

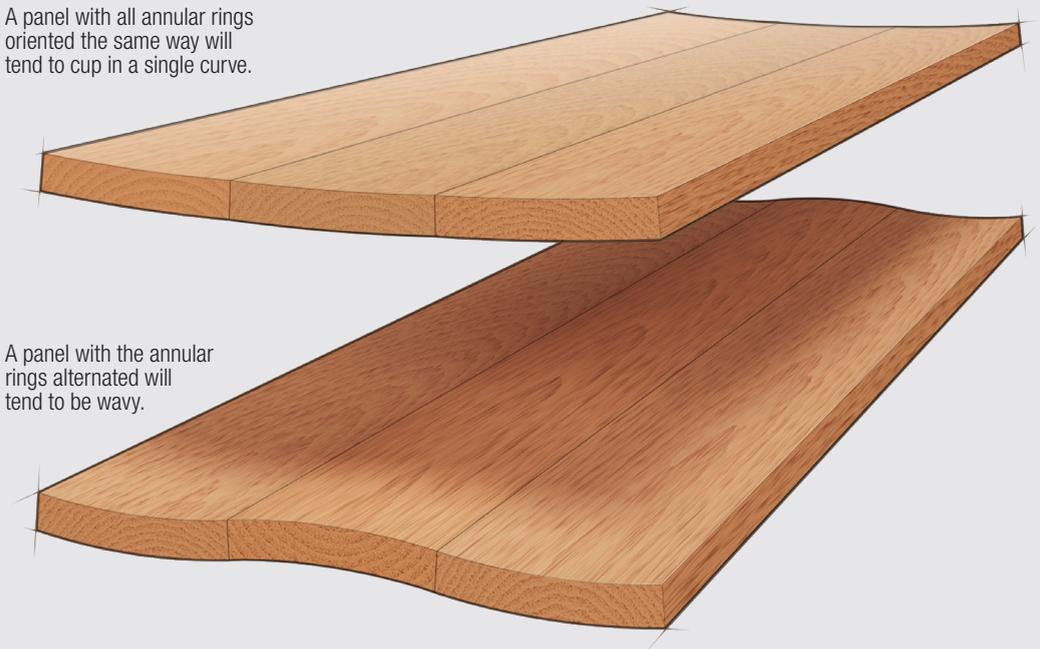
## Panel construction: Rings up or rings down?

**Q:** *I've seen conflicting advice regarding how to orient the annular rings on boards when edge-gluing them to make up wide panels. Should I alternate the direction of the rings or keep them all oriented the same way?*

**Kirby Hastings**  
Kansas City, MO

A panel with all annular rings oriented the same way will tend to cup in a single curve.

A panel with the annular rings alternated will tend to be wavy.



**A:** This debate goes back to the days when woodworkers had wider, but inconsistently dried stock to work with. Flat-sawn boards tend to cup opposite the orientation of their annular growth rings. So if all the rings of the boards that make up a panel are oriented in the same direction, the panel will tend to curl like a potato chip as it adjusts to its environment. This tendency can be overcome by fastening the panel to an apron, adding breadboard ends, or trapping it within a frame.

If the rings in the boards are alternated, the panel will tend to develop waves, or ripples across its surface. But overall, the panel will remain flatter. I take this approach when making unsupported panels such as table leaves, using riftsawn or quartersawn stock if possible for best stability.

For panels that will be supported in some manner, I simply arrange the boards for the best face grain match, and ignore the annular ring orientation. ■



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