a 28mm lens. For people who think about field of view in these terms, this option can be a lot more intuitive than trying to imagine cones of vision.

Taking the Scenic Route

Wouldn't it be great if you could save a particular view of your model? And wouldn't it be even greater if that view could also save things like styles and shadow settings? What if you could come back to any of these saved views by clicking a button on your screen? What if this whole paragraph were just a series of questions?

SketchUp *scenes* are (you guessed it) saved views of your model. It's probably easiest to think of scenes as pre-saved views of your model, except that scenes can save much more than just camera positions.

REMEMBER Although scenes don't get a lot of space in this book (they don't even get their own chapter), scenes are an important feature in SketchUp for three reasons:

- **Scenes can save you hours of time.** Returning to exactly the right view with Orbit, Zoom, and Pan isn't always easy. Sometimes a view involves shadows, styles, sections (you read about those later), and even hidden geometry. Setting up everything the way you need it, every time you need it, can be a pain. It's not that SketchUp's *hard* — it's just that you have a lot of different ways to view your model. Making a scene enables you to apply dozens of settings with a click of your mouse.
- **Scenes are *by far* the most effective way to present your model.** Saving a scene for each point that you want to make in a presentation allows you to focus on what you're trying to say. Instead of fumbling around with the navigation tools, turning on shadows, and making the roof visible, you can click a button to transition to the next scene (which you've already set up exactly the way you want). Figure 11-4 shows a set of scenes Aidan created to present a house he designed for his dog, Savannah.
- **Scenes are the key to making animations.** You make animations by creating a series of scenes and telling SketchUp to figure out the transitions between them. The process, explained in later sections, is as simple as clicking a button.

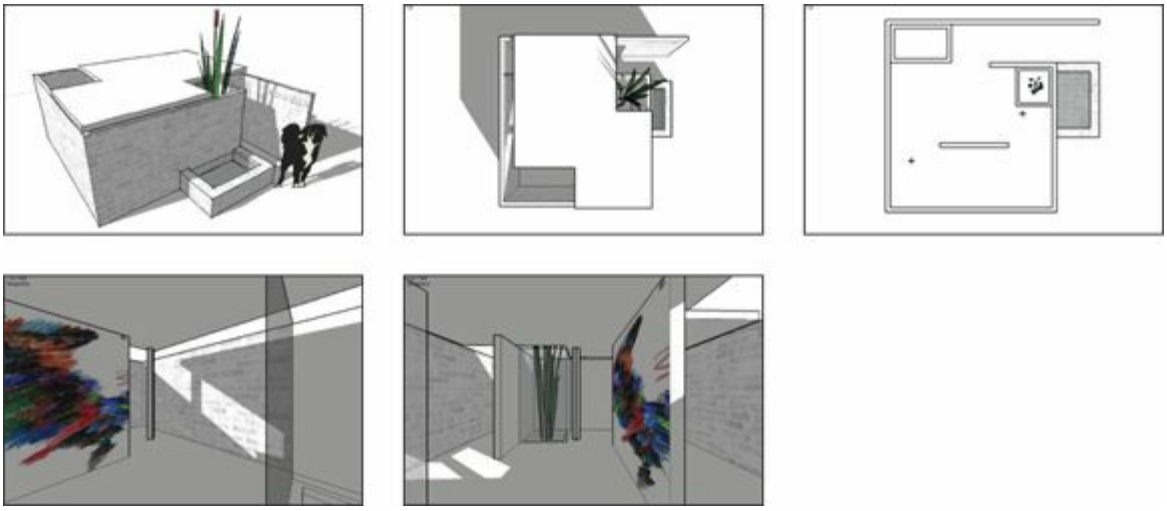


FIGURE 11-4: To show very specific views, create scenes.

After you get used to scenes, you'll find yourself using them all the time. Here are some of the most common uses for scenes:

- Showing shade conditions for the same area at different times of the day. (See Chapter 10 for details about shadow studies.)
- Saving scenes for each floor plan, building section, and other important views of your model
- Building a walkthrough or flyover animation of your design
- Creating scenes that show several views of the same thing with different options (the pointy roof or the flat one, madam?)
- Demonstrating change over time by showing or hiding a succession of components. (Chapter 5 is all about components.)

Creating scenes

Before you start making scenes, know this: Making a scene in SketchUp is *not* like taking a snapshot of your model. If you create a scene to save a view, continue working on your model, and then return to that scene, your model doesn't go back to the way it was when you created the scene. The camera position will be the same, and the settings will be the same, but your geometry won't be. This is a pretty important concept, and one that makes using scenes so powerful.

REMEMBER A *scene* is just a set of view settings, which means that they're automatically updated every time you edit your model. You can make some scenes and use them all the way through your process, from when you start modeling to when you present your design to the president. Or to your mother.

Creating scenes is a simple process. The basic idea is that you add a scene to your SketchUp file

whenever you have a view you want to return to later. You can always delete scenes, so there's no downside to using lots of them. Follow these steps to make a new scene:

1. **Choose Window ⇒ Scenes to open the Scenes panel.**

   When the Scenes panel first opens, it doesn't look like there's much to it. Expanding it by clicking the Show Details button in the upper-right corner reveals more options, but don't worry about that right now.

2. **Set up your view however you want.**

   Navigate around until you're happy with your point of view. If you want, use the Shadows and Styles panels to change the way your model looks.

3. **Click the Add Scene button to make a new scene with your current view settings.**

   A new scene is added to your SketchUp file. If this is the first scene you've created, it's called Scene 1, but you can give it a more meaningful name, as explained later in this chapter. As shown in Figure 11-5, the scene appears in two places:

   - As a tab at the top of your modeling window
   - As a list item in the Scenes panel, right underneath the Add Scene button

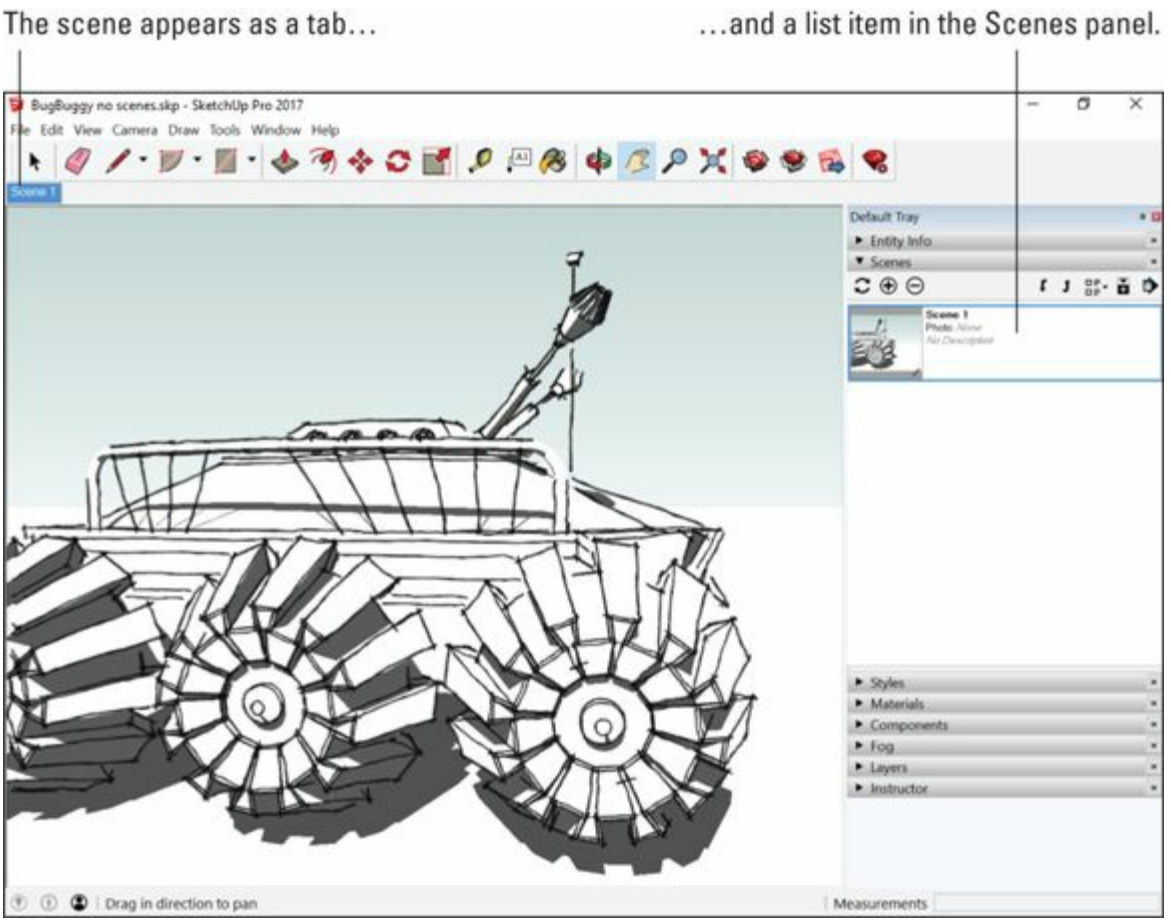


FIGURE 11-5: A scene appears in two places.

TIP When you're creating a scene that shows an eye-level view of a building — whether it's an interior or an exterior view — there's a quick, easy step you can take to make the scene look 500 percent better: Choose Camera ⇒ Two-Point Perspective to make all the vertical edges in your model appear vertical in the view. Doing so removes the unprofessional, distorted effect that's the hallmark of improperly wielded 3D modeling software.

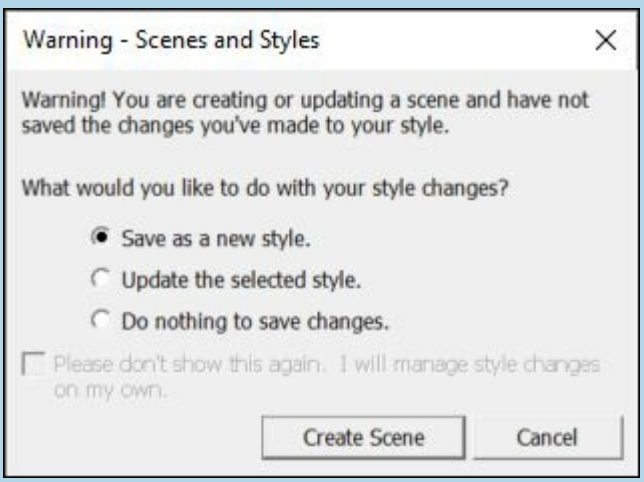
REMEMBER Nothing is generated outside of SketchUp when you add a scene; it's not like exporting a JPEG or a TIFF. Scenes are just little bits of programming code that "remember" the view settings in effect when you create the scene. Scenes also don't add much to your file size, so you don't have to worry about using too many of them.

WHEN SCENES AND STYLES COLLIDE

Sooner or later, you'll be presented with the Warning — Scenes and Styles dialog box shown here. It pops up whenever you try to create a scene without first saving the changes you've made to the style applied to your model. In other words, SketchUp tries to help by reminding you to keep styles in mind while you work with scenes. (The first part of Chapter 10 is all about styles, if you need a refresher.)

This warning dialog box gives you three options; here's some guidance on which one to choose:

- **Save as a New Style:** This option adds a new style to your In Model styles library. When you come back to this scene, it looks exactly the way it did when you created it. Choosing this option is the safest way to proceed because it can't affect any other scene.
- **Update the Selected Style:** Choose this option only if you know what effect updating the style will have on the other scenes in your model. If the style you're updating is applied to any of them, you'll affect the way they look. In models with lots of scenes and styles, updating a style can have big implications.
- **Do Nothing to Save Changes:** This option creates a scene with your current style applied, completely ignoring any changes you may have made to that style. When you come back to this scene, it looks different than it did when you created it. Only choose this option if you really know what you're doing, or if you enjoy doing the same thing more than once.



Moving from scene to scene

Activate a scene you've added earlier by doing one of three things:

- Double-click the name (or thumbnail image) of the scene in the Scenes panel.
- Click the tab for that scene at the top of the modeling window.
- Context-click any scene tab and choose Play Animation to make SketchUp automatically flip through your scenes. Choose Play Animation again to make the animation stop.

TIP Notice how the transition from one scene to the next is animated? You don't have to do anything special to make this happen; it's something SketchUp automatically does to make things look better (and ultimately, to make *you* look better).

You can adjust the way SketchUp transitions between scenes, which is handy for customizing your presentations. Follow these steps to access these settings:

1. **Choose Window ⇒ Model Info.**
2. **On the left side of the Model Info dialog box, choose Animation.**

   The Animation settings panel in the Model Info dialog box isn't very complicated, but it can make a huge difference in the appearance of your scene-related presentations.
3. **In the Scene Transitions area, set how SketchUp transitions from one scene to another.**

   These settings apply to both manual (clicking a page tab) and automatic (playing an animation) scene transitions:

   - *Enable Scene Transitions:* Clear this check box to make SketchUp change scenes without animating the transitions between them. You probably want to do this if your model is so complex (or your computer is so slow) that animated transitions don't look good.
   - *Seconds:* If you've selected the Enable Scene Transitions check box, the number of seconds you enter here indicates the time SketchUp takes to transition from one scene to the next. If you're "moving the camera" very far between scenes, bump up the transition time so that your audience doesn't get sick. Three seconds is a good compromise between nausea and boredom.

TIP If you're presenting an incomplete model (perhaps you've thought about the garage and the living room, but nothing in between), it can be helpful to turn off scene transitions. That way, your audience won't see the things you haven't worked on when you click a tab to change scenes. It's sneaky, but effective.

4. **In the Scene Delay area, set the length of time SketchUp pauses on each slide before it moves to the next one.**

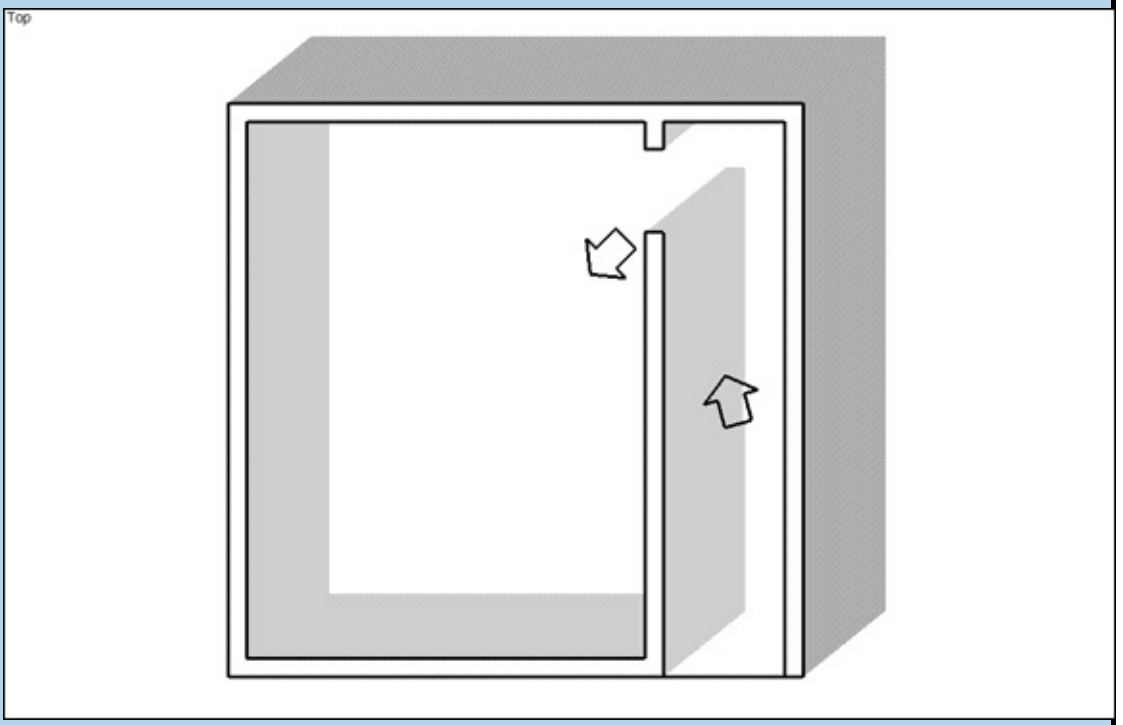
   If you want the presentation to seem like you're walking or flying, set this to 0. If you want time to talk about each scene in your presentation, bump this up a few seconds.

MAKING WALKTHROUGHS

A really great way to use scenes is to pretend you're walking or flying through your model. By setting up your scenes sequentially, you can give a seamless tour without messing around with the navigation tools. This setup is especially handy when you need to walk and talk at the same time.

Here are some tips that can help you to simulate a person walking or flying through your model with scenes:

- **Adjust your field of view.** For interior animations, make your camera "see" a wider area by setting your field of view to 60 degrees. For exterior views, try a field of view that's between 30 and 45 degrees. See the section "Setting your field of view," earlier in this chapter.
- **Make sure that your scenes aren't too far apart.** Instead of racing through a room like it's on fire, don't be afraid to add more scenes. Your audience will thank you by not throwing up on your conference table.
- **Add scenes at equal distance intervals.** Because SketchUp only lets you control the scene transition timing for all your scenes at once, it's best to make sure that your scenes are set up about the same distance apart. If you don't, your walk-through animations will be jerky and strange, like Aidan's dancing.
- **Don't forget the animation settings in the Model Info dialog box.** Set the scene delay to 0 seconds so that your animation doesn't pause at every scene. For a normal walking speed, set your scene transitions so that you move about 5 feet per second. If your scenes are about 20 feet apart, set your scene transition time to 4 seconds. This gives your audience time to look around and notice things. For flying animations, pick a scene transition time that looks good.
- **Slide around corners.** When you set up a walking animation, you have an easy, reliable way to turn corners without seeming too robotic. The method is illustrated in the following figure. Basically, the trick is to add a scene just short of where you want to turn — in this case, a few feet ahead of the doorway. The key is to angle your view *into* the turn slightly. Set up your next scene just past the turn, close to the inside and facing the new view. This technique makes it seem like you're turning corners naturally.



Modifying scenes after you make 'em

After you create a whole bunch of scenes, you inevitably need to fiddle with them in some way. After all, modifying something is almost always easier than making it all over again, and the same thing holds true for scenes. Because your SketchUp model will change a million times, understanding how to make changes to your existing scenes can save you a lot of time in the long run.

WARNING Certain aspects of the scene-modification process can get a little tricky. This is kind of surprising, given how simple the rest of working with scenes can be. You deal with a lot of complexity when working in SketchUp, and this is just one of the places where that complexity rears its ugly head. The upshot: Pay special attention to the section on updating scenes and don't worry if you take a little while to figure things out. It happens to the best of us.

Reordering, renaming, and removing scenes

Making simple modifications to scenes, such as reordering, renaming, and removing them, is easy. You can accomplish each of these in two ways: You either context-click a scene tab at the top of your modeling window or use the Scenes panel menu (click the menu arrow in the upper right). See Figure 11-6.

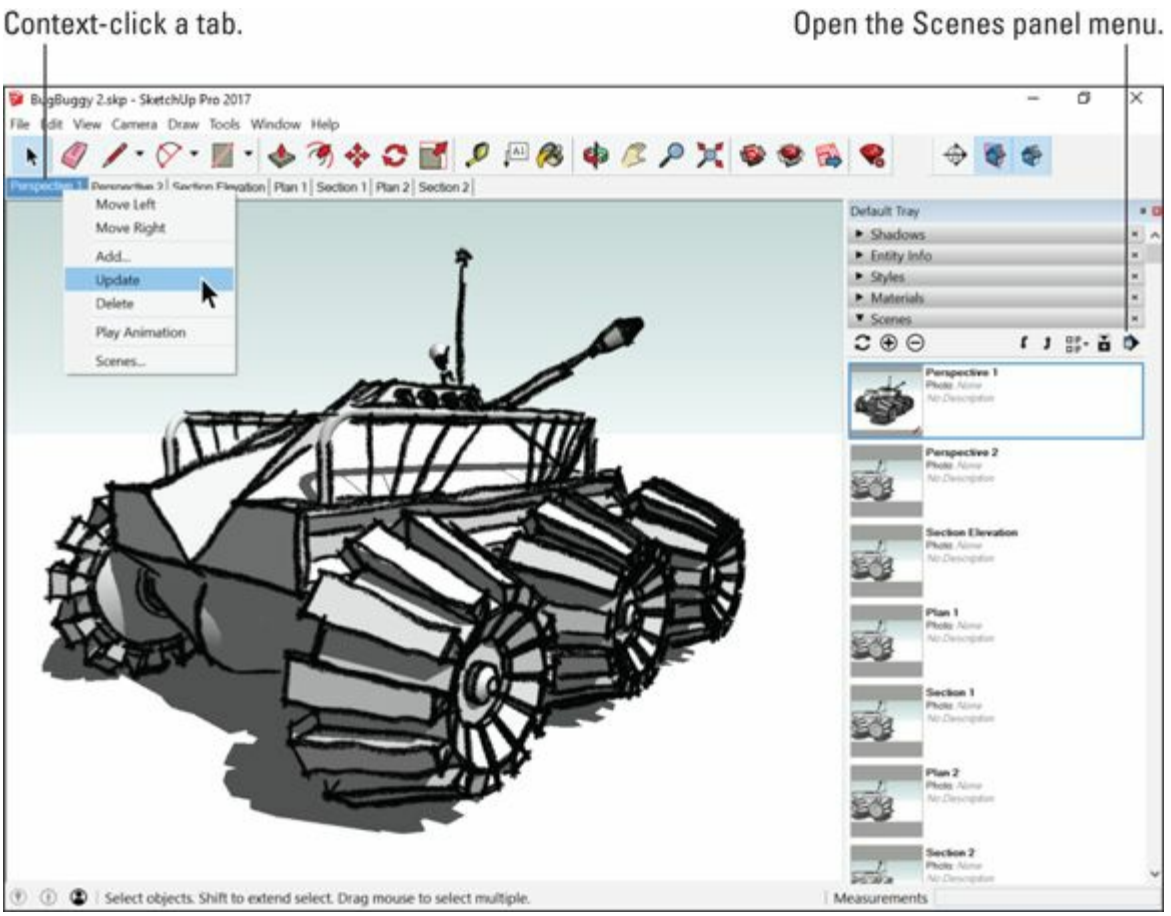


FIGURE 11-6: You can modify scenes by context-clicking scene tabs or by using the Scenes panel.

Here's how to reorder, rename, or remove scenes:

- **Reordering scenes:** You can change the order in which scenes play in a slide show. If you're using scenes, you need to do this often — trust us. Use one of the following methods:
  - Context-click the tab of the scene you want to move (in the modeling window) and choose Move Right or Move Left.
  - In the expanded Scenes panel, click the name (or thumbnail image) of the scene you want to move to select it. Then click the Move Scene Up or Move Scene Down arrow at the top of the panel to change the scene's position in the scene order.

- REMEMBER **Renaming scenes:** Give your scenes meaningful names: Living Room, Top View, and Shadows at 5:00 P.M. are descriptive enough to be useful. Scene 14 lacks a certain *je ne sais quoi*. Use one of the following methods:
  - Context-click the scene tab and choose Rename (this works only on the Mac, for some

reason).

-  In the Scenes panel, select the scene you want to rename and type something into the Name field below the list. If you don't see the Name field, click the Show Details button in the upper right. If you're feeling really organized, go ahead and give the scene a description, too — more information never hurts.

- **Removing scenes:** If you don't need a scene anymore, feel free to delete it. However, if you have a scene that you don't want to appear in slide shows, you don't have to get rid of it. Use one of the following methods to remove a scene:

  - Context-click the scene tab and choose Delete to get rid of it permanently.
  - In the Scenes panel, select the scene you want to ax and click the Delete button.

  To exclude a scene from slide shows without getting rid of it, select its name (or thumbnail) and clear the Include in Animation check box.

Working with scene properties

Okay. Turn off the television. Send the kids outside to play. Do whatever you need to do to concentrate because wrapping your head around the concept of scene properties isn't altogether straightforward. We do our best to explain it.

Basically, a scene is just a collection of saved viewing *properties*. Each of these properties has something to do with how your model looks:

- **Camera Location:** Camera Location properties include the camera position, or *viewpoint*, and the field of view (discussed earlier in this chapter).
- **Hidden Geometry:** Hidden Geometry properties are really just one thing: what elements are hidden and what elements aren't. These properties keep track of the visibility of the lines, faces, groups, and components in your model.
- **Visible Layers:** Visible Layer properties keep track of the visibility of layers in your model.
- **Active Section Planes:** Active Section Plane properties include the visibility of section planes and whether they're active. We talk about sections in the last part of this chapter.
- **Style and Fog:** Style and Fog properties are all the settings in the Styles and Fog panels, and there are a lot of them. (See Chapter 10.)
- **Shadow Settings:** Shadow Settings properties include whether shadows are turned on and the time and date for which the shadows are set. They also include all the other settings in the Shadows panel.
- **Axes Location:** Axes Location properties are very specific. They keep track of the visibility, location, and orientation of the main red, green, and blue axes in your modeling window. It's sometimes useful to move the axes around when you're working, such as when you're working with a rotated street grid in an urban-scale model.

REMEMBER Here's the tricky part: Scenes can *save* (remember) any combination of the preceding properties — it's not an all-or-nothing proposition. After the full impact of this information soaks in, you'll realize that this means that scenes are *much* more powerful than they first appear.

TIP By creating scenes that save only one or two properties (instead of all seven), you can use scenes to do some pretty nifty things. Here are three of our favorites:

- Create scenes that affect only your camera location, allowing you to return to any point of view without affecting anything else about the way your model looks (such as styles and hidden geometry).
- Create scenes that affect only styles and shadows, letting you quickly change between simple and complex (hard on your computer) display settings without affecting your camera location.
- Create scenes that have different combinations of Hidden Geometry to look at design alternatives without changing your model's style and camera location.

The key to working with scene properties is the expanded Scenes panel, visible in Figure 11-7. Although this panel is pretty simple, folks who understand it are few and far between. Prepare to join the informed minority.

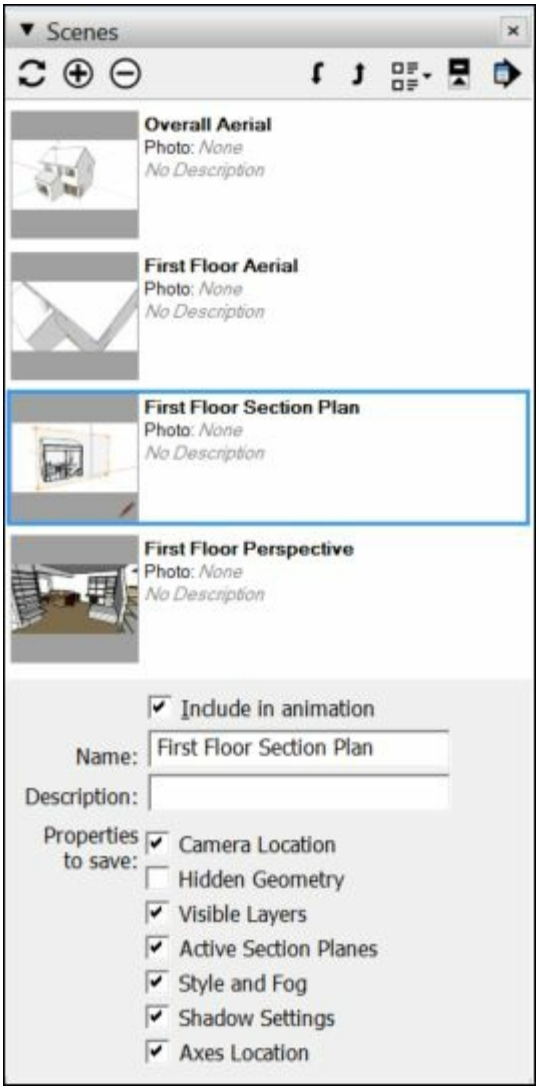


FIGURE 11-7: Choose which scene properties to save in the expanded Scenes panel.

Follow these steps to set which properties a scene saves:

1. **In the Scenes panel, select the scene whose properties you want to fiddle with.**

   You don't have to view this scene when you edit it; you can edit properties for any scene at any time.

2.  **If not already expanded, click the Show Details button in the upper-right corner of the Scenes panel.**

3. **Select the check boxes next to the properties you want to save.**

   That's it. You don't have to click Save anywhere to make your changes stick. A little anticlimactic, no?

TIP One terrific use of scene properties is to create scenes that help you show off different *iterations* (versions) of your design. You do this by making a different layer visible with each scene in your model. See Chapter 7 for details about controlling layer visibility.

Updating scenes

If you want to *update* (make changes to) an existing scene, you have a couple options:

- Update all the scene's properties at once, which is a piece of cake.
- Update the scene's properties selectively, which isn't quite as simple. Read on for both sets of instructions.

WARNING After you update a scene, you can't use Undo to return the scene back to the way it was. Instead, save your SketchUp file right before you update a scene and choose File ⇒ Revert if you don't like the results.

UPDATING ALL THE SCENE PROPERTIES AT ONCE

The simplest way to modify a scene is to not worry about individual properties. If all you want to do is update a scene after you make an adjustment to the appearance of your model, you're in luck. Follow these steps:

1. **Click the tab of the scene you want to update.**

   The tabs are at the top of the modeling window.

2. **Make whatever styles, shadows, camera, or other display changes you want to your model.**

3. **Context-click the current scene tab and choose Update.**

WARNING Be careful not to accidentally double-click the tab, or you'll reactivate the scene and lose all the changes you made. However, after you update the scene, the new scene properties replace the old ones, and you're home free.

UPDATING SCENE PROPERTIES SELECTIVELY

Here's where things get complicated. At times in your SketchUp life, you'll want to update a scene without updating all its properties.

WARNING When you update scenes selectively, you make changes that you can't see immediately, which means disaster might strike. Copy your SketchUp file before you update more than one scene at a time, just in case something awful happens.

Maybe you've used scenes to create a tour of the sunroom you're designing for a client, and you want to change the shadow settings to make your model look brighter. You have 30 scenes in your presentation, and your meeting's in 5 minutes. You don't have time to change and update all 30 scenes one at a time. What to do? Follow these steps:

1. **Adjust the Shadow properties to where you want them to be for all the scenes you want to update.**

   Although this example deals with shadows, this same method applies to any scene properties changes you want to make.

2. **In the Scenes panel, select all the scenes you want to update.**

   Hold down the Shift key to select a group of consecutive scenes. Hold down Ctrl (Command on the Mac) to select noncontiguous scenes.

3.  **Click the Update Scenes button in the Scenes panel.**

   The Scene Update dialog box appears, as shown in Figure 11-8.

4. **Select the Shadow Settings check box and click the Update button.**

   If all you want to update are the Shadow Settings, make sure that only that check box is selected. More generally, you'd select the check box next to each of the properties you want to update. All the selected scenes are updated with those new properties, and all the properties whose check boxes are clear remain unchanged.

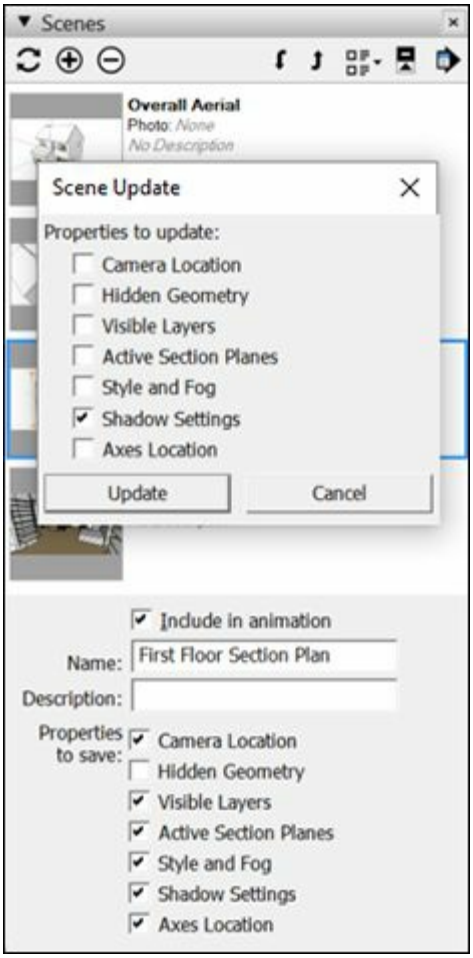


FIGURE 11-8: Updating only certain scene properties is a little more involved.