



RICHARD FINKELSTEIN

Richard Finkelstein used SketchUp 7 Pro to create this rendering of his set design for *Ordeal by Innocence* at the New York State Theatre Institute. At right, the set in production.



# Renderings without tears

BY DANA TAYLOR WITH LEE KEITEL

THEATRE IS ABOUT communication—between the actor and the audience, of course, but it goes far beyond that. As a collaborative art, theatre demands that all of the participants in the process make their ideas clear to their creative partners. Good communication skills are particularly important to the scenic designer, who must present the physical and conceptual elements of the set to the director, producer, and other designers long before the first platform is built. Simply saying it will be a box set with two levels and blue walls is not enough. Each listener will define “blue,” “two levels,” and “box set” differently, and production meeting conversations will take on the quality of a game of telephone, with nobody certain he understands what the designer wants to do.

Drawings are the common currency of design ideas. If you’re like me, your drawings may resemble cave paintings, including the stick figures (but usually no buffalo). Most high school theatre programs have somebody who can create a rendering of the set, but that might not be the person who also has a talent for scenic design. What’s more, like the kid who really knows the light board, student draftspersons have a tendency to graduate, and the skill and talent the program depended upon graduates with them.

What’s needed is a good drafting tool for people who can’t draw.

There is one. I first heard about it in a 2007 article by Patrick J. Immel in USITT’s quarterly publication *Theatre Design and Technology*, introducing a “new” program called SketchUp that was capable of 3D modeling and rendering. Actually, SketchUp was originally released by @Last Soft-

*Google’s SketchUp*

*yields professional*

*perspective drawings,*

*and it’s free*

ware in 2000 and won praise for its gentle learning curve, the quality and usability of its features, and its intuitive approach for the user. In 2006 @Last Software was purchased by Google, and in January 2007 SketchUp 6 was released, and then in 2008, SketchUp 7. What really sets SketchUp apart is the price. It's free.

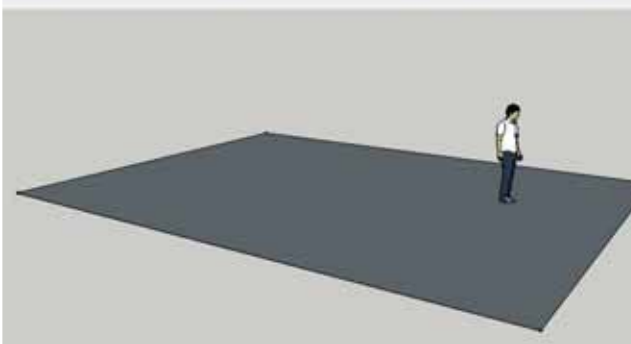
SketchUp allows the user to draw geometric shapes and then transform them into representations of three-dimensional objects by using something called the Push/Pull tool. You can also add textures—including wood, stone, metals, tiles, and roofing—and virtually any color you can imagine to your objects using a method much like the color fill function in Microsoft Paint.

In addition to textures, components ranging from construction elements to architectural details can be dropped into your drawing. In the initial download, you get some components like doors, stairs, and windows, which will work well for your scenic design. You can find almost anything else you might need in the Google 3D Warehouse, which allows you to download components directly to your model and rescale them as needed. All of the components in the Warehouse were created by other SketchUp users and are free to use.

Probably the best way to learn SketchUp is to download a copy (from <http://sketchup.google.com>, where you'll find both Windows and Mac versions) and play with it. The screen shots and text at right walk you through a brief exercise that will acquaint you with some of the functions and just a few of the many possibilities that SketchUp offers.

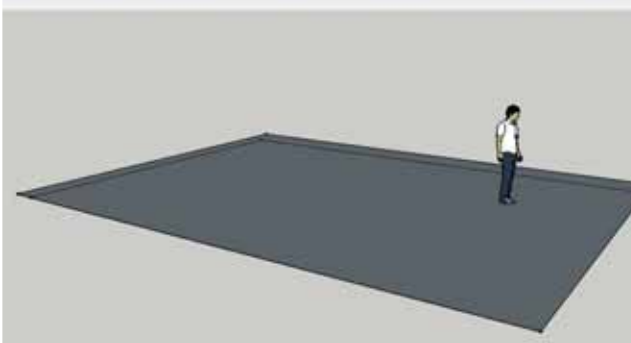
When the perspective drawing is completed to your satisfaction, you can convert it to a ground plan by selecting *Top* from the *Camera: Standard Views* menu and then *Wireframe* from the *View: Face Style* menu. Then select *Dimensions* from the *Tools* menu and highlight first the upstage edge and then the stage left edge. The dimensions with dimension lines will appear. Use the *Draw Line* tool to put in a center line and plaster line and

1



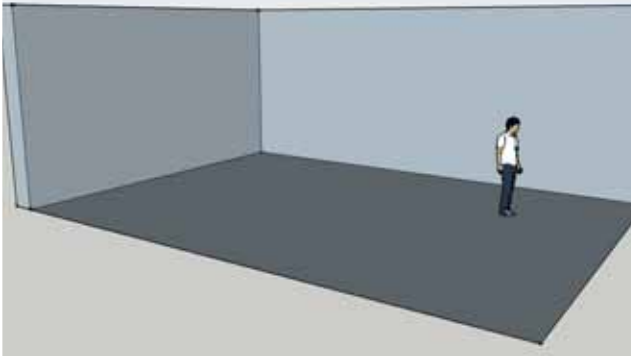
Open SketchUp and select the *Rectangle* tool and draw a rectangle. In the bottom right-hand corner, select the dimension box and enter 32', 24' (or other dimensions appropriate for your stage). SketchUp adds a human figure to the drawing to show scale.

2



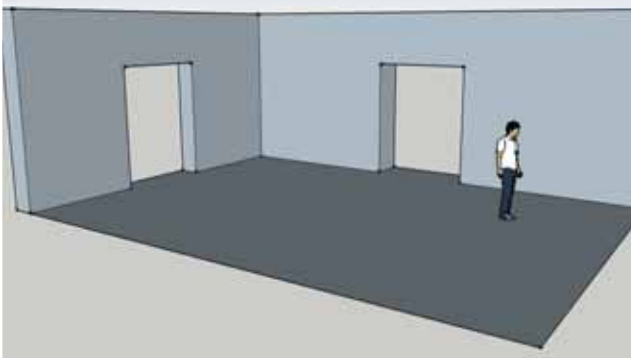
Select the *Rectangle* tool again and lay another rectangle on top of the existing one. Offset the new rectangle so that it doesn't meet the stage right or upstage edges.

3



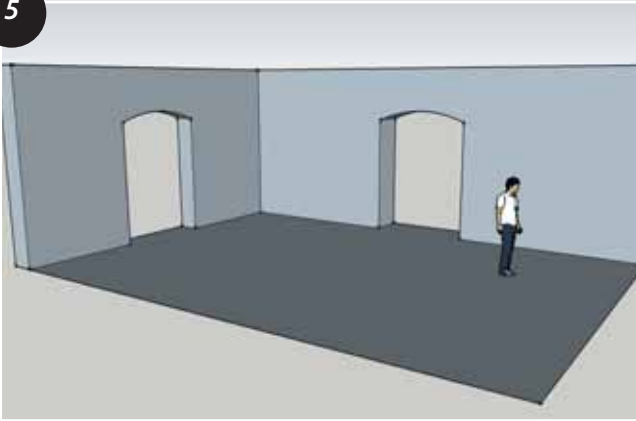
Select the *Push/Pull* tool and highlight the visible area of the first rectangle and pull it up to about 12'. The measurement will appear in the dimension box.

4



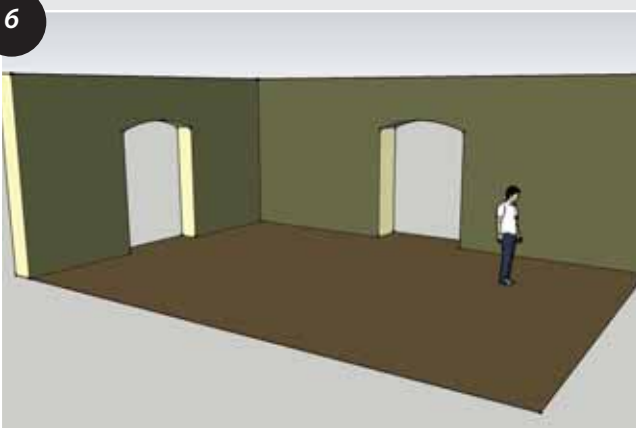
Using the *Rectangle* tool again, place two rectangles on the newly created walls and then with the *Push/Pull* tool, push them through the wall. The rectangles have now become openings.

5



If you'd like arches instead of squared doorways, use the *Arc* tool: mark the end points at top left and top right of each opening, and then move back to center to define the high point of the arch. Then use the *Push/Pull* tool to create the arches.

6



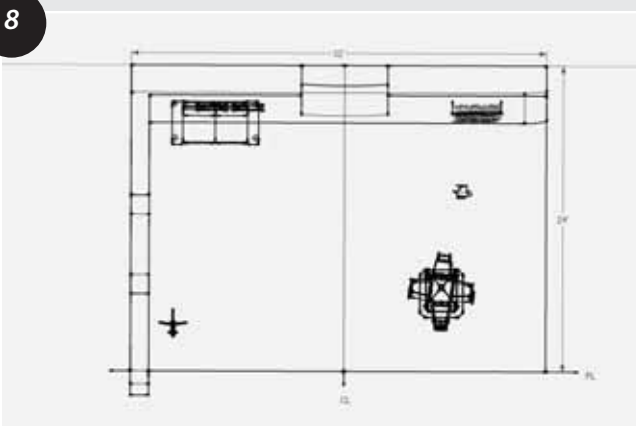
Select the *Paint Bucket* tool and fill in the walls, floor, and open sides of the set and the arches with whatever colors you like.

7



Go to the *Get Models* tool and select elements from the 3D Warehouse to place in your set. Add additional items, textures, and details as you like.

8



When the perspective drawing is completed to your satisfaction, SketchUp will convert it to a ground plan for you.

label the lines and, if you like, other elements with the *Text* function. You can print this and use it in taping out your set. You can also create various elevations of the design with *Camera: Standard Views*.

This little exercise only scratches the surface of the ways this easy-to-learn software can help a designer share her ideas. To get a better idea of how SketchUp can enhance one's potential to more clearly articulate a design concept, check out the scenic design for Agatha Christie's *Ordeal by Innocence* at the New York State Theatre Institute, created by Richard Finkelstein, associate professor and head of stage design at James Madison University. The drawing on page 53 is Finkelstein's SketchUp 7 Pro file.

SketchUp isn't AutoCad or Vectorworks and likely won't create the same degree of detail as is possible with these programs. That being said, SketchUp will do a great deal without the cost and steep learning curve associated with other CAD-based programs and will afford students and teachers the opportunity to enhance their designs and pursue teaching units dealing with design, stage management, and drafting.

The basic SketchUp 7 software is a free download from Google. The company offers a more sophisticated version, SketchUp 7 Professional, free to educators. Google SketchUp Pro student licenses cost \$49 per year and lab licenses are \$15 per seat. SketchUp Pro offers you greater control of elements within your drawing and affords you the opportunity to create cleaner, more professional-looking renderings with greater dimensioning capabilities, including scaling of renderings and the ability to create presentations of renderings for students and directors. The program is supported by a wide array of tutorials, quick tips, and an active online user-community. ▼

*You'll find more on SketchUp, including an annotated directory of commonly used tools and commands, on our website at [www.edta.org/publications/dramatics](http://www.edta.org/publications/dramatics).*



# Commonly Used Menu Items in SketchUp

## **View**

**Edge Styles.** Toggle on/off the display of edges. Select what part of the edges are shown.

**Face Styles.** Customize the view of the 3D structure. Available options include wireframe, monochrome, hidden line, shaded, and shaded with texture.

**Animation.** From this submenu you can add or delete a scene from an animation as well as update existing scenes, step through the animation scene by scene, play the animation and change the settings for the animation.

## **Camera**

**Standard Views.** Instantly go to a select camera angle such as top, bottom, left, right, etc. or iso, which brings you back to the original angle.

**Parallel Projection.** Makes it easier to draw in 2D.

**Perspective.** The default view for SketchUp.

**Two-Point Perspective.** Used to represent three dimensions in two dimensions.

**Orbit.** Orbit around a fixed point in the 3D field.

**Pan.** Pan left, right, up, or down within the 3D field.

**Zoom.** Zoom in and out within the 3D field.

**Field of View.** Change the field of view in the 3D work space.

**Zoom Window.** Select a window to zoom in to.

**Zoom Extents.** Immediately zoom into the borders of the 3D model.

**Position Camera.** Use to position the camera within the 3D model and then look around from that vantage point.

**Walk.** Move slowly through the 3D model.

**Look Around.** Views from the perspective of the current camera placement.

## **Draw**

**Line.** Draw a single line.

**Arc.** Draw an arc by making a line and then selecting a point on the arc.

**Freehand.** Draw an irregular shape.

**Rectangle.** Draw a rectangle by selecting the points of two corners.

**Circle.** Draw a circle by selecting the center point and then drawing a radius.

**Polygon.** Draw a six-sided polygon.

## **Tools**

**Select.** Select any part or all of a 3D model; also used to cancel the making of a line, arc, etc.

**Eraser.** Erase any part of a 3D model.

**Paint Bucket.** Fill in a surface with a solid color or texture.

**Move.** Reposition an object.

**Rotate.** Rotate an object around a fixed point.

**Scale.** Resize an object.

**Push/Pull.** Add dimension to an object.

**Follow Me.** Copy a pattern or texture along a created path.

**Offset.** Create an object on top of another object with the same shape.

**Tape Measure.** Measure the length of a face or line within a 3D model.

**Dimensions.** Allows you to easily and quickly make dimension lines by selecting a whole line or a section between two points.

**Text.** Create labels to identify parts of a model; make notes.

**3D Text.** Create three-dimensional text that can be placed anywhere within the 3D model.

**Section Plane.** See a section cut view of the model.

## **Window**

**Materials.** Opens a dialog box offering a selection of materials that can be painted onto a surface of the model.

**Components.** Opens a dialog box to search and download components from Google and insert them into your model.

**Layers.** Opens a dialog that shows you all the layers that are in the currently opened model.

**Shadows.** Controls properties for the shadows such as time of day and the lightness or darkness of the shadow.

**Fog.** Properties for fog such as visibility and color.