
THE WOODWORKING LIFE

How much camber should be in plane irons?



By Rob Porcaro | Jul 23, 2010



The slight curve (camber) in the edge of the plane blade is visible as a light gap against the straightedge.

Trick question. **It depends.** This post will discuss factors in the amount of camber in the edge of a plane iron with attention to an under-appreciated trigonometric quirk.

The slight convexity or “camber” in the edge of a **smoothing plane** iron should allow the production of airy shavings that are thickest in the middle say .001” and feather out to nothing at a little less than the




...make, say .001", and feather out to nothing at a little less than the width of the blade. This produces imperceptible scallops on the wood surface and avoids square-edged tracks or "gutters".

A similarly small, or perhaps a bit more, camber in the edge of a **jointer plane** blade allows one to bring down the "high" side of an out-of-square edge without tilting and destabilizing the heavy plane. The camber should be positioned at the center of the blade projection so the plane can be shifted toward the high side of the board's edge to remove a slightly thicker shaving there.

For **jack planes**, more camber lets this workhorse take thicker shavings without producing gutters. The more pronounced camber also makes it easier to direct the plane's cut at the high spots on the surface of a board being dimensioned.

When grinding and honing a plane blade, I check the camber by setting the blade's edge on a small aluminum straight edge and holding it up to the light to look for the tiny gaps that gradually enlarge from the center to the sides of the blade. (**I never measure this amount** so I cannot answer the question posed in the title of this post.)

More on Handplanes and Plane Irons

- [The Proper Camber on a Handplane Blade](#)

- [Setting a Handplane Blade](#)

- [Q&A: Round the Edges of Every Plane Blade?](#)

- [How to Sharpen a Handplane Iron](#)

Now for some trig. (Refer to the diagrams in the second photo.) Let's say the camber – the depth of the convexity of the edge – is .005". When this blade is installed on a 45° frog in a bevel-down plane, the actual functional convexity is reduced. **Think of it this way:** if the blade were laid flat and you viewed it toward the edge, there would appear to be no camber at all. The functional camber is reduced by the sine of the bed

camber at all. The functional camber is reduced by the sine of the bed angle.

$$\sin 45^\circ \times .005'' = .0035''$$

Look what happens in a bevel-up plane with a 12 degree bed:

$$\sin 12^\circ \times .005'' = .001''$$

Therefore, I sharpen more camber into a blade for a low angle bevel-up plane than for a bevel-down plane to achieve the same **functional amount of camber**. The camber that you observe sighting 90 degrees to the face of the blade will mostly disappear when you install the blade in a 12 degree-bed, bevel-up plane and sight down the sole to observe the camber. Compensate for this by being generous with camber in the sharpening process. **A more direct approach** during the sharpening process is to check the camber against a straightedge with the blade tilted at the bed angle.

Again, **I do not measure these things** but rely on my eye, experience, and especially **feedback from the work**. Of course, sometimes I'm off, usually by over-cambering. However, since the middle of the blade is thus destined to dull first, it is easy to reduce the camber on the next honing.

There are undoubtedly other factors affecting shaving thickness, such as blade sharpness, blade edge deflection, and wood grain, so it is most important to **monitor the performance of the plane and make adjustments when you resharpen**.

You can use trial and error or a set of leaf gauges to work this out to your liking. Like just about everything else, there's more than one good way. Use the principles and **find your way**.

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