

## BASIC PLANE BLADE SHARPENING

We get a lot of questions about sharpening. Woodworkers have strong, often conflicting, opinions about the right way to sharpen. We've taught many beginners to get a razor edge in minutes, using a simple method that gives reliable results. Here it is.

*A sharp edge is the intersection of two polished surfaces, so you need to work both the bevel and the back of the blade.*

### For this method you will need:

- 1000 & 8000 grit stones, or equivalent.\*
- Side Clamping Honing Guide
- 6" Ruler, approx .020" thick
- Protractor
- Wet/dry sandpaper – 120-220 Grit

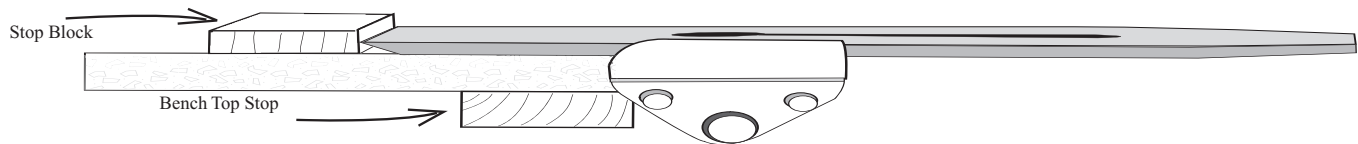
\* Stones must be flat. If your stone is used, please refer to the "To Flatten Your Stones" section.

### Basic Technique (with blade in decent condition)

Lie-Nielsen blades are delivered ground flat, with a bevel of 25°. Other blades, especially old ones, may need work on the back and bevel on coarse stones first to establish a flat, straight surface.

1. Set blade bevel down in honing guide at 30° using a protractor.

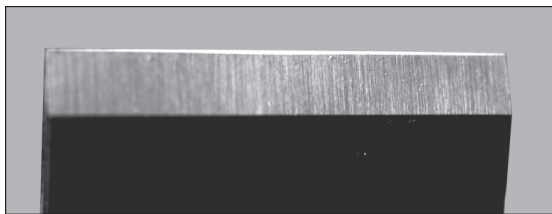
Note: If you record the length the blade projects from the front of the honing guide, then you can re-set it next time to the same angle without the use of the protractor. An easy way to do this is with a simple stop block attached to a small piece of plywood or MDF:



- 2.hone on 1000 grit until wire edge/burr forms on back of blade, about 4 strokes pulling blade towards you. Distribute wear evenly by using the full surface of the stone.

If the edge of the blade is square and your finger pressure is even, this secondary bevel will be parallel to the edge. Use a strong light to see this.

Note: The 30° angle will result in a 5° 'microbevel' or secondary bevel. This secondary bevel concentrates all of your sharpening energy on the very edge of the blade – this is the only part of the blade that needs honing, because it is the only part of the blade that does the work.



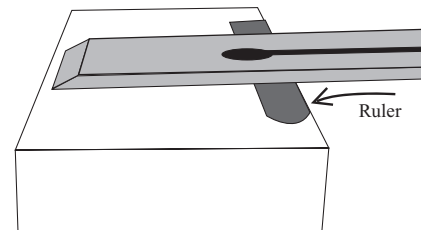
3. Repeat on 8000 grit stone - 4 to 5 strokes, pulling blade towards you.

4. Polish the back using the Ruler Trick - 10 passes on and off stone.

**The Ruler Trick** - Place a 1/16" or thinner ruler along one edge of your 8000 grit stone:

Place your blade across the stone and ruler. Doing so raises the blade a bit (less than 1°)

and concentrates your honing force on the very tip.hone by stroking the blade on and off the stone (distribute wear by moving up and down the stone while honing). About ten passes should remove the wire edge and polish the edge.



Note: By honing on and off the stone you avoid the risk of rounding the front edge of the blade which can occur if you stop short of the stone's edge. A slightly concave surface is better than a convex one.

5. At the end of your sharpening session, flatten your stones. Here's how:

## TO FLATTEN YOUR STONES

1. Mark cross hatch lines on the stone using a pencil.
2. Use wet/dry sand paper between 100 – 220 grit
3. Using a flat reference surface, like a granite surface plate, table saw top, etc. and wet/dry paper sprayed with water; rub the stone until hatch marks are removed. Approximately 15-20 strokes.

Note: Distribute wear evenly by using the full surface of the paper.

4. Check with straight edge.

## CAMBERING A BLADE - *Honing a Slight Curve in the Edge*

This method will produce a camber of .002-.005" (or more depending on finger pressure and number of strokes used). For any plane, the amount of camber needed is only a bit bigger than the thickness of the shaving you will take - usually less than .002" thick for a smoothing plane. **Some planes (shoulder planes, jointer planes, others as desired) require a straight edge.**

1. Set blade in honing guide at 30°.
2. On the 1000 grit stone, take six strokes pulling blade towards you while applying finger pressure to one outside edge of blade - repeat on the other edge.
3. Take four strokes pulling blade towards you while applying finger pressure one half the distance from the edge to the middle on one side of the blade - repeat on the other side.
4. Take two strokes pulling blade towards you while applying finger pressure to the center of the blade. (If two strokes does not raise a wire edge, repeat steps 2-4.)
5. Repeat steps 2-4 on 8000 grit stone

Note: To create a greater curve, use more strokes at each step, but keep the number of strokes at the edges greater than in the middle.

6. Use Ruler trick to deburr the back of the blade.
7. Flatten your stones when you are done.

## RE-SHARPENING

A stop block makes it very easy to exactly repeat the amount the blade projects from the honing guide for a given angle. Make a little stop block for the angles you use. We've recommended 30°, but sometimes you may need to sharpen at a different angle; for dealing with difficult grain a much steeper angle on a bevel up plane works very well. For more information we recommend David Charlesworth's DVD *Hand Tool Techniques Part 1: Plane Sharpening*.

- If you re-sharpen frequently you probably only need the 8000 grit stone until it takes too long to raise the wire edge. Then go back to the 1000 grit.
- At some point the secondary bevel will become quite large and it will take more strokes to raise the wire edge. Then re-establish the 25° primary bevel using the 1000 grit stone (and a stop block set for 25°).
- Leave a little bit (approximately 1/64") of the secondary bevel, however, because this defines the square edge of your blade.

## NOTES ON SHARPENING CHISELS

Sharpening chisels is the same as sharpening plane blades, except you **never use the Ruler Trick with chisels** because chisel work requires a flat back reference surface.

**To prepare chisel backs**, work the chisel across the stone, coming off and on the edge. Start with 1000 grit, and to make the work easier, use 4000 grit next, then finish on the 8000 grit stone. (You should never need to use anything other than the 8000 grit on the back after initial preparation.)

Note: By honing on and off the stone you avoid the risk of rounding the front edge of the blade which can occur if you stop short of the stone's edge. A slightly concave surface is better than a convex one.

Hone the bevel the same way as recommended for a plane blade. Finish by lightly polishing the back with the 8000 grit stone. Flatten stone.

**Resharpener chisel bevels** you can use only the 8000 grit until it takes too long to raise the wire edge. Then go back to the 1000 grit.

For more information we recommend David Charlesworth's DVD *Precision Preparation of Chisels for Accurate Joinery*.

## NOTE ON STONE GRITS

We refer to 1000, 4000 and 8000 grit stones, because we use the Norton and Shapton stones which are made in these grits. However, the important point is to use coarse (and with chisels, medium) and fine stones, whatever the exact grit may be.

For example, soft Arkansas oil stones for coarse, hard Arkansas oil stones for medium, and black hard Arkansas oil stones for fine, may be used.

## ADDITIONAL SHARPENING INFORMATION

For a demonstration on the sharpening method described in this instruction sheet, please visit our YouTube Channel: <http://www.youtube.com/user/LieNielsen>

More information on advanced sharpening can be found in David Charlesworth's DVD *Furniture Making Techniques: 5 Topics*. This and all of our instructional DVDs are available on our website: [www.lie-nielsen.com](http://www.lie-nielsen.com).

## STOP BLOCK DIMENSIONS

For Common Sharpening Angles

<u>ANGLE</u>	<u>APPROXIMATE DISTANCE</u>	
25°	2 1/8"	(54 mm)
30°	1 9/16"	(40 mm)
35°	1 3/16"	(29.5 mm)
40°	13/16"	(21 mm)
45°	9/16"	(15 mm)