

Why Buy Rhino 3D over SketchUp

Here are a number of reasons why you should consider buying Rhino 3D versus going with SketchUp for your 3D design software:

- 1. SketchUp doesn't do arcs and circles.** But, you say, there are circle and arc tools in SketchUp. Yes, but they only produce polygons or sections of a polygon, not true circles and arcs. What you get in SketchUp is the ability to create polygons and arcs with enough straight sides that they appear on the screen to be curves. If you have a 96-sided polygon it is hard to tell that it isn't really a real circle. For quite a few purposes, this may be all right. But for anyone who is truly trying to create geometry in a design that is accurate and smooth, that's a poor way to go. By the way, the default number of sides for a polygon imitating a circle in SketchUp is 24.

If you ever want to go to a process like CNC, 3D printing, or laser cutting/etching, then you want actual, real curves and circles.
- 2. SketchUp doesn't do Bezier curves.** This is closely related to point 1 above. There are times when you want to create smooth curves that are not a part of a circle. In other words, you want a curve that has a constantly changing radius. This is not uncommon. An ellipse is a special case of a curve that has a continuously changing radius (in a particular mathematical way) and a circle is a curve that has a constant radius. What I am talking about is some other free-form curve that defies being described in this simple way. Rhino 3D excels in being able to create any type of smooth curve (and surfaces) that can be carefully designed by the user.
- 3. Rhino 3D excels at creating smooth-flowing curved surfaces.** Like with curves, you will often want to create surfaces in your designs that are not flat. This is especially true if you are going to send your design to another process like a CNC machine. But even if you don't, you may still want to be capable of working with complex surfaces in some of your designs. SketchUp just doesn't have the tools to do this.
- 4. SketchUp has one viewport.** What I mean by this is that there is a design surface in SketchUp in which you can rotate in any direction to see your creation. You can even click on an icon to rotate your view to be Top, Front, Right, etc. But you only see one view at a time. In Rhino 3D you get 4 viewports on your screen at one time – Perspective, Top, Front, and Right. Plus you can size each viewport however you wish or just show the number of viewports you want, like Front and Right, or just Perspective. It is really handy to work in the view you want for certain operations and have any changes in one view show up in the others.
- 5. Rhino 3D has a great grid to aid in laying out designs.** In Rhino 3D there is a customizable grid system that lets you snap to and view designs using a "graph paper" style layout. It is incredibly handy to use this grid to create lines and geometry placed on a background grid. SketchUp has a blank background – no grid or ruler to help you lay out objects and see what you are doing.
- 6. Rhino 3D has configurable snapping.** What I mean by this is you can make your cursor snap to the grid system, end of lines, center of lines, center of circles, intersections, tangent points, number of degrees of rotation, and others. Each of these can be toggled on or off. You can even tell it to not snap to anything, or just whatever is close.

7. **Rhino 3D has a nifty command line option.** Sometimes you want to just enter a command you use often. You know the name of the command and it is easy to type it in rather than hunting for the menu option or icon. This can be a real time-saving feature. This command line also will show you a list of recently executed commands, whether you executed it from a menu or entered the command name. This is also a really cool feature when you are using a few commands over and over. You get a short list of recently executed commands to choose from with one click.
8. **Rhino 3D has a plug-in to create CNC g-code.** As a woodworker, I have recently added a CNC machine to my shop. There is a company called MecSoft that produces a very sophisticated CAM add-on that integrates directly into the Rhino 3D interface – it loads when you launch Rhino 3D and becomes a part of the program. There is no need to save, or export, a file in some special format and then load it into a separate program.
9. **Finally, SketchUp has moved to a web-only interface.** What this means is that the free version of SketchUp will not be a program you install on your computer. Rather, it will only work in your internet browser software (Internet Explorer, Chrome, FireFox, Safari, etc.). This means you have to have a good internet connection to use it. For many people this is a show stopper. The only way to get around this “limitation” is to purchase the Pro version - \$695.