

The Phoenix Guitar Company Mold



Here's a photo of one of my molds. It is really quite simple. It has a core, which is two 3/4" pieces of MDF glued together, with a set of ribs on the top (shown), and another set on the back. The ribs define the profile of the top and back (this guitar has a 15' top radius, as well as a 15' back radius), and the height of the sides. The mold is exactly the size of the guitar sides- not counting the thickness of the top and the back. One of the main features of the mold is that the ribs are removable.

I think this mold is the best in the business. It took a few years to design, because I had an idea of what I wanted, I just didn't know how to do it. Once I realized what to do, it became part of my workflow, and I haven't modified it in nearly twenty years.

It is more than just a holder for the sides. It is pre-measured, so I don't have to keep measuring the sides, because they will be exactly the dimensions of the mold. It also helps to keep the sides flat, and you can use the mold as a caul to clamp the sides to, as well as a caul when clamping the headblock and the endblock to the sides. Another main part of the workflow is that the guitar does not ever come out of the mold until the top and back are glued on.

Let's look at how this mold is used during construction of a guitar:

Here's a photo of me clamping the sides of an archtop into the mold. I'm using small wood slats as cauls to help clamp the sides flat against the mold.



In this photo, you can see both sides clamped into the halves of the mold using spring clamps. I'll leave them like this for a day or two to be sure the sides have dried before clamping on the headblock and endblock.



Here, I'm using a flush trim saw on the edge of the mold to cut off the excess side material. This will enable the two halves of the sides to match almost perfectly when the mold is put together.



As you can see in this photo, I'm able to use the mold as a caul to help clamp the endblock and headblock to the sides.



After the glue dries, it's time to remove the spring clamps and cauls (not all at once), and put in go-bars and smaller cauls to continue to hold the sides tight against the mold.



Now, to get the sides down to exactly the top of the mold, I'll use a small hand plane to remove most of the excess material. Then I'll use a radiused sanding



board to trim the sides down to the top of the ribs. Note-for an archtop like the guitar shown above, the sanding board is flat. For a guitar with a radiused top or back, you'll need to use a sanding board with the same radius as your top or back.

Once the sides are sanded down to the top of the ribs, the ribs are removed and the kerfed linings can be put on. They can easily be clamped onto the sides.



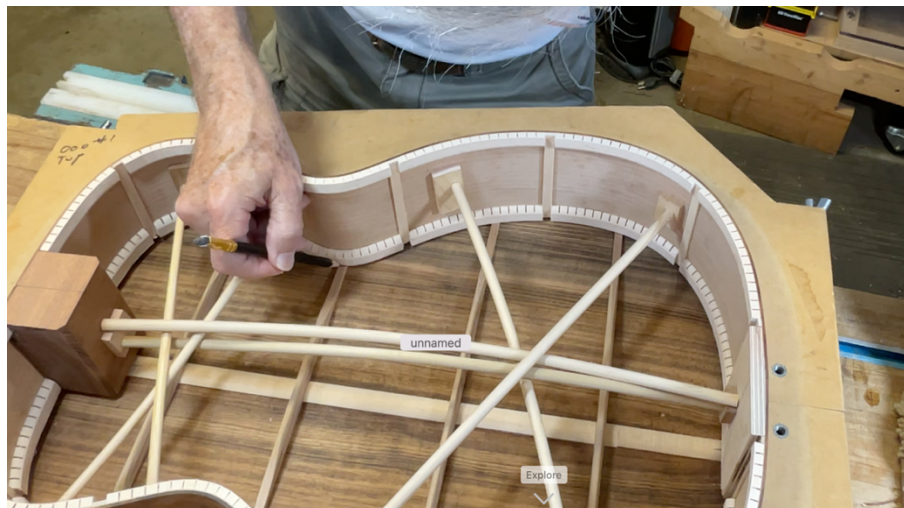
There is no need to take the guitar out of the mold for this step.

In fact, that is precisely why the ribs are removable- so you don't have to take the guitar out of the mold.

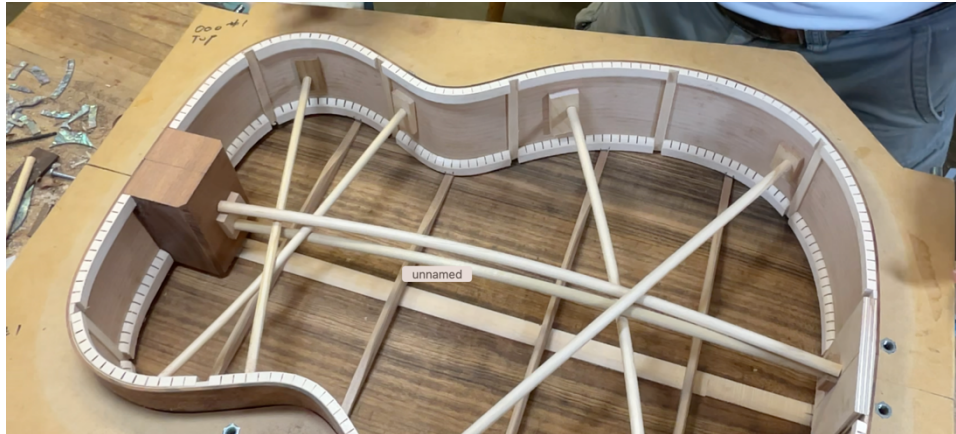
Next, you'll need to sand down the kerfed linings with a proper radiused sanding board, and mark the linings where the top and back braces will be

tyed into them.

As you can see from the next photo, using go-bars to hold the sides in position gives you plenty of room to access the linings and mark them as needed to carve the brace pockets.



The photo below shows the pencil marks made on the linings.



Some other molds have very bulky blocks holding the sides against the mold that don't allow access to the inside of the guitar. I highly recommend the go-bar technique. You'll occasionally knock out a go-bar, but it's easy to put back, and keep the sides firmly against the mold.

After the braces are fit into the linings, the back and the top are glued on (not together). It is after this that the go-bars are removed from the inside of the guitar, and the body is taken out of the mold. Note: If you are making an archtop guitar, you can glue



on either the top or the back with the go-bars on, but you must remove them before gluing the box shut.

It is a very common practice among many luthiers and many large guitar companies to take the sides in and out of the mold several times before the body is completely glued up. The reason I don't recommend taking the guitar in and out of the mold, is that it's very difficult to get the guitar body put back into exactly the same position as before. There's usually some very slight amount of twist or stress put into the body that wasn't there before. This can severely damage the sound of the guitar, The sides need to be absolutely relaxed in the mold, then held in place with the top and back glued on. If some amount of twist or stress is introduced by moving the guitar around in the mold, any vibrations you try to create by playing the guitar will be damped out by the stress, and this will not go away over time. If you take the sides out of your bender when they are still damp and hot-and still pliable, then clamp them into the mold, they will relax, dry out, and conform to their new shape. You should make every attempt to keep the sides clamped with spring clamps or go-bars very solidly against the mold until you glue on the top and back. My experience is that this is the best way to ensure your guitar has the very best sound possible.