

# Plane-Blade Geometry

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The cutting angles stated in our product write-ups describe the actual cutting angle where the plane blade meets wood. This angle is determined by a fine micro-bevel at the edge; the blade's primary angle is typically a few degrees less. A 30° blade, for example, has a 30° micro-bevel and a 25° primary bevel. At first glance, this configuration seems like it would create a bit of a dilemma when using the Veritas® Mk.II Honing Guide to resharpen plane blades, since the honing guide is designed to produce the more ideal 1° to 2° micro-bevel. Our rationale for doing this is two-fold.

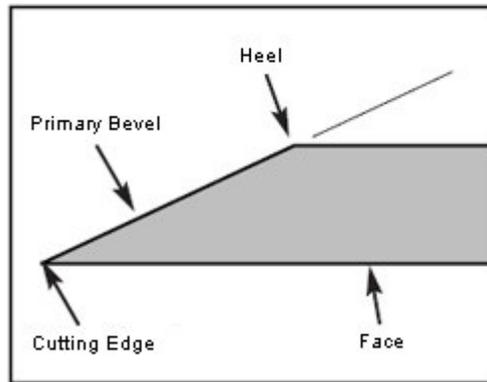
For one, we are limited to blade geometries possible in the context of mass-produced blades. Since a micro-bevel of 2° is extremely difficult to create on production equipment, it would also be an expensive endeavor. One solution to this predicament was to manufacture our blades with an included 5° micro-bevel.

In practice, the 5° micro-bevel actually works to the user's advantage. Out of the box, the blade will perform as one would expect a blade of a given bevel angle to behave. Once the user needs to resharpen the blade, the existing bevel acts as a relief bevel, which in essence reduces the time it takes to resharpen the blade.

When resharpening a plane blade, the user can rework the blade's geometry to meet the particular task at hand by changing the primary bevel or the microbevel, or by adding a relief bevel or a back bevel.

## Primary Bevel

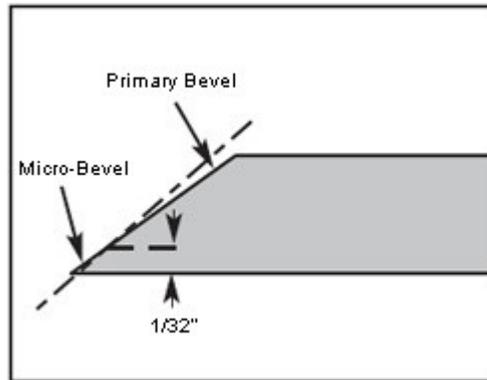
This is typically the bevel angle that describes a blade as it comes from the manufacturer. It is the angle between the flat face of the blade and the working section of the bevelled edge. This angle generally controls the cutting behavior of the blade in a bevel-up plane.



**Figure 1:** Primary bevel.

## Micro-Bevel

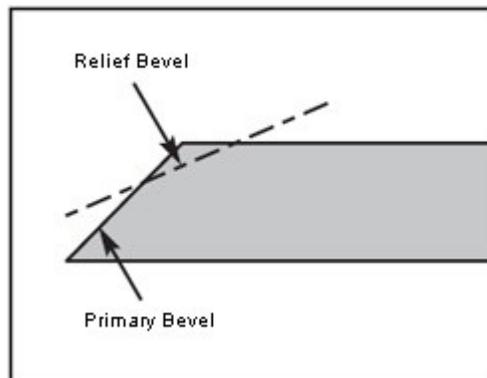
Also sometimes referred to as a secondary bevel. This is a narrow bevel (no more than 1/32") applied right at the edge of the blade and is ideally about 2° greater than the primary bevel. A micro-bevel slightly strengthens the edge and limits the really fine honing required to create a razor-sharp edge to just the tip of the blade, saving wear on the fine abrasive. A micro-bevel also makes any touch-up honing that much easier, since only a small amount of metal needs to be removed from the tip, rather than from the entire bevel. In practice, 2° difference in bevel angle is virtually unnoticeable in use.



**Figure 2:** Micro-bevel.

## Relief Bevel

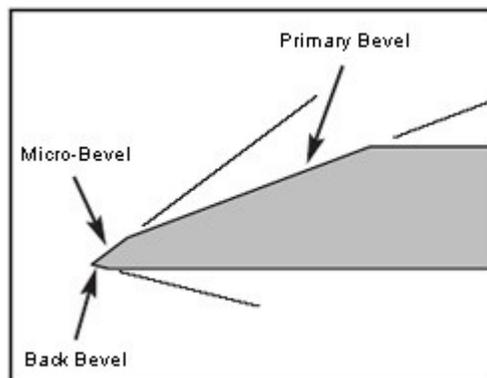
This bevel is added to the "heel" of the blade and is 5° to 10° less than the primary bevel angle. Its purpose is much the same as the micro-bevel in that it reduces the amount of material that needs to be removed when sharpening a blade. A relief



**Figure 3:** Relief bevel.

## Back Bevel

This bevel is added to the back of the blade and is 5° to 10° less than the primary bevel angle. Its purpose is much the same as the micro-bevel in that it reduces the amount of material that needs to be removed when sharpening a blade. A relief



bevel comes into play when a thick blade needs serious regrinding.

**Figure 4:** Back bevel.

### **Back Bevel**

The term used to describe a bevel angle applied to the face of a plane blade is back bevel. On a bench plane (where the blade is mounted bevel down), a back bevel is used to increase the effective cutting angle. This is useful when working wood with highly figured and/or reversing grain. On a low-

### **Omitted Setting**

Many customers have wondered why the Veritas® Mk.II Honing Guide doesn't have a 38° setting when we supply 38° blades. Including a 38° setting on the registration jig would have cluttered it and made it prone to error.

There is no particular rationalization for a 38° blade, other than it combines with a 12° bed angle to yield an effective cutting angle of 50° (commonly known as a York pitch, or a Type I chip), providing a balance between performance and effort when dealing with difficult wood. In practice, you may find that a 37° or 39° blade works better. Our 38° blades

have two bevels: a 38° micro-bevel, with a relief bevel of 33°. Changing the bevel angle isn't as much work as one would think.