

Modeling with Photos and Other Resources

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Building a model from scratch is all fine and well, but to help you along, SketchUp can import a whole lot of information — in the form of digital photos, 3D terrain data, and even existing 2D CAD.

If you have a model you want to paint with photographs, you can do that. You can apply photos to faces and then use the information in the pictures to help with modeling. Building windows is a lot easier when they're painted right on the wall. That's what we talk about in the first part of this chapter.

If you want to use a photo as a basis for modeling something that exists in the real world, you can do that in SketchUp, too. With the Match Photo feature, you can import a picture and trace what you see with SketchUp's modeling tools.

If you're modeling a building or other structure that you plan to build on land, you can find your desired location on an online map and import the terrain right into your model — well, a digital representation of the terrain. (You can also import certain types of terrain files if you have those instead.)

If you're working with SketchUp Pro, you can import a CAD file to use as a starting point for a 3D model. The import process isn't hard, but it's helpful to understand a few hints before you try it for the first time.

Painting Faces with Photos

Technically, painting surfaces with pictures using 3D software is called *mapping*, as in “I *mapped* a photo of your face to the underside of the pile-driver model I’m building.” Different software programs have different methods for mapping pictures to faces. Luckily, in SketchUp, the process is pretty straightforward.

The following sections deal with mapping photos to two kinds of faces: flat and curved. The tools are similar, but the methods aren’t. We explain both, because you never know what you’re going to run into.



TIP

SketchUp uses lots of terms to refer to the stuff you can paint faces with; generically, they’re all *materials*. Materials can be colors or textures; *textures* are image-based, and *colors* are a single, solid hue. When you import an image to map it to a face, the image becomes a texture — just like any of the other textures in your Materials panel. Read more about using materials in [Chapter 3](#).

Adding photos to flat faces

When mapping photos onto flat faces, you can choose the hard way or the easy way. Unfortunately, the hard way is the method you end up using the vast majority of the time, so we describe it first. Importing images by using the File menu lets you take any image and map it to any flat face in your model.

The easy way is designed for one particular case: It gives you access to Google’s huge collection of Street View imagery, letting you paint your models with building facades photographed by Google’s roving fleet. The feature is cool, but also very specific.

Importing images: Use your own photos

Before you follow these steps, make sure you have at least one face in your model; you map your texture to a face. When you’re ready, here’s how to place the image onto that face:

- 1. Choose File ⇒ Import.**

The Import dialog box opens.

- 2. Select the image file you want to use as a texture.**

You can use JPEGs, TIFFs, and PNGs as textures in SketchUp; all these are common image file formats.

- 3. In the Use Image As area, select the Texture option, as shown in [Figure 8-1](#).**

- 4. Click the Import button.**

The Import dialog box closes, Paint Bucket becomes your active tool, and its cursor is loaded

with the image you chose to import.

5. **Click once in the lower-left corner of the face you want to paint.** (See [Figure 8-2.](#))

Your click tells SketchUp where to position the lower-left corner of the image you're using as a texture. Although you can click anywhere on the face you're trying to paint, clicking the lower-left corner keeps things simple.

6. **Click somewhere else on the face you're painting.** (See [Figure 8-2.](#))

Unless the proportions of your image perfectly match the face onto which it was mapped, your image repeats. Don't worry — that's normal. SketchUp automatically tiles your image to fill the whole face. If you want to edit your new texture so that it doesn't look tiled (and you probably do), skip to the later section, "[Editing your textures.](#)" You can scale, rotate, skew, or even stretch your texture to make it look however you want. See the nearby sidebar, "[When is an image a texture?](#)" for more background details.

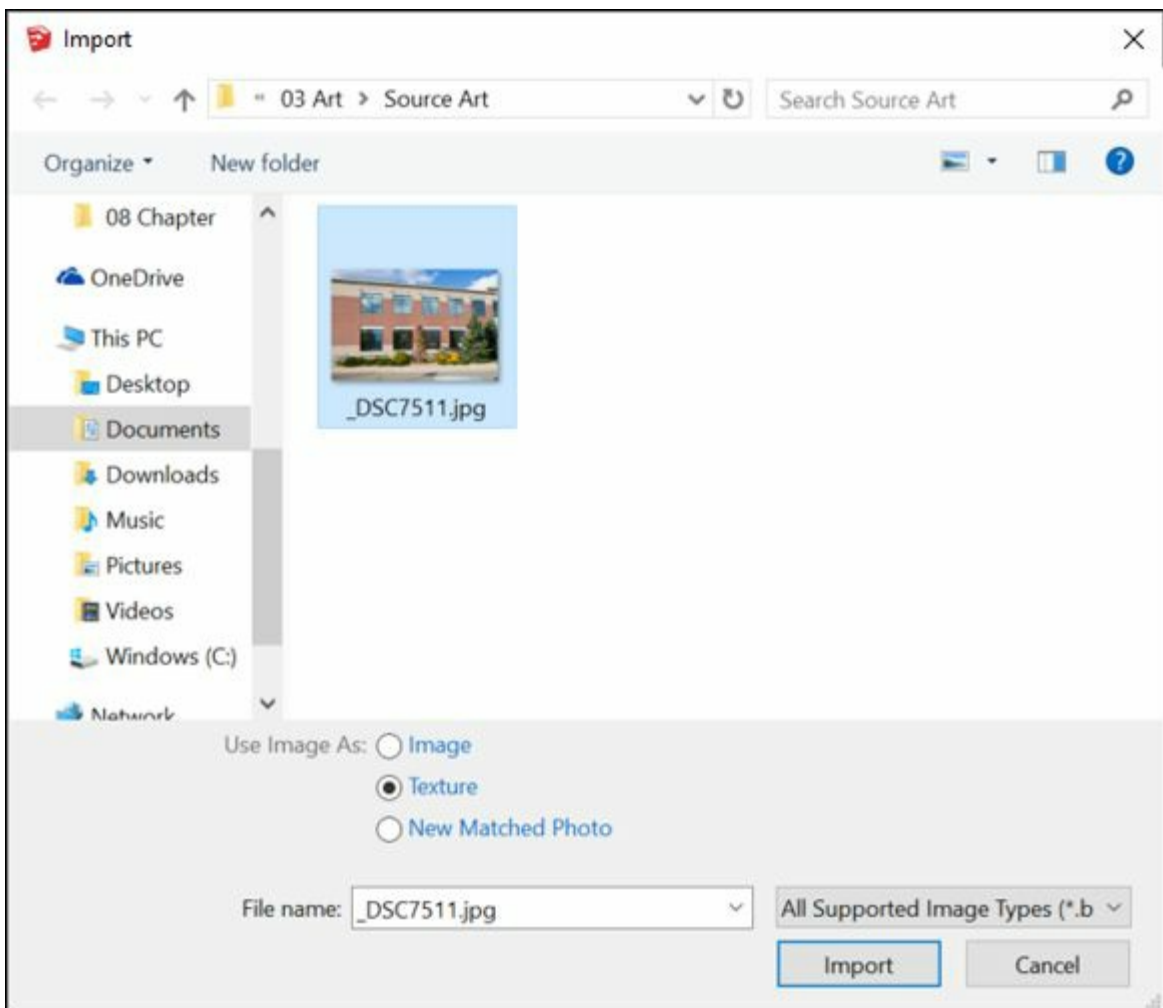


FIGURE 8-1: Tell SketchUp you want to use the image as a texture.

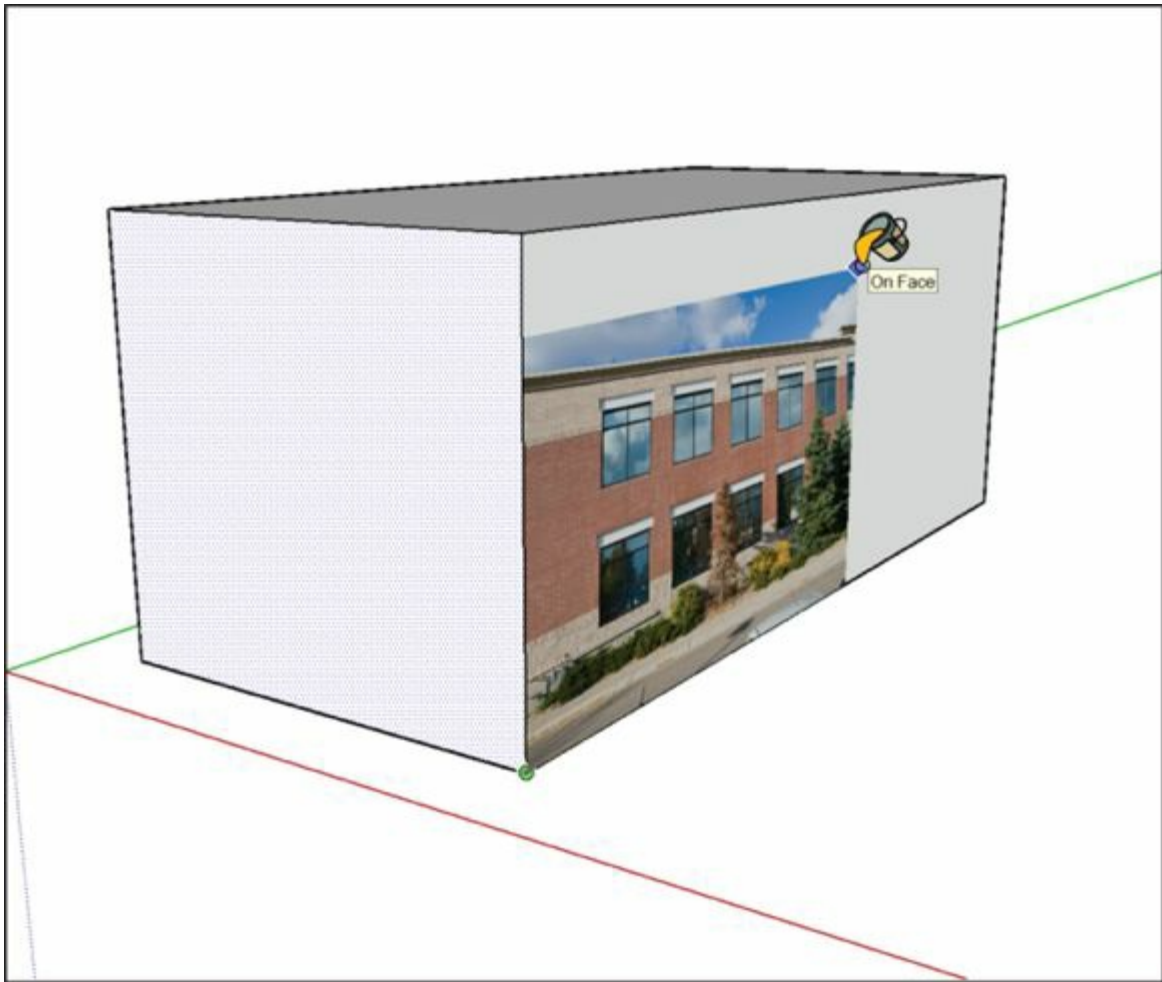


FIGURE 8-2: Click once to locate the lower-left corner of the image you're using as a texture. Click again to locate the upper-right corner.



WHEN IS AN IMAGE A TEXTURE?

Time for a little bit of theory: Image textures in SketchUp are made up of *tiles*. To make a large area of texture, such as a brick wall, SketchUp uses a bunch of tiles right next to each other. In the case of a brick wall, the face of a model may look like thousands of bricks, but the effect is really just the same tile of about 50 bricks repeated over and over again.

Because SketchUp treats imported image textures just like any other texture, what you're really doing when you click to locate the upper-right corner of your image is this: You're telling SketchUp how big to make the tile for your new photo texture. Don't worry too much about getting the size right the first time. You can always tweak things later.

Get photo texture: Use online imagery

Google Street View offers an immersive and spookily cool way to experience the outside world from the lazy comfort of your computer screen.

Google Street View and SketchUp got wired together back in SketchUp 8, when Google owned SketchUp. Since then, you've been able to grab imagery from the former and use it in the latter. If your goal is to build photo-textured models of real-world buildings, you're in luck.



TIP To use this feature, you must meet two important prerequisites:

- » **Your model must be *geo-located*.** You must have already told SketchUp precisely where your model is by adding a geo-location snapshot to your file. If the preceding sentence makes no sense to you, consult the section "[Geo-locating your model](#)," later in this chapter.
- » **Street View data must exist for the thing you're trying to texture.** Google has photographed an awful lot of places, but it's always possible that wherever you're working isn't one of them.

Follow these steps to paint a flat face in your model with Google Street View imagery:

1. **Select the face you want to paint with Street View imagery.**

Selecting a rectangle-shaped face helps. You see why in a couple steps.

2. **Choose Edit ⇒ Face ⇒ Add Photo Texture.**

The Photo Textures window pops up. If Street View data isn't available for the location where you're modeling, this is when you find out.

3. **Frame the imagery you want to use in the window:**

- Click and drag to swivel the "camera."

- Click the arrows superimposed on the photo to move up and down the street.
 - Zoom in and out using the + and – buttons.
 - If you need to, resize the whole window to get a better view.
4. **Click the Select Region button in the upper-right corner of the window.**
A rectangle with blue pins at the corners appears, and the fun part begins.
 5. **Drag the blue pins to define an area to paint on the face you selected in Step 1. (See [Figure 8-3](#).)**
 6. **Click the Grab button to paint the face you selected in Step 1 with the imagery you defined in Step 5.**
 7. **Close the Photo Textures window.**

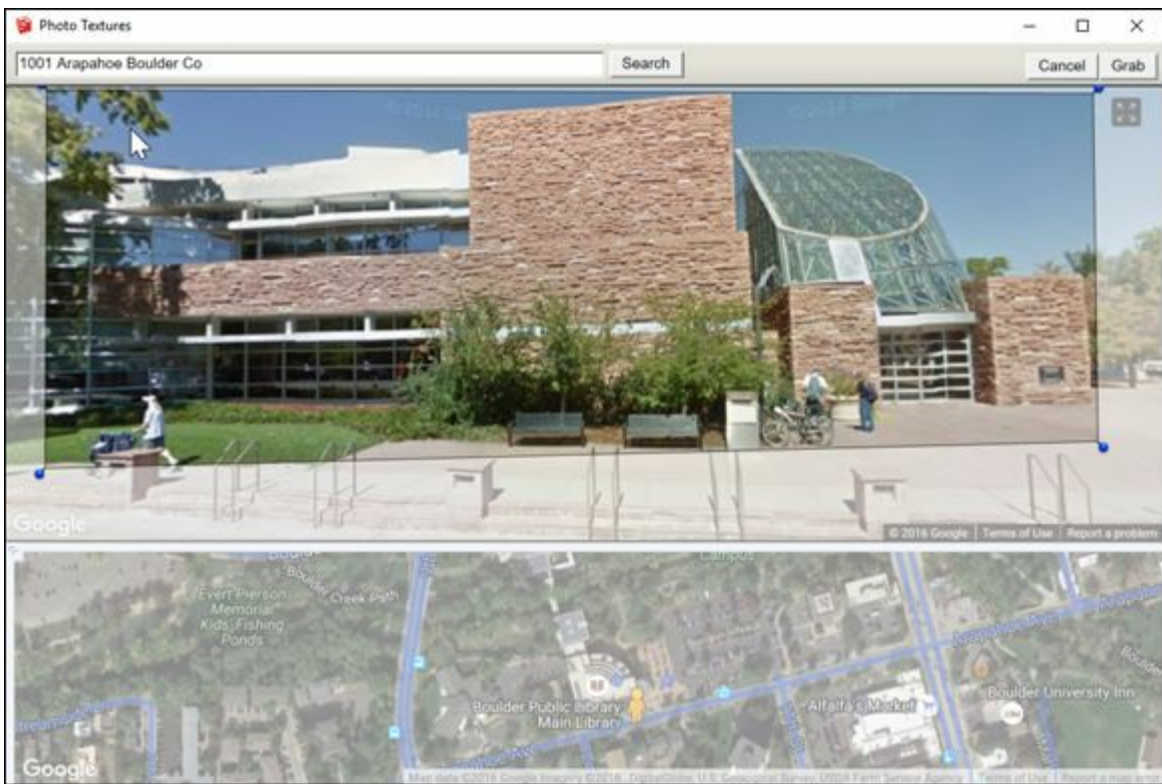


FIGURE 8-3: You can use the Google Street View imagery to photo-texture your model.

The photo textures you apply using Add Photo Texture are like any other photo textures in your model. You can edit the texture in exactly the same way, as we explain in the next section.

Editing your textures

After you successfully map an image to a face, you probably want to change the image somehow: Make it bigger, flip it over, rotate it — you get the idea. This is where the Position Texture tool comes in.

The Position Texture tool is actually more of a mode; we call it Texture Edit mode. Within this mode, you can be in either of two *submodes*. Their names are less important than what they do, so that's how we describe them:

- » **Move/Scale/Rotate/Shear/Distort Texture mode:** Use this mode to move, scale, rotate, shear, or distort your texture (surprised?). Technically, this mode is called *Fixed Pin mode*. You see why in a moment.
- » **Stretch Texture mode:** Stretch Texture mode lets you edit your texture by *stretching* it to fit the face it's painted on. If you want to map a photograph of a building facade to your model, this is the mode you want to use. In the SketchUp Help documentation, Stretch Texture mode is called *Free Pin mode*, in case you're interested.



REMEMBER You can edit textures only on flat surfaces; the Position Texture tool doesn't work on curved surfaces. For details about working with textures and curved surfaces, see "[Adding photo textures to curved surfaces](#)" later in this chapter.

Moving, scaling, rotating, shearing, and distorting your texture

The title of this section pretty much says it all — doing the aforementioned things to your texture involves Texture Edit mode, which is a little bit hidden, unfortunately. Follow these steps to move, scale, rotate, or skew your texture:

1. **With the Select tool, click the face with the texture you want to edit.**
2. **Choose Edit ⇒ Face ⇒ Texture ⇒ Position.**

This command enables (deep breath) the Move/Scale/Rotate/Shear/Distort Texture mode. You see a transparent version of your image, along with four pins, each a different color, as shown in [Figure 8-4](#). If all your pins are yellow, you're in Stretch Texture mode. Context-click your textured face and select Fixed Pins to switch to the correct mode.



TIP A quicker way to get to Texture Edit mode is to context-click the textured face and then choose Texture ⇒ Position from the context menu.

3. **Edit your texture.**

At this point, you can edit your texture in two ways: by using the options on a context menu or by dragging the colored pins.

Context-clicking your texture opens a context menu with the following options:

- *Done*: Tells SketchUp you're finished editing your texture.
- *Reset*: Undoes all the changes you've made to your texture.

- *Flip*: Flips your texture left to right or up and down, depending on which suboption you choose.
- *Rotate*: Rotates your texture 90, 180, or 270 degrees, depending on the suboption you choose.
- *Fixed Pins*: When this option is selected, you're in Move/Scale/Rotate/Shear/Distort Texture mode (Fixed Pin mode). Deselecting it switches you over to Stretch Texture mode, discussed in the upcoming section "[Stretching a photo over a face](#)."
- *Undo/Redo*: Goes back or forward a step in your working process.

Dragging each of the colored pins has a different effect (refer to [Figure 8-4](#)):

- *Scale/Shear (Blue) pin*: Scales and shears your texture while you drag it. *Shearing* keeps the top and bottom edges parallel while making the image "lean" to the left or right.
- *Distort (Yellow) pin*: Distorts your texture while you drag it; in this case, the distortion looks kind of like a perspective effect.
- *Scale/Rotate (Green) pin*: Scales and rotates your texture while you drag it.
- *Move (Red) pin*: Moves your texture around while you drag it. Of all four colored pins, this one is the most useful. It's great for precisely positioning brick, shingle, and other building material textures in a model.

4. In your modeling window, click anywhere outside your texture to exit Texture Edit mode.

You can also press Enter or context-click and choose Done from the context menu.



FIGURE 8-4: Dragging each colored pin does something different.

Stretching a photo over a face

Imagine a photograph printed on a piece of fabric that you can stretch until the photo looks the way you want and that you hold in place with pins. That's basically how Stretch Texture mode (also known as Free Pin mode) works.

Follow these steps to stretch your texture using the Position Texture tool's Stretch Texture mode:

1. **With the Select tool, click the face with the texture you want to edit.**
2. **Choose Edit ⇒ Face ⇒ Texture ⇒ Position.**
A quicker way to get to Texture Edit mode is to context-click the textured face and choose Texture ⇒ Position from the context menu.
3. **Context-click your texture and clear the check mark next to the Fixed Pins option. (Make sure that no check mark is next to it.)**

You switch to Stretch Texture mode. Instead of four differently colored pins with little symbols next to them, you see four white pins. (The pins used to be yellow.)

4. Click and drag each pin to reposition it until your photo stretches over the face in a way you like.



TIP If you're repositioning a photo of a building, click a pin to pick it up, and then click to place the pin at a corner of the building, as shown in [Figure 8-5](#). Then, drag each pin to a corner of the face to stretch the photo.

If you need to, feel free to orbit, zoom, and pan around your model to get the best view of what you're doing; just use the scroll wheel on your mouse to navigate without switching tools.

5. Press **Enter** to exit **Texture Edit mode**.



FIGURE 8-5: Place the pin at the corresponding corner (upper left to upper left, for instance) of the building in your photo.

If you don't like what you see, go back and edit the texture again; you can muck around as many times as you like.

Scaling your model until the photo looks right

When you're happy with the way your texture is stretched to fit the face, one of two things will be true:

- » **The proportions are correct.** By this, we mean that the photo doesn't look stretched or squashed. This is the case only if the face to which you applied the photo texture was already exactly the right size.
- » **The proportions aren't correct.** If the photo texture you just "tweaked" looks stretched or

squashed, the face it's on is the wrong size. No worries — you just need to adjust the whole face until the texture looks right. Better yet, if you know how big the face is *supposed* to be (in real life), you can stretch it until it's correct.

Follow these steps to stretch a face until the texture looks right:

1. **Use the Tape Measure tool to create guides that you can use to accurately stretch your face.**

If you don't know how many feet wide your building is, take your best guess and see how the result looks. [Chapter 3](#) explains how to use the Tape Measure tool and guides.

2. **Select the face you want to stretch — or your whole model if you're just roughing out your model.**

If your model is at a fairly early stage, it's easiest to select the whole kit and caboodle. Triple-click the face with the Select tool to select it and everything attached to it.



3. **Choose Tools ⇒ Scale to activate the Scale tool. Or select the Scale tool on the toolbar.**

When the Scale tool is active, the SketchUp scaling box surrounds your model. Its 27 little green cubes (or *grips*) and thick, yellow lines are hard to miss.

4. **Scale your selection to the right size. (See [Figure 8-6](#).)**

Use the Scale tool by clicking the grips and moving your cursor to stretch whatever's selected (including your texture). Click again to stop scaling.



TIP

To scale something precisely using a guide, click a scale grip to grab it and then hover your pointer over the relevant guide to tell SketchUp that's where you want to scale *to*. Click again to finish the scale operation.

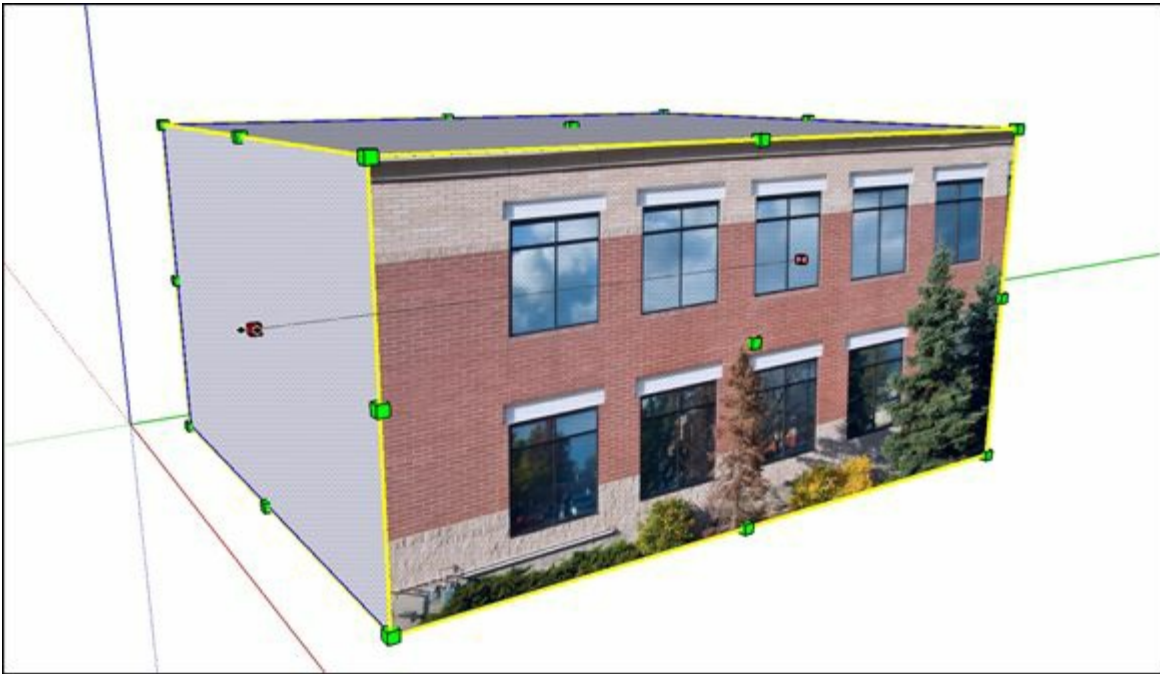


FIGURE 8-6: Use the Scale tool's grips to stretch your selection (texture and all).

It's perfectly normal to want to keep modeling with your photo-textured faces; tracing a window and pushing it in a bit with the Push/Pull tool is one of the most satisfying things you can do in SketchUp. Flip ahead a few pages and take a look at the "[Modeling on Top of Photo Textures](#)" section to discover everything you need to know.

Editing the pixels in a texture image

Perhaps there's something *in* a photograph you're using, and you don't want it to be there. You can use Edit Texture Image to open the texture you've selected in an image-editing program, where you can edit the texture directly.

Follow these steps to use Edit Texture Image:

1. **Context-click the texture in your model you want to edit and choose Texture ⇒ Edit Texture Image.**
2. **In the program that opens, make whatever changes you need to make.**
Be sure not to change the *proportions* of the image — that can really mess things up.
3. **Save (don't Save As and change the filename) the image you're editing and close it if you like.**
4. **Back in SketchUp, check to make sure your edits have been applied.**

Which image-editing program actually opens depends on what you have installed on your computer; you specify which one to use in the Applications panel of the Preferences dialog box. For what it's worth, most designers use Adobe Photoshop, but you can use whatever you have.



TIP

Need to radically reduce the size of your SketchUp model file? Context-click any textured face in your model and choose Make Unique Texture to create a copy of the texture you've selected and *crop* (trim away everything that isn't visible) that copy according to the face it's on. Why is this important? Just because you can't see part of an image doesn't mean it's not there; SketchUp saves the whole photo with the model, even if you use only a little bit of it. In a complex model with dozens of photo textures, all that invisible, extra photo data adds up. Making your textures unique can make your models much, much smaller.

Adding photo textures to curved surfaces

Notice how the title of this section ends with *surfaces* and not with *faces*? That's because (as you know by now) individual faces in SketchUp are always flat — no exceptions. When you see a non-flat surface, it's actually made up of multiple faces. You can't see the edges between them because they've been *smoothed*. Choosing View ⇒ Hidden Geometry exposes all curved surfaces for what they really are. Refer to [Chapter 3](#) for a refresher.

How you go about mapping an image to a curved surface in SketchUp depends on what type of curved surface you have. With that in mind, curved surfaces fall into two general categories (see [Figure 8-7](#)):

- » **Single-direction curves:** A cylinder is a classic example of a surface that curves only in one direction. In SketchUp, a cylinder is basically a series of rectangles set side by side. Most curved walls you see on buildings are the same way; they don't taper in or out as they rise.



TIP

Another way to think about single-direction curves is to consider how they might have been made. If the curved surface you're staring at could be the result of a single push/pull operation (such as turning a circle into a cylinder), there's an excellent chance it's single-direction.

For mapping an image to a single-curve surface, you can use the Adjacent Faces method; it works well and doesn't stretch your image.

- » **Multi-direction curves:** Terrain objects, saddles, and curtains are all prime examples of surfaces that curve in more than one direction at a time. They're always composed of triangles — never basic rectangles.

To map an image to this type of curved surface, you must use the Projected Texture method. Skip ahead a couple pages to read all about it.

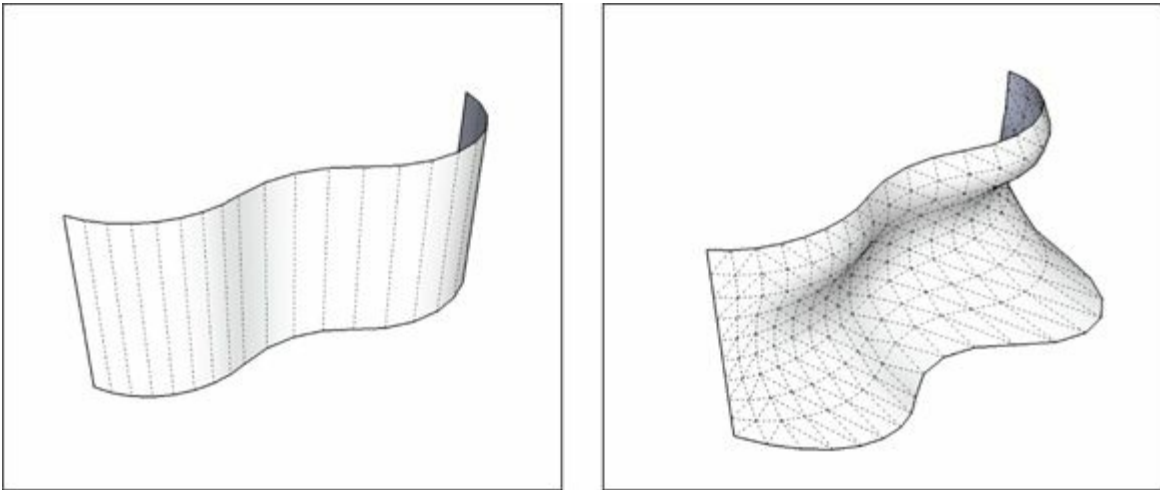


FIGURE 8-7: All curved surfaces are either single-direction (left) or multi-direction (right).



TIP Please keep in mind that we totally made up names for the Adjacent Faces and Projected Texture methods of mapping images to non-flat surfaces. We had to call them *something*, and these sounded descriptive without seeming too technical.

The Adjacent Faces method

If you need to paint an image onto a surface that curves only in a single direction (such as a cylinder), you can use this technique. Follow these steps to find out how and take a look at [Figure 8-8](#) to see the process in action:

1. **Choose View ⇒ Hidden Geometry to turn on Hidden Geometry so you can see the individual faces in your model.**

2. **“Load” your cursor with an imported image.**

Follow Steps 1–4 in “[Importing images: Use your own photos](#)” (earlier in this chapter) to import an image as a texture.

3. **Paint the leftmost sub-face entirely with the image.**

Your curved surface is composed of sub-faces. Here’s how to paint the correct one:

- a. *Hover your loaded cursor over the lower-left corner of the sub-face farthest to the left. Don’t click yet.*
- b. *When the image is oriented in the right direction, click once.*
- c. *Click again on the upper-right corner of the same sub-face.*

This places the image; it should be cropped on the right.

4.  **Select the Paint Bucket tool, hold down the Alt key (Command on a Mac), and**

click the first sub-face to sample the texture (image) you just placed.

This “loads” your Paint Bucket tool with the texture.

5. **With the Paint Bucket tool, click once on the face immediately to the right of the face you painted in Step 3.**

If everything’s working correctly, the image you placed appears on the face you just clicked.

6. **Keep painting sub-faces until you’re done.**

Remember to work your way from left to right; skipping a sub-face messes up things. To fix a problem, just use Undo and keep going.



FIGURE 8-8: The Adjacent Faces method lets you map images to simple curved surfaces.

The Projected Texture method

For painting an image onto a complex curved surface, there’s no substitute for this method. Chunks of terrain are good examples of complex curved surfaces — bumpy, twisted, rippled, and multi-directional. If the curve you’re dealing with is more complicated than a simple extrusion, you need to

use this image-mapping technique.

The key is to line up a flat surface with the curved surface to which you want to apply the photo texture. You then “paint” the flat surface with the texture, make it projected, sample it, and finally, paint the curved surface with the projected, sampled texture. Whew.

Follow these steps to get the basic idea (see [Figure 8-9](#)):

1. **Create a flat surface that lines up with your curved surface.**

You can use the Line tool and SketchUp’s inferencing system to draw a flat face that lines up with (and is the same size as) your curved surface.

2. **Apply a photo texture to your flat surface and make sure that it’s positioned correctly.**

For help, see “[Adding photos to flat faces](#)” earlier in this chapter.

3. **Context-click the textured face and choose Texture ⇒ Projected.**

This ensures that the texture is projected, which is the key to this whole operation.

4. **Select the Paint Bucket tool, hold down the Alt key (Command on a Mac), and click the projected texture to sample it.**

This “loads” your Paint Bucket tool with the projected texture.

5. **Without pressing anything on your keyboard, click the curved surface to paint it with the projected texture.**

The pixels in the image likely look stretched in some places.

6. **Delete the flat surface that you originally mapped the image to; you don’t need it anymore.**

Hidden Geometry off

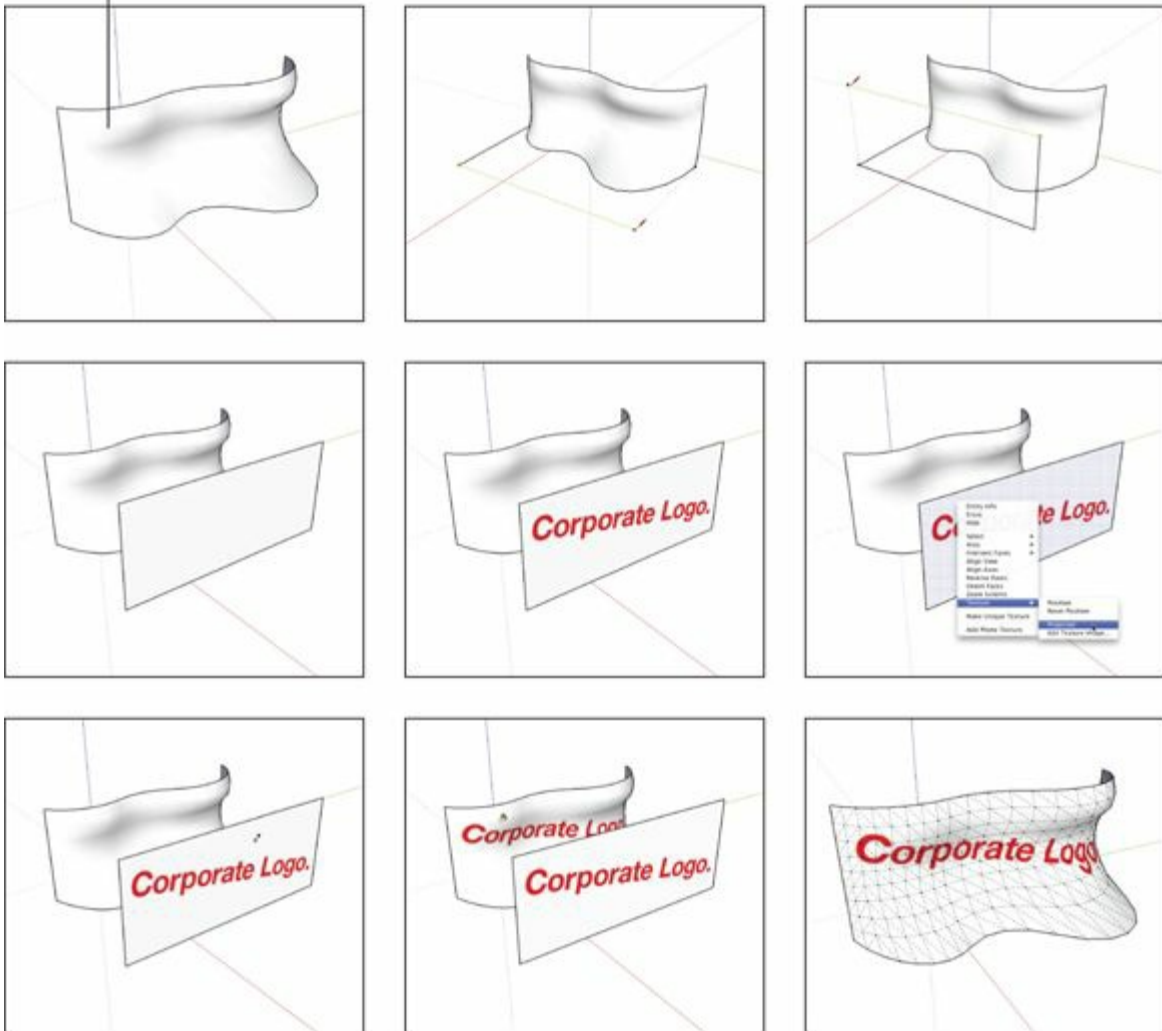


FIGURE 8-9: Mapping projected textures to curved surfaces is possible, but it ain't easy.



TIP If you're trying to do this task on your own curved surface and things don't seem to be working, your curved surface is probably part of a group or component. Either explode or double-click to edit the group or component before you do Step 5 and see whether that helps. [Chapter 5](#) explains how to edit groups and components.

Modeling Directly from a Photo: Introducing Photo-Matching

The first time we saw SketchUp's photo-matching feature in action, we giggled and clapped our hands like toddlers at a petting zoo. We're not ashamed of it, either. Sometimes technology that's so useful, so *unexpectedly satisfying*, comes along, and you just can't help yourself.

So what does photo-matching do? If you have a good photograph (or multiple photographs) of the thing you want to model, SketchUp's photo-matching feature can help you create your model. This application is how 99 percent of modelers use this feature, and the technique we focus on in this section. (You can also match an existing model to a photo.)



REMEMBER You can edit any texture in your model — including ones produced by photo-matching — by opening them in image-editing software (such as Photoshop) directly from SketchUp. This trick is handy for taking out stuff you might not want in your photos, such as trees, cars, and ex-husbands. Take a look at the section “[Editing the pixels in a texture image](#),” earlier in this chapter, for all the juicy details.

Choosing a Match Photo-friendly image

Photo-matching works only on photographs of objects with at least one pair of surfaces that are at right angles to each other. Luckily, this includes millions of things you may want to build. But still, if the thing you want to photo-match is entirely round, or wavy, or even triangular, this method won't work.

Here are tips for choosing a photo for this process:

- » **Watch out for lens distortion.** When you take a picture with a wide-angle lens, some straight lines in the image bow a little bit, depending on where they are in the frame. Try to use photos taken with a normal or telephoto lens: 50mm to 100mm is a good bet.
- » **Make sure that the edges of two perpendicular surfaces are visible in the shot.** You need to see planes that are at right angles to each other in order to use photo-matching properly.
- » **Shoot at a 45-degree angle if you can.** Because of the way perspective works, your results are more accurate if you use a photograph in which you can see both perpendicular surfaces clearly; if one of them is sharply distorted, you have a harder time.

The following types of photos, illustrated in [Figure 8-10](#), work especially well with SketchUp's Match Photo feature:

- » An interior view of a room in which a corner meets at a right angle
- » An aerial shot

- »» An exterior view taken from a human vantage point and in which a corner (or corners) meet at a right angle



FIGURE 8-10: Choose the style that best describes your photograph's camera position.

Modeling by photo-matching

The Match Photo feature helps you build a model based on a photograph. Here are two basic concepts:

- »» **The process is iterative, not linear.** Building a model using a matched photo entails going between drawing edges, orbiting around, drawing more edges, going back to your matched photo scene, and drawing yet more edges. Every photo is different, so the ones you work with will present unique challenges that you'll (hopefully) have fun figuring out.
- »» **Don't forget the photo textures.** By far one of the coolest features of photo-matching is the ability to automatically photo-texture your model's faces by using your photograph as "paint." It's a one-button operation, and it's guaranteed to make you smile.

Follow these steps to start building a model from a photo:

1. **Choose Camera ⇒ Match New Photo.**

A dialog box opens.

2. **Select the image on your computer that you want to use and click the Open button.**

The dialog box closes, and you see the image you chose in your modeling window. You also see a jumble of colorful techno-spaghetti, as shown in [Figure 8-11](#). Don't worry — it's all part of the photo-matching interface.

3. **In the Match Photo panel, choose the style that matches your photograph: Inside, Above (for an aerial view), or Outside (for an outdoor view taken at ground level).**

For the barn shown in this example, we selected Outside.

4. **Click and drag the end points of the green perspective bars so that each bar lines up with edges in the photo that should be parallel to the model's green axis.**

The tops and bottoms of windows are good candidates, as are rooflines, tabletops, and ceiling tiles. In our example, we align the green perspective bars with the barn's roofline.



TIP

The following tips can help you position the bars correctly:

- Zoom in and out (using the scroll wheel on your mouse) to better view your photograph while you place your perspective bars. The more accurately you place the bars, the better things will turn out.
- Match your perspective bars to nice, long edges in your photograph; you get better results that way.

5. **Click and drag the endpoints of the red perspective bars so that they line up with edges in the photo that should be parallel to the model's red axis.**



REMEMBER The edges must be perpendicular to the first set of edges, or photo-matching doesn't work. In our example, we align the red perspective bars to edges on the barn's siding that are also perpendicular to the green perspective bars. You can see the result in [Figure 8-12](#).

6. **Drag the *axis origin* (the little square where the axes come together) to a place where your building touches the ground and right at the intersection of two perpendicular edges, as shown in [Figure 8-13](#).**

Setting the axis origin is how you tell SketchUp where the ground plane is. After you set the axis origin in the right place, notice that the horizon line, which is the horizontal yellow bar, lines up with the horizon in your photo.

As long as you place the perspective bars correctly, the horizon line bar typically takes care of itself. However, now you know what the yellow horizon line bar does in case you need it.

7. **(Optional) In the Match Photo panel, set the grid spacing so that you can roughly scale your model to your photo.**

In our example, we leave the Spacing option set to the default of 5 feet. We know the barn is about 20 feet tall. 4 gridlines are all we need to scale the model to the photo (because $4 \times 5 = 20$).

If you're photo-matching an arena or a skyscraper, you probably need to adjust the grid spacing so that the grid can scale to such a large width or height.

8. **Click the Done button in the Match Photo panel.**

When you click the Done button, you stop editing your matched photo. All the colorful lines and grips disappear, and you're left with the photo you brought in, your model axes, and your

thoughts. It may have seemed like a lot of magic, but what you did was pretty simple: You used photo-matching to create a scene (explained in [Chapter 11](#)) with a camera position and lens settings that match the ones used to take the picture that's on your screen. In effect, you're now "standing" exactly where the photographer was standing when the photograph was taken.

9. Select the Line tool and, starting at the axis origin, trace one of the edges in your photograph.

Make sure that you're drawing in one of the three main directions: red, green, or blue. If you accidentally orbit so that your photo disappears, click the scene tab to see the photo again. (We talk a little more about orbiting as you draw in the tips that follow Step 11.)

10. Keep tracing with the Line tool until you have a rectangular face, watching the color of your edges as you draw.



REMEMBER You always want your lines to turn red, green, or blue when you're starting.

11. Use SketchUp's drawing tools to continue to trace the photograph in three dimensions.

In [Figure 8-14](#), you see two rectangular faces, one drawn on the green axis and the other drawn along the red axis.



TIP Here are pointers for successfully tracing your photo with SketchUp's drawing tools:

- *Always start an edge at the end of an edge you've already drawn.* Doing so helps to assure that your results are what you expect.
- *Never draw an edge in midair.* Okay — this is the same as the last one, but it bears repeating: When you draw edges based on other edges, you get the best results.
- *To start, be careful not to orbit while you draw.* You can zoom and pan all you want, though. If you orbit away from the vantage point you set up, your photograph will disappear, and you see only the geometry you've drawn, as shown in [Figure 8-15](#). You can easily get back by clicking the scene tab for your matched photo. The tab is labeled with the name of your photo at the top of your modeling window.
- *After your model begins to take shape, orbit frequently to see what's going on.* You'll be surprised what you have sometimes — tracing a 2D image in 3D is tricky business. Get in the habit of orbiting around to check on the results and draw certain edges. Click the matched photo scene tab to return to the proper view.
- *Use other tools (such as Push/Pull and Offset) when appropriate.* Nothing prevents you from using the full complement of SketchUp's modeling tools. However, tracing the basic skeleton of a model with the Line and Eraser tools keeps the process simple.
- *Pay attention to the colors.* With a color photograph as an overlay, seeing what you're

doing can be tricky. Watch to make sure that you're drawing the edge you intend to draw.

- *Draw angles by connecting the dots.* If you need to trace an edge in your photo that doesn't line up with any of the colored axes (an angled roofline, for example), figure out where the endpoints are by drawing perpendicular edges and connecting them with an angled line, as shown in [Figure 8-16](#). You can delete the line or lines that you don't need later.
- *Show or hide your photograph.* Doing so sometimes helps you see your work. The next section explains where to find the controls on the Styles panel.

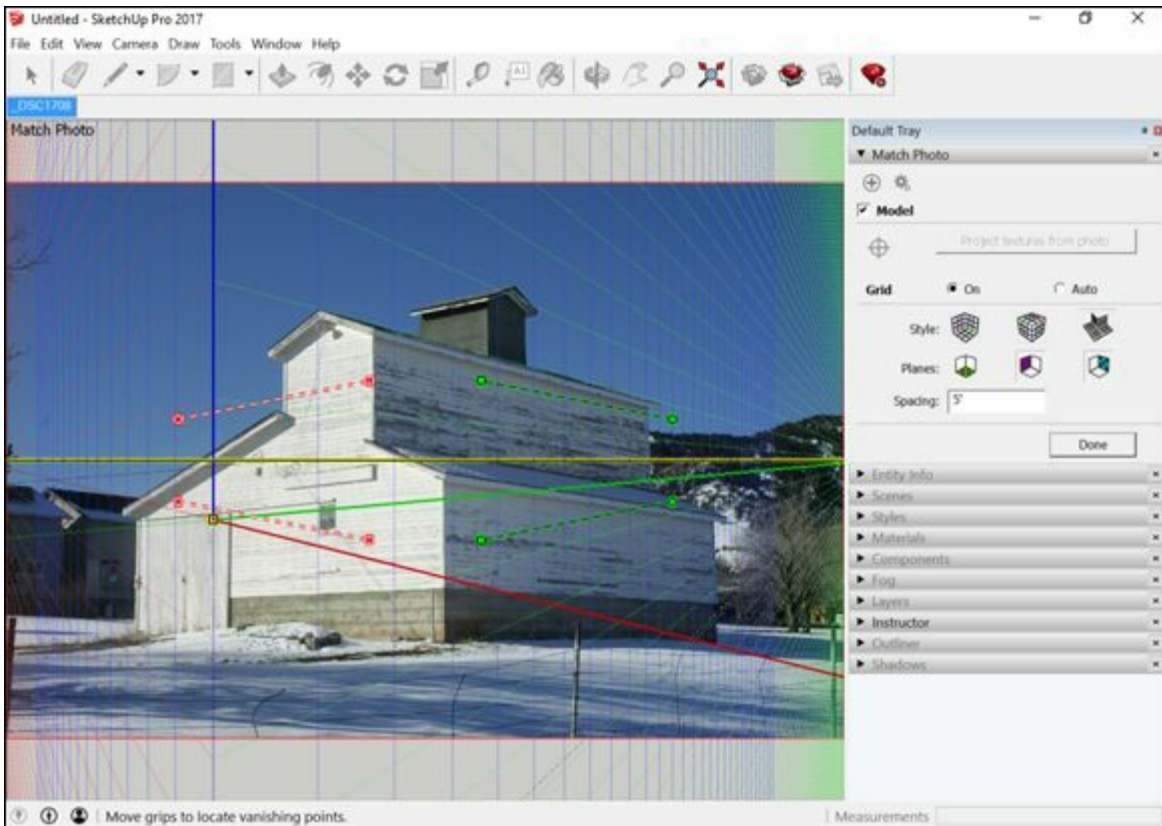


FIGURE 8-11: The photo-matching interface includes your picture, plus lots of other things.

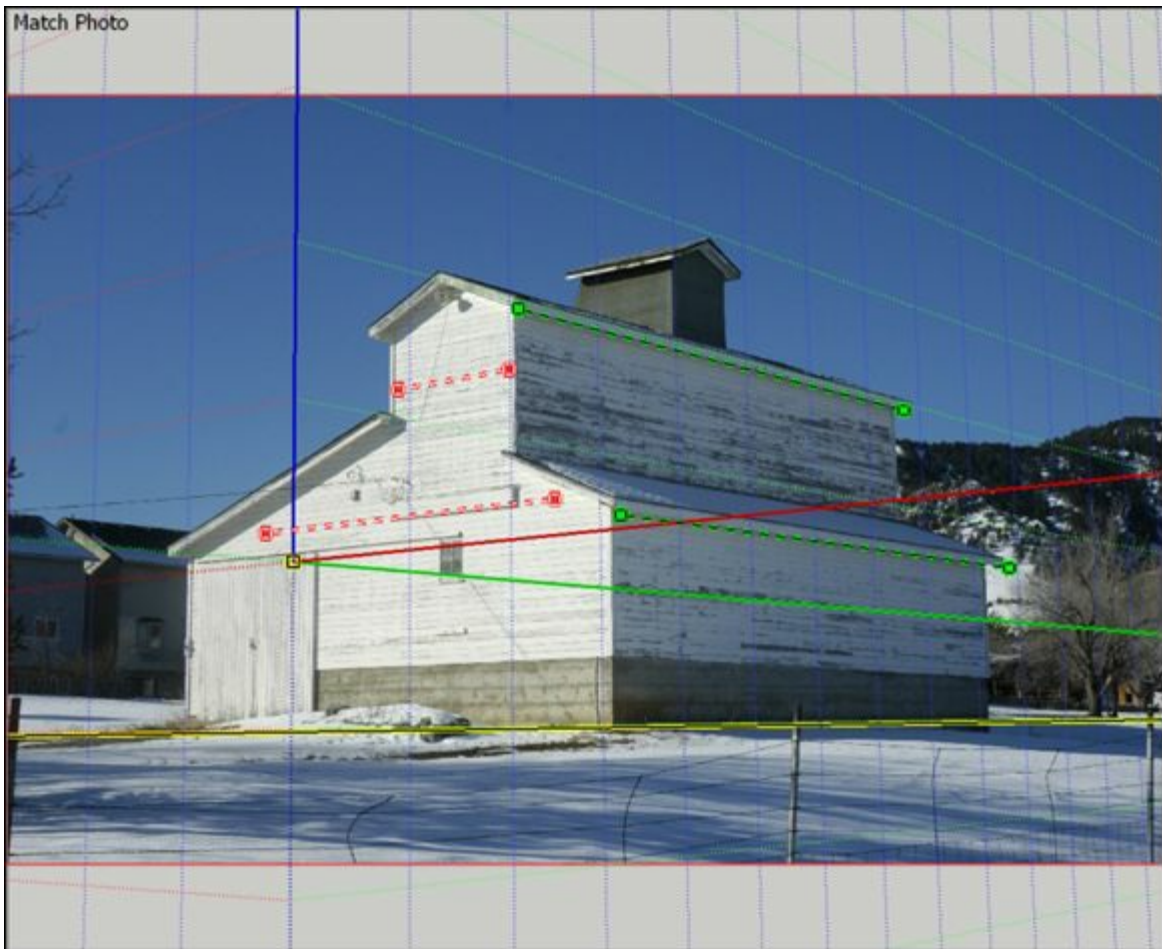


FIGURE 8-12: The perspective bars are aligned with the roofline and siding.

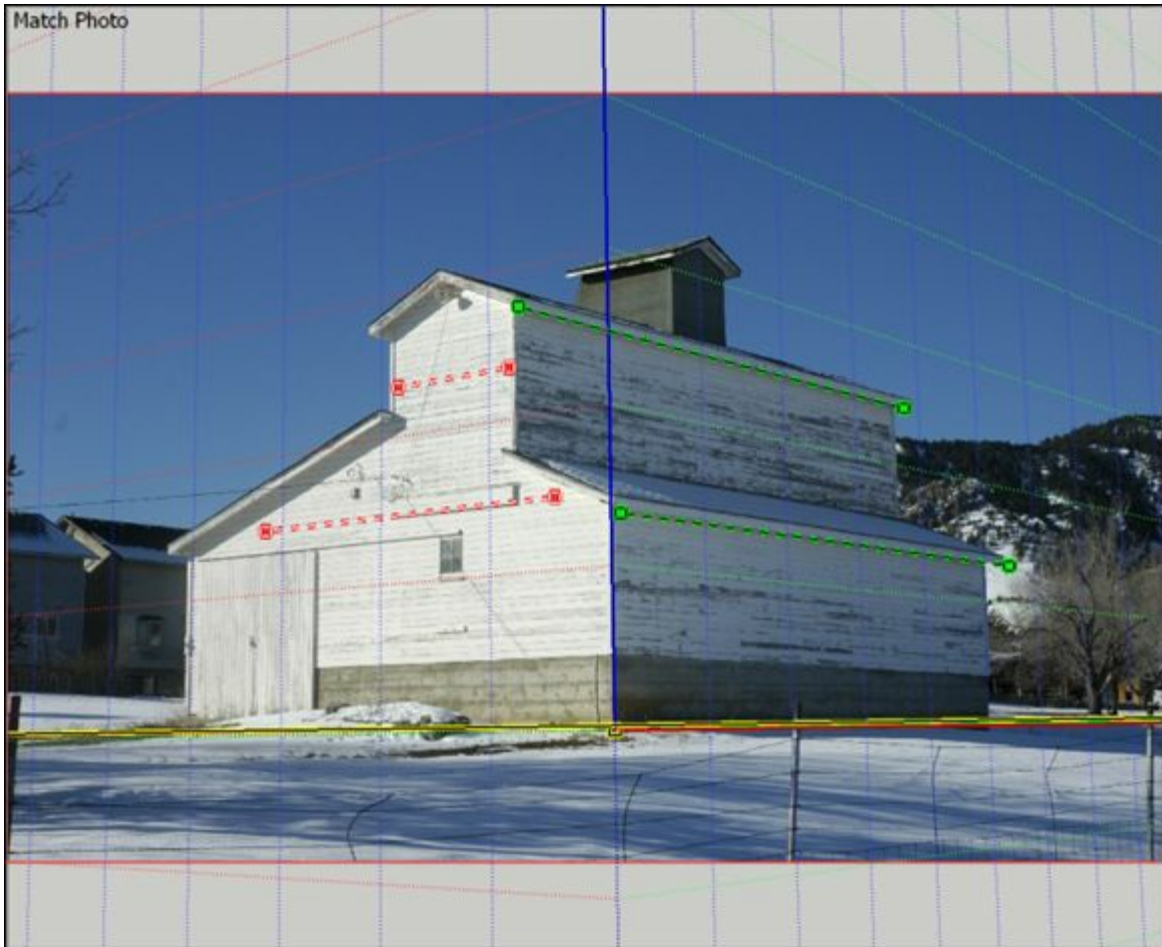


FIGURE 8-13: The axis origin is on a corner that touches the ground.

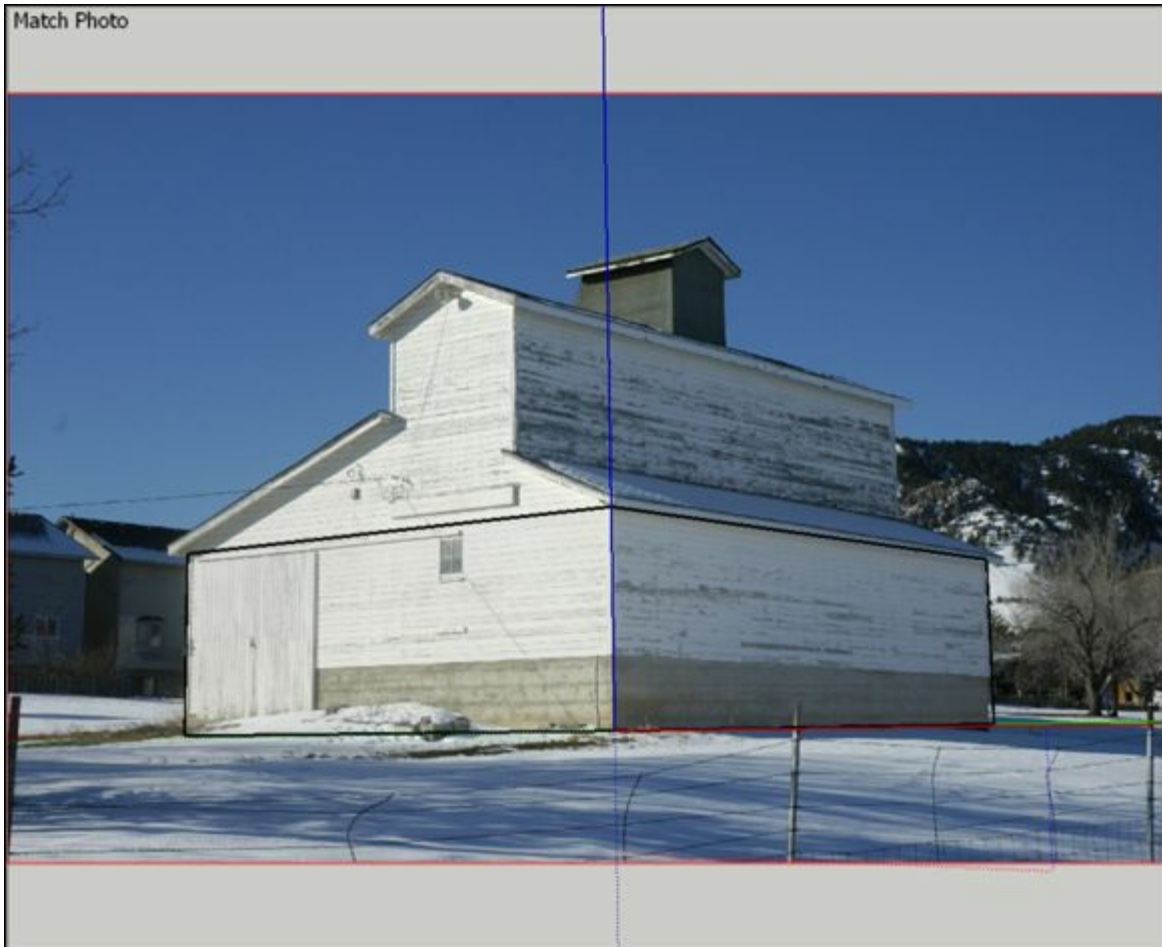


FIGURE 8-14: As you begin tracing your model, align your edges with the drawing axes to create basic shapes.

If you orbit away from the photo, click the scene tab to see it again.

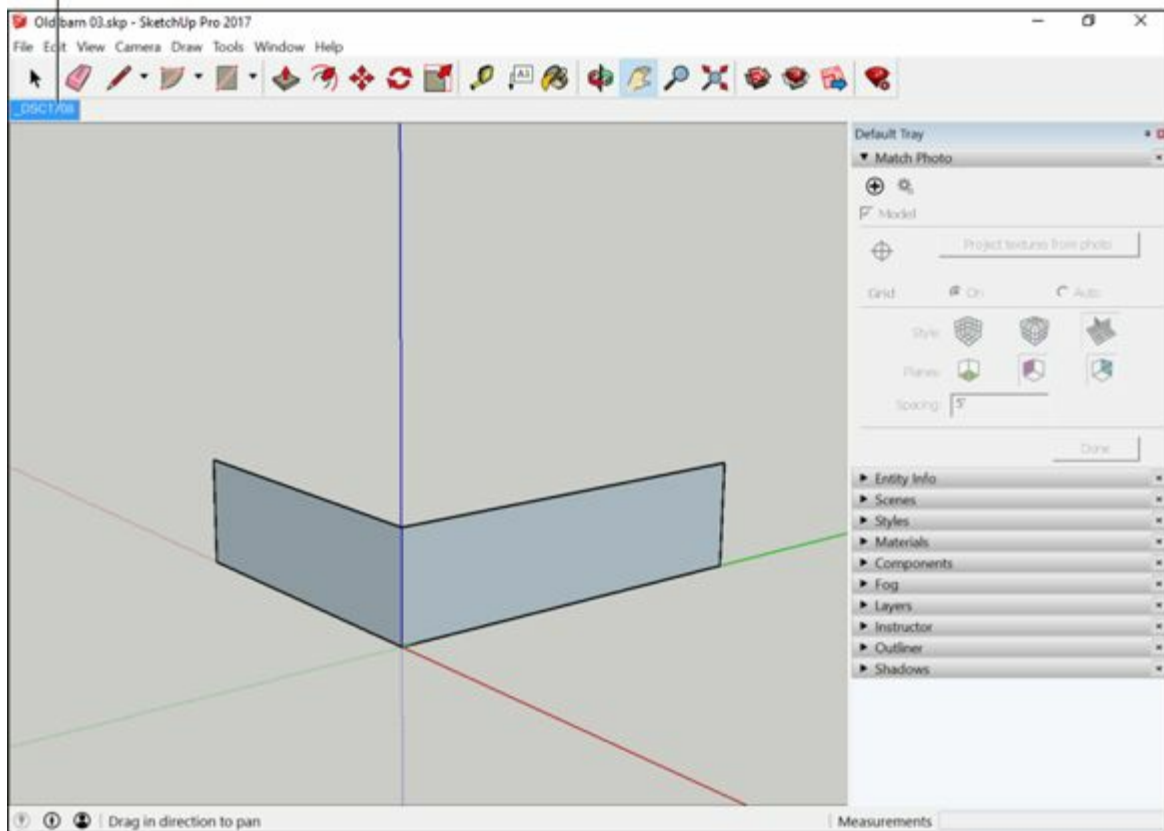


FIGURE 8-15: When you orbit, your photo disappears. Click the scene tab to see the image again.

To draw this diagonal edge, create a temporary line and connect the endpoints.



FIGURE 8-16: Draw a temporary line to create an edge for a roofline or other edge that doesn't align with a colored axis.

After you finish drawing your model, you can scale it precisely by using the Tape Measure tool. ([Chapter 3](#) explains how.)

Making your matched photo reappear (or disappear)

After you match a photo to your model, the following tips are handy to know:

- » **Click the matched photo scene tab:** When you create a new matched photo, you create a new scene. (You can read all about scenes in [Chapter 11](#).) Clicking a matched photo scene tab returns your view to the one you set up when you created (or edited) that matched photo. It also makes the associated photograph reappear — handy if you've orbited into another view.
- » **Manage photo visibility settings in the Styles panel:** Deep, deep down in the bowels of the Styles panel, on the Edit tab, in the Modeling Settings section, you can control the visibility of your