

Sand, Scrape, or Plane?

In search of the best way
to prepare wood for finishing

BY ARI TUCKMAN



Perhaps more than most woodworking topics, debates on surface preparation elicit strong opinions. No doubt handplaning takes more finesse and practice than sanding, and pushing out fluffy shavings with a card scraper takes practice. But which method produces the best surface for applying a finish?

When I started woodworking, I took a class on surface preparation. I remember the awe I felt as the instructor, with a few swipes of a well-worn Stanley No. 4 handplane, revealed the fire inside a piece of cherry—a staggering contrast to the slightly chalky, sanded surfaces I was used to. I was sold, and quickly bought a very used No. 6—in retrospect, a bit overenthusiastic for a starter plane.

Since then, I've added some better-quality handplanes and card scrapers. I have worked at mastering these techniques, and learned how to sharpen well, if not quickly. Thinking that I had discovered the secret to surface preparation, I was perplexed to see well-known woodworkers who sanded their work after handplaning and scraping, and still produced pieces that looked great after a finish was applied. Curious, I decided to test the three surfacing methods as objectively as I could.

A disclaimer is relevant at this point. I am a pretty good woodworker, but I am far from a master. This is not a test of each technique under laboratory conditions, but rather under conditions

found in a typical home shop where a balance is struck between quality of work and speed.

Two types of wood were tested

To test whether the type of wood made a difference, I used cherry as a sample of a close-grained wood, and a particularly open-grained piece of mahogany. To minimize variation, I cut each board into three sections, one per method. Each board was jointed flat for a uniform starting position, using fresh jointer knives to minimize tearout and the pounding that dull blades can cause.

For the sanding test, I used a random-orbit sander starting with P120 grit followed by P150, P180, and P220 grits, vacuuming the surface after each. I then hand-sanded the board with the grain, using P220 grit. Finally, using a paintbrush to loosen as much dust as possible, I vacuumed the surface again.

I moved on to the scraper for the next board, choosing a 0.4 mm card scraper from Lee Valley, rounding the corners with a file to prevent damage to sharpening stones and fingers. I polished the flat faces and long edges of the card with a pair of 220/1000-grit and 4000/8000-grit combination waterstones, finishing with a green buffing compound. I used a block of wood to hold the card vertical when working the bottom edge, moving it around the stones to prevent it from gouging. Finally, I put a small hook onto the scraper with a burnisher.

The surface left by a well-tuned handplane is one of the reasons I enjoy woodworking. On the third board, I used a Lie-Nielsen No. 4 smoothing plane with the standard 45° frog, flattening the sole on a diamond plate. I touched up the back of the blade and used a honing guide on a 4000/8000-grit stone to sharpen the bevel. I also eased the corners of the blade, putting a gentle crown on it so that the corners wouldn't leave tracks on the board. I adjusted the frog to get the smallest mouth possible without binding the shaving, and then set the blade so that it just protruded.

The boards were judged before and after finishing

Once the boards had been surfaced, they were marked A, B, and C and sent to the *Fine Woodworking* staff for a blind judging before I applied finish. While it was easy to spot the two sanded boards because of their duller appearance, the scraped and handplaned cherry boards could be distinguished only when held up to a bright light. The scraped surface was slightly more irregular, while the planed board had one or two narrow streaks with a higher sheen caused when the plane's sole burnished the high points. On the mahogany boards, the planed and scraped samples were very hard to tell apart.

Three types of finish were applied—Most woodworkers don't leave their projects bare, so the real test of surface preparation takes place after finishing. I selected the three most popular types of finish—pure oil, an oil/varnish mixture, and shellac—to test whether any of these finishes would be more sensitive to the way the wood was surfaced. When the editors returned the boards to me, I used blue masking tape to divide each board into four sections, one for each finish and one left unfinished.

Boiled linseed oil: I applied Parks boiled linseed oil with a cloth, allowed it to soak in for several minutes, and then wiped



THREE WAYS TO PREP THE SURFACE

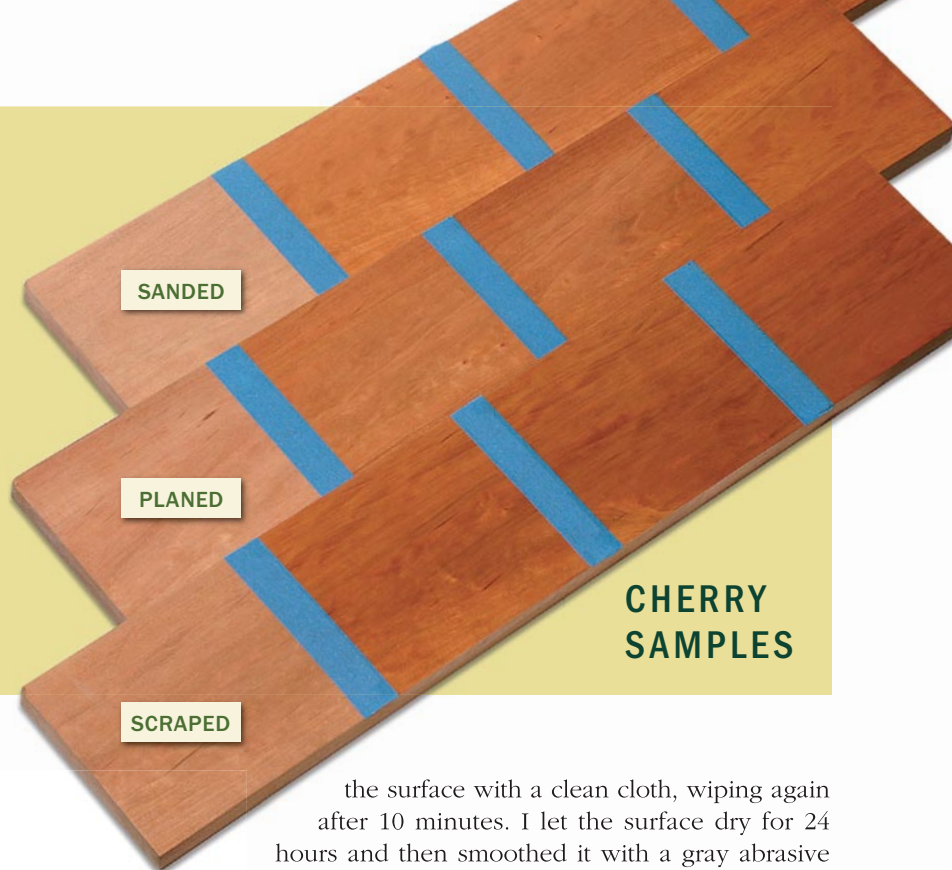
Few woodworkers enjoy the noise and dust of power sanding, but it takes little skill to get boards that are uniformly smooth (above). It takes practice to properly tune and use a card scraper so that it produces thin curls of wood and very little dust (left). Handplaning is traditionally viewed as the best method of surface preparation, but few woodworkers can achieve a flawless surface this way (below).





The finished results

Each sanded, scraped, or planed cherry and mahogany board was divided into four parts (above right and below). The first section was left unfinished, the second finished with boiled linseed oil, the third with shellac, and the last with an oil/varnish mixture. With all three finishes on all six boards, it was hard to tell how the surface had been prepared.



CHERRY
SAMPLES

SCRAPED

SANDED

PLANED



MAHOGANY
SAMPLES

SANDED

PLANED

SCRAPED

the surface with a clean cloth, wiping again after 10 minutes. I let the surface dry for 24 hours and then smoothed it with a gray abrasive pad. I repeated this procedure twice.

Oil/varnish mixture: I used the gloss version of Watco Wipe-On Poly, because a gloss finish provides greater clarity of the underlying wood than a lower-luster finish and therefore gives a more rigorous test of surface preparation. Following the manufacturer's instructions, I applied three coats with a rag, scuff-sanding the first and second coats with P220-grit sandpaper after they were dry.

Shellac: I used Zinsser SealCoat, a clear dewaxed shellac, in a 2-lb. cut. Several coats were brushed on until the surface started to become tacky. After letting it dry overnight, I smoothed the surface with a gray abrasive pad and repeated the process.

Three applications were made with the last coat left untouched.

Can you tell the difference?

The editors and I examined the samples and concluded that there is very little difference between the three methods after finish has been applied. This was a real surprise, given the clear differences between the unfinished boards.

However, these results may not apply across all circumstances. Highly figured grain may be tamed only with a scraper, while some softer woods become fuzzy when scraped. I also did not test how the samples would react to stains and dyes.

Even so, I find the results liberating. Now I can choose a surface-preparation method based on the wood without concern for the final finish. Because I still get great satisfaction from watching shavings unfurl from a handplane,

I'll hang onto my planes and scrapers. But I won't feel like I'm cutting corners and sacrificing results when I pull out the random-orbit sander. □

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