

QUICK RE-SHARPENING WITH STOP BLOCKS

A stop block makes it very easy to consistently 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 35°, 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*.

STOP BLOCK DIMENSIONS

For Common Sharpening Angles

Lie-Nielsen Honing Guide*

Angle — Approx. Distance

20°	2-1/16"	(52.38 mm)
25°	1-1/2"	(38.10 mm)
30°	1-5/32"	(29.36 mm)
35°	7/8"	(22.22 mm)
40°	5/8"	(15.87 mm)
45°	7/16"	(11.11 mm)
50°	5/16"	(7.93 mm)

Eclipse Style Honing Guide**

Angle — Approx. Distance

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)

*When using the Mortise Chisel Jaws, add 5° to each stop

**Measurements are precise for a .125" thick blade

- If you re-sharpen frequently you probably only need the finishing stone to touch up the bevel. To raise a wire edge, start on the honing stone.
- At some point the secondary bevel will become quite large and it will take more strokes to raise the wire edge. Re-establish the 25° primary bevel using the sandpaper (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 the 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, honing off and on the edge. Start with the honing stone, and to make the work easier, use a medium 3,000 grit stone next, then end on the finishing stone. You should never need to use anything other than the finishing stone for the back of the chisel after initial preparation.

Note: By working 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. End by lightly polishing the back with the finishing stone. Flatten the stone.

When re-sharpening chisel bevels, you can use only the finishing stone for a quick polish. To raise the wire edge, go back to the honing stone.

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

NOTE ON STONE GRITS

We refer to 1000, 3000 and 8000-10,000 grit stones, because we use the Ohishi 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/LieNielsenToolworks>

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.

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BASIC PLANE BLADE SHARPENING

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

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.

For this method you will need:

- 1,000 grit Honing Stone
- 8,000-10,000 grit Finishing Stone
- Side Clamp Honing Guide
- 6" Ruler, approximately .020" thick
- Protractor
- Wet/dry sandpaper 120-220 grit

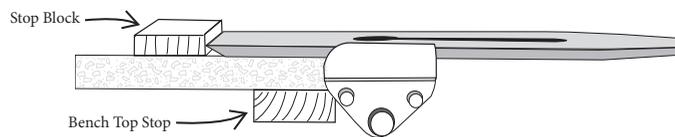
Stones must be flat. Before using any stone for the first time, please refer to the "To Flatten Your Stones" section.

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 both the back and the bevel using coarse stones or sandpaper first to establish a flat, straight surface.

1. Set the blade bevel down in the honing guide at 35° using a protractor.

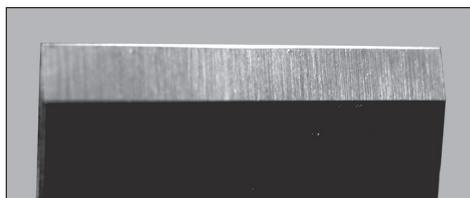
Note: If you record the length the blade projects from the front of the honing guide, you can re-set it to the same angle without the use of the protractor. An easy way to do this is with a simple stop block attached to a small piece of plywood or hardwood.



2. Hone on the 1000 grit stone until a wire edge/burr forms on back of the blade, about 4 strokes pulling the 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 35° angle will result in a 10° '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.



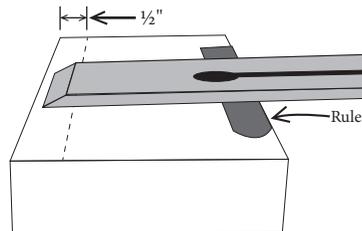
3. Finish on the 8,000-10,000 grit stone—4 to 5 strokes, pulling the blade toward you.

4. Polish the back of the blade using the Ruler Trick—10 passes on and off the finishing stone.

The Ruler Trick

1. Place a thin ruler (approximately .020" thick) along one edge of the finishing stone.

2. Place the blade bevel up 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). Do not bring the edge of the blade more than 1/2" onto the stone to minimize the back bevel. 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 slight concave surface is better than a convex one.

3. At the end of the sharpening session, flatten your stones.

TO FLATTEN YOUR STONES

1. Mark cross hatch lines on the stone using a pencil.
2. Find a flat reference surface, like a granite surface plate, table saw top, etc., and temporarily adhere wet/dry sandpaper (between 100-220 grit), or use the DMT Dia-Flat Lapping Plate.
3. Spray the sandpaper or DMT Dia-Flat Lapping Plate with water and rub the stone until the hatch marks are removed. Approximately 15-20 strokes.

Note: Distribute wear evenly by using the full surface of the paper and occasionally rotating the stone 180°.

4. Check for flatness with a 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 the blade in the honing guide at 35°.
2. On the honing stone, take six strokes pulling the blade towards you while applying finger pressure to one outside blade edge—repeat on the other edge.
3. Take four strokes pulling the 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 the blade towards you while applying finger pressure to the center of the blade. (If two strokes do not raise a wire edge, repeat steps 2-4.)
5. Repeat steps 2-4 on the finishing 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 the Ruler Trick to deburr the back of the blade.
7. Flatten your stones when you are done.