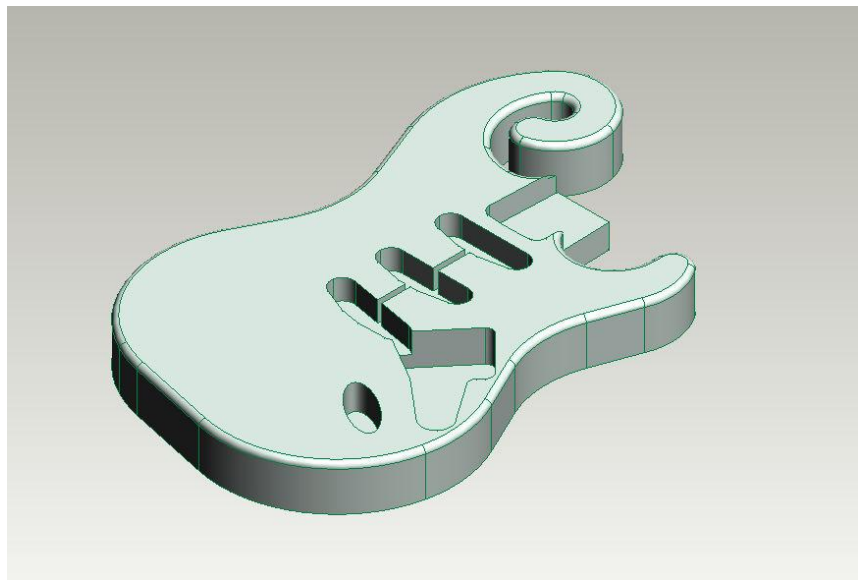


# How to Make a Guitar

So you want to make an epic guitar? The greatest guitar ever made with all the trimmings and doohickey you have always wanted on your ultimate guitar? Well then you should probably slap yourself because if it's your first guitar, that's not going to happen. It takes practice and a couple of tries before you can have a good working guitar.

You should start with something basic. My first guitar was modeled after a Fender Stratocaster. Stratocasters are good starter guitars because they are the most basic. All you have to do is cut out a cavity for the controls and pick up and the pick guard will fit right in and cover any mistakes.

Ok lets get started. The best way to start any guitar making project is to first do a lot of research. Reading articles like mine is a good way to avoid mistakes in the future. After reading up on information, my first step was to design the guitar. I took the measurements from one of my friend's guitar and adapted them to suit me. I



used a CAD (Computer Aided Design) program to design my guitar so it would come out exactly as I wanted I too. To the right is a screen shot of my design in CAD.

In the next step you can go two ways, depending on what resources you have available to you. I used a CNC machine to cut out my guitar but a more traditional approach would be to cut it out by hand and rout all the cavities with a router. But since I did have a CNC (machine also known as a shopbot) I chose to use it.

A shopbot is basically a router or a drill which is set on three tracks that go in three different directions (X, Y, and Z). A program is run on the computer that is hooked up to the shopbot and it tells it what shapes to cut out. This type of cutting is much more precise than doing it by hand and is why I chose to cut out my guitar in this way.

After you cut it out there is still a lot of work to do. The picture to the right shows my guitar after it has been cut out on the shopbot and then I rounded the edges using a handheld router. Be prepared for a lot of sanding that is involved in the finishing of a guitar. A good tool to use for sanding the sides of your guitar is called a drum sander, it is a cylinder wrapped in sandpaper that you use on a drill press. It is a good way to get



smooth and even sides.

The next step is optional, you don't need them but most guitars do have body contours. Body contours are shaved down sections of the guitar so that it will fit better when it is held up against your waist and it is also cut out so that your arm will rest easier on the top of the guitar. The way to go about it is first take out a big chunk with a rasp, then cut the contours out more fine with a tool called a spokeshave. A spokeshave is a razor on a curve, it is basically a plane for curved surfaces. Lastly you are going to have to do a lot of sanding to get it to the perfect shape.



Ok we are getting there. Now its time to cut out all the holes need for assembly of the guitar. Four holes need to be drilled for the bridge and another four need to be drilled for the neck. It is very important that these holes are placed perfectly so see the manufacture's instructions for the dimensions. Also notice in this picture



that my guitar no longer has the curl in the left horn. I found that the big curl would get in the way of your thumb while you are playing it so I had to cut it off. It just shows that your design is not final, you will probably end up changing some things along the way.

Now it comes to the staining and lacquering part. You may wish to paint it instead, but I decided to stain it to preserve the grain of the wood. Before you stain you are going to want to sand down all the surfaces of the guitar. Start with a low grit and then work your way up until you are at least at 300 grit, but the



smoother, the better. Then hang up the guitar and apply a coat of stain. Let it dry overnight then sand it again with 300 grit and stain it again. This will result in a richer grain. To protect the wood and to build a level surface apply 4 coats of sanding sealer. Lightly sand with 400 grit paper after all coats are on. Now to give the guitar a brilliant shine the final step is to apply about 12 coats



of lacquer, 2-3 coats per day, 1-2 hours apart. And after every 4 coats you should lightly sand with 400 grit sandpaper. After all the coats are on, the final step is to give the guitar a shiny polish. Start with 800 grit paper, sanding all the surfaces and work your way up to the highest grit possible, I ordered specialty paper and got up to 12,000 grit. After that you are finally done! Now just put the guitar together and enjoy the sweet music.



p.s. notice the outline of my face carved into the neck.^