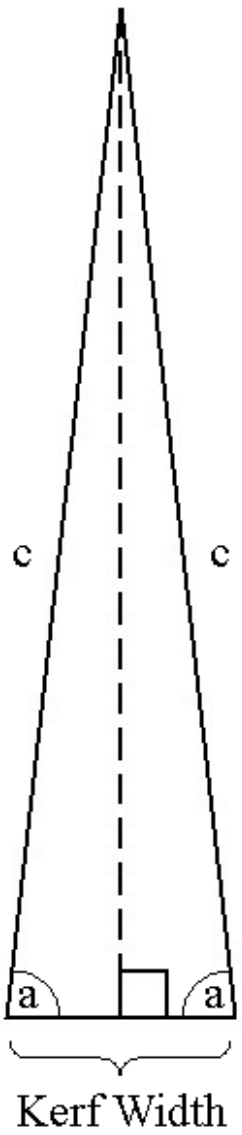
A Deco Box with Kerf-Bent Corners

How to calculate the kerf depth. Companion content to
an entry in the Woodworking Life blog on FineWoodworking.Com.

by Gene Jameson



When wood is bent at a kerf, the result approximates an isosceles triangle. The following formulas are used to calculate the depth of kerf needed. You can think of an isosceles triangle as two right triangles back-to-back. Then use the Pythagorean equations to solve the triangle.

$$a = 90° - \left(\frac{\left(\frac{\text{Overall Bend Angle}}{\text{Total Number of Kerfs}} \right)}{2} \right)$$

$$c = \left(\frac{\left(\frac{\text{Kerf Width}}{2} \right)}{\text{Cos}(a)} \right)$$

So for the project described in my Woodworking Life blog entry:

a = 83.57°

c = 0.447 in.

Now that we have taken care of the geometry we can calculate the wall thickness of our box. I want to leave 1/16 in. to be bent. Therefore, 0.447 in. + 0.0625 in. ≈ 0.510 in. I will go for an exact 0.500 in. thick as this will help me when I rabbet the top edge to make the lip. Because the kerf depth will remain unchanged, reducing the stock thickness to 0.500 in. will leave 0.053 in. of stock to be bent, which will be fine.

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