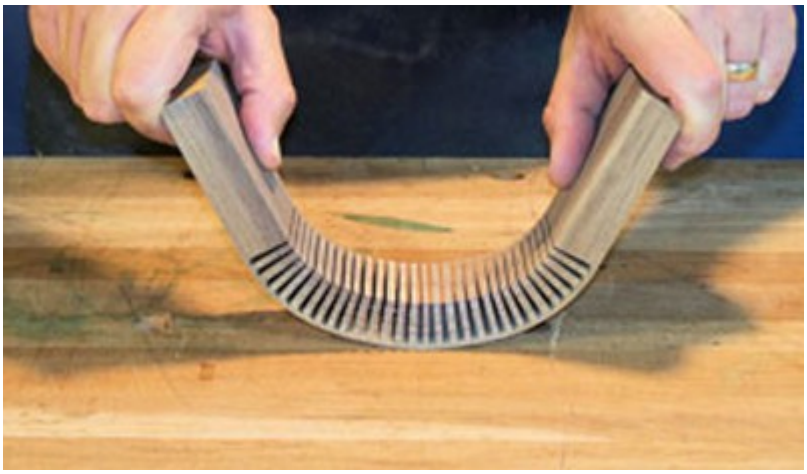
Bending Wood / Panel Kerf Formula

Kerfing is in simple terms the act of cutting a series of kerfs (cuts) in a piece of wood in close proximity, so the wood can be curved. It is important not to make the cuts too deep, resulting in the wood cracking completely through, or not deep enough so instead of bending, it snaps. The wood needs to be cut to the point that the remaining fibers are free to bend. You can only kerf by crosscutting- you cannot kerf with the grain as the likelihood of the work piece splitting is huge. This doesn't have to be solid stock either – you can kerf whole sheets and bend entire panels. However, it is very dependent on the type of wood, the moisture content, the relative humidity, the width of the blade, etc.



The result is pretty spectacular.

To fix the kerfing, use lots of glue. You can fill it, and if you want to disguise the kerfing, use an appropriate wood filler.It is a great technique, and is worth persevering with until you get one that is successful. If you are getting consistent failures, the chances are you are being too conservative on the depth of cut, and the outside of the curve is resisting the bend and fracturing. Whatever you do, don't bend the kerf the other way. Not that the wood doesn't bend that way, but it looks pretty silly, and makes for an incredibly weak curve. Bent in, the spines all end up impacting on each other, and therefore support each other. They also give you something to glue together. A kerfed curve is never going to be a structural member, but where absolute strength is not required and the curve is important for aesthetics, then this technique may be worth considering.

Now onto the meat. The formula I use for determining how to kerf my panel or board is this:

1. Take the Outside Perimeter of the radius and subtract the Inside Perimeter. This gives the amount of frame to be removed.
2. Divide this amount by the thickness of the saw blade. This gives the number of saw cuts.
3. Last, divide the Outside Perimeter of the radius by the number of saw cuts. This gives the distance between saw cuts.