



KANSAS CITY WOODWORKERS GUILD

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## KCWWG102

# SHARPENING WITH SANDPAPER

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1. References
  - Magazines; i.e. *Fine Woodworking*, *Woodsmith*, & many others
  - *The Complete Guide to Sharpening* by Leonard Lee (also available in video)
  - Fine Woodworking Video, *Sandpaper Sharpening with Michael Dunbar* (available in KCWWG Library)
  - Directions accompanying Veritas MKII Honing Guide
2. Prerequisites for Effective Sharpening of Plane Irons & Chisels
  - Abrasive in successive grits
  - Flat surface
  - Angle guide
  - Stable surface
3. Abrasives
  - Aluminum oxide for rough to medium grits (80 – 320), dry only
  - Silicon carbide for medium to ultra fine ( 240 grit - 5 micron), wet or dry
  - Chromium oxide ultra fine (0.5 micron), wet or dry
  - Diamond Paste (6, 3, and 1 micron)
  - Klingspor Sandpaper Sharpening Kit (PSA Backed 80, 120, 320, 600, & 1200 grit; Catalog SS99000)
  - Lee Valley Micro-Abrasives (15, 5, and 0.5 micron; Catalog 54K93.01, 94.01, & 95.01)
4. Flat Surface
  - Glass
  - Granite
  - Table saw top
5. Angle Guide
  - Must hold tool rigidly, square, and be repeatable
  - Precision honing guide (Veritas MKII Catalog 05M09.01))
  - Angle setting guide
  - Micro bevel

## 6. Stable surface

- Non-slip carpet pad
- Bench hook
- Dedicated sharpening station

## 7. The Process

- Start with the highest grit based on the condition of the tool
  - Nicked, pitted, or drastic angle change start with very rough (80 grit)
  - Renewing primary bevel, start with fine (600-800 grit)
  - Adding or renewing micro bevel, very fine (1200 grit)
- Lap back of the blade
  - Remove any protective coating on the tool
  - Start with 80 or 120 grit and progress at least to 600, but not beyond 1200
  - Use black marker to verify that tool is flat at the cutting edge
  - Do not lap up to the ultra-fine grits yet. Those will be used when we place the micro bevel
  - Use brush to occasionally clean cuttings from tool
  - Occasionally use brush to clean sandpaper
  - When progressing to next grit, be especially careful to avoid cross contamination of rougher grits
  - Not necessary to lap the entire back
- Secure blade in honing guide, set angle, and set blade 90° to guide
  - The primary bevel should be 1 or 2 degrees less than the micro bevel (e.g. If you want a 25° cutting angle, the primary bevel should be 23-24°).
  - Mark primary and secondary angles on the blade for future reference using marker
  - Square the blade in the guide and secure
- Cut primary angle
  - Keep finger pressure well forward on the blade
  - Place thumbs behind the guide
  - Use the first grit until the bevel edge forms a line with the edge. Use the marker to check.
  - Progress through grits up to about 600 or 1200
  - Before progressing to the micro bevel, lap any wire edge off the back using the last grit during the previous lapping step (600 or 1200)
- Cut Micro bevel and finish lapping
  - Finishing the lapping the back when cutting the micro bevel saves time and extends life of micro abrasives
  - Set micro bevel angle
  - Lap back of blade with first micro abrasive (15 micron)
  - Flip tool over and micro bevel. This only takes about ½ dozen strokes and cut only in the forward direction
  - Brush blade completing and then lap back with 5 micron sheet
  - Flip tool over and cut micro bevel with only about ½ dozen forward strokes
  - Brush tool complete and finish lap and micro bevel on 0.5 micron
  - Check sharpness on thumbnail/hair on arm
- Rehonon the blade
  - May only have to rehone the micro bevel and back
  - If micro-bevel angle can not be reproduced, start by renewing the primary bevel, but start with 600 or 1200 grit

Veritas Recommended Bevel Angles

<b>Bevel Angle</b>	<b>Application</b>
<15 <sup>0</sup>	Back bevels
15 <sup>0</sup> to 20 <sup>0</sup>	Paring chisels, skew chisels (including turning skews, which are beveled both sides), low-angle planes for softwood, skew blade planes
20 <sup>0</sup> to 25 <sup>0</sup>	All of the above (except skews) for hardwood or end-grain use.
25 <sup>0</sup> to 30 <sup>0</sup>	Chisels used both for paring and light mortising, firmer chisels for softwood, most plane blades (smooth, jack, jointer, etc.) and spokeshave blades
30 <sup>0</sup> to 35 <sup>0</sup>	Mortise chisels, firmer chisels for hardwood, plane blades for hardwood with pin knots.
35 <sup>0</sup> to 40 <sup>0</sup>	Mortise chisels for heavy use, particularly any with brittle steel
> 40 <sup>0</sup>	Scraper plane blades and bevel-up smoothing planes used on wood with difficult/reversing grain to produce Type II wood chips.

Sources

1. Klingspor's Woodworking Shop for Sandpaper Sharpening Kit (Catalog #SS99000), [www.woodworkingshop.com](http://www.woodworkingshop.com) or 1-800-228-0000
2. Lee Valley & Veritas for Diamond Paste (70M14.10), MK. II Honing Guide (05M09.01), and Micro-abrasive sheets (54K93.02, 54K94.02, and 54K95.01)