handwork

# East meets West handplane

BY VIC TESOLIN

A couple of years ago, I was exposed to Japanese plane making. A friend let me try some of his planes and I fell in love with them. They feel nimbler in my hands, and I feel like I have more control over what I'm doing on the pull stroke. But after a few failed attempts at trying to make a Japanese plane, I realized it was not an easy task. They don't have any flat surfaces and the blades are tapered in two directions.

I truly enjoy pulling planes, so I set out to simplify the construction for a pull-style plane. I'm not making a Japanese plane. I'm simply making a plane that you pull instead of push.

I've been making wooden planes for years using the sandwich method, dubbed "Krenovian," so I made this plane from two core pieces and two cheeks. I also wanted to get rid of the pin that typically holds the wedge and blade in place, so I looked to old wooden planes that had a bed or a pocket cut into the sides to receive the blade and wedge. I didn't include a chip breaker. There are other methods that I prefer to employ to reduce tearout, such as a sharp blade, a tight mouth, and a bed angle that suits the wood you're smoothing.

Traditional Japanese planes have soles that are hollowed out in the center by 0.001 in. or so. I decided to keep the sole of this plane flat. Flat soles have yielded fantastic surfaces for me over the years. This plane, a smoother, only takes about a day to make. You can increase or decrease the size for different types of work.

### Body parts and wedge

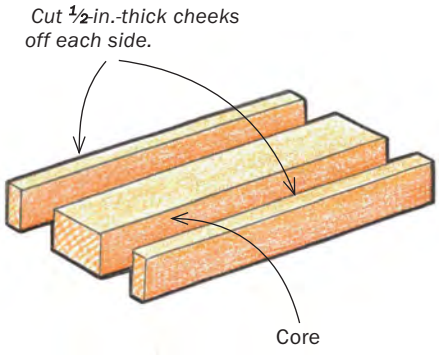
Start by milling out the core piece, which you'll cut into two smaller pieces later, and the two cheeks. If you cut the parts



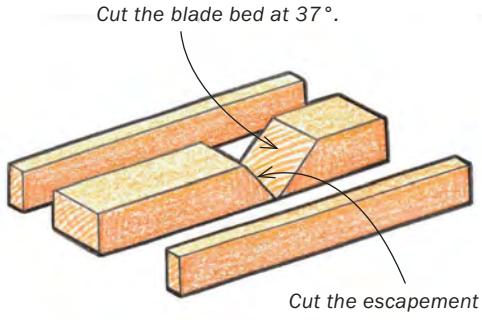
Photos: Anissa Kapsales

# Hybrid plane: Built Krenovian style, it cuts on the pull stroke

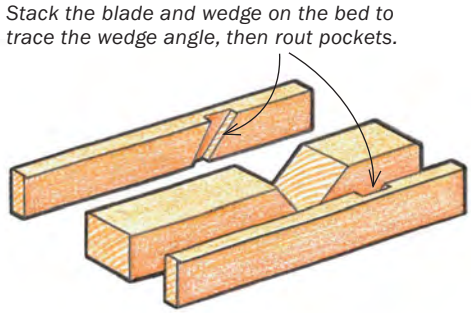
### START WITH A BLANK

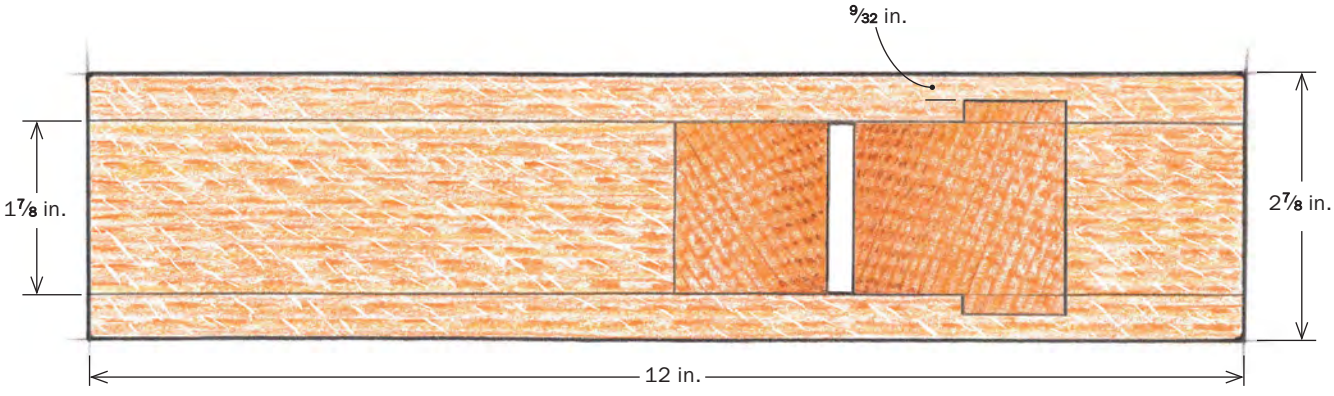



### CUT THE CORE

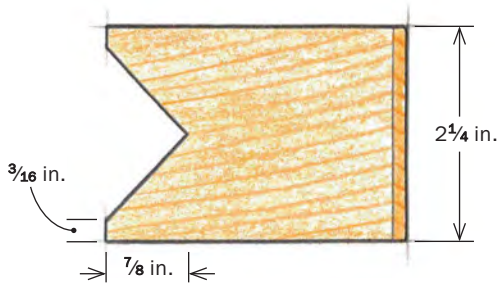



### NOTCH THE CHEEKS

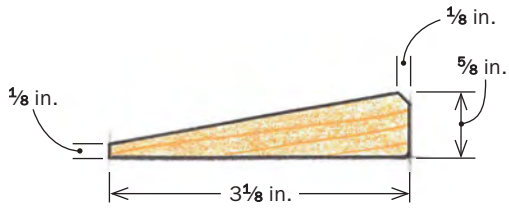



TOP VIEW



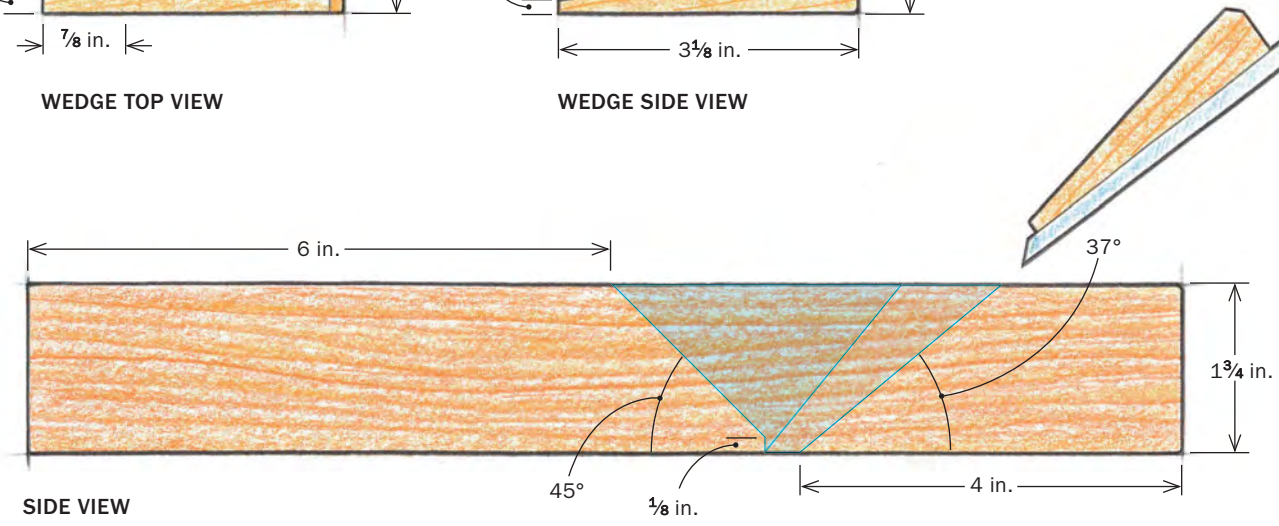

WEDGE TOP VIEW




WEDGE SIDE VIEW

### SOURCE OF SUPPLY

**VERITAS BEVEL-UP BENCH PLANE BLADE**
leevalley.com




SIDE VIEW

Drawings: John Tetreault

## Saw the body apart

**The plane has a core and two cheeks. To start, mill the core as one solid piece. It will get cut into two separate pieces later.**

***Two cheeks and a core.*** *Tesolin mills all the body parts from a single blank. With one side and the bottom milled flat and square, he begins by cutting the first cheek to width on the bandsaw and skims the bandsawn side of the core on the jointer. Then he cuts the core about 1/16 in. wider than the plane blade, skims the second side of the core on the jointer, and bandsaws the final cheek to thickness.*


***A glue surface for body parts.*** *Once the parts are cut and the cheeks each have a jointed surface, run the cheeks through the planer to get them to the same thickness. Use a handplane to lightly smooth all the machine marks off the surfaces.*

***Cut the core.*** *Mark the angles of the blade bed (37°) and escapement (45°) on the core (far left). With a Veritas magnetic saw guide clamped to the core blank, Tesolin saws the core into two angled pieces.*

from the same blank, you can maintain the grain picture, but it is not necessary. Crosscut the bed at 37° and the escapement at 45°. Lay out the wedge, cutting the slope on the bandsaw, and clean up the milling marks.

I make pockets in each cheek for the blade and wedge to slide into. To lay out these pockets, clamp the bed part of the core to one of the cheeks and transfer the bed location to the cheek. Then stack the blade and wedge on the bed and trace the wedge angle. Repeat these steps on the other cheek. Be sure to organize the parts using a cabinetmaker's triangle so that you don't mark and cut the wrong surface. Mark the depth of the pockets with a marking gauge. Set up a detail router with a straight bit and remove as much of the waste as you can, going as close to your layout lines as you dare. Then, use a chisel to work to the layout lines, ensuring that you have a crisp meeting between the shoulder and the base of the pocket.

With the pockets complete, do a dry-assembly to make sure that everything fits. Prior to getting the clamps out, remove the point on the front core piece, creating a flat that is perpendicular to the sole and about ⅛ in. wide. This will allow you to periodically flatten the sole without increasing the mouth size. Clamp all the parts together with light pressure and align them as close as you can by eye. Now insert the blade and wedge and tap everything in place with a plane-adjusting hammer. This will bring the parts into alignment and ensure that the wedge and blade fit well. The front core piece will be pushed forward until the blade can almost slide through the mouth. You'll open the mouth in a later step.

## Make the wedge

**A wedge puts pressure on the top of the blade, serving two functions. It keeps the blade firmly on the bed of the plane and provides the compression that keeps the blade from moving once adjusted.**

***Make the wedge.*** *After you lay out and draw the wedge on a blank, take it to the bandsaw and cut the slope. Then use a block plane to clean up the slope (left) and shape a facet into the top of the wedge (below). The facet is purely aesthetic.*

### Glue-up: clean bench, plenty of clamps

Now it's time for the glue to flow. Apply the glue to the core pieces and keep glue away from the areas adjacent to the bed and escapement areas. Align and clamp the parts loosely. Insert

# Notch the sides

A pocket in each cheek cradles the blade and wedge.

***Locate the pockets on the cheeks.*** *First, clamp the bed half of the core to one of the cheeks and use a marking knife to transfer the bed location to the cheek. Then stack the blade and wedge on the bed and mark the wedge angle on the cheek. Repeat these steps on the other cheek.*

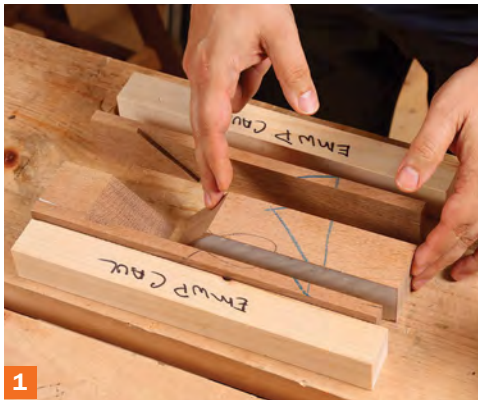
***Cut the pockets.*** *Use a marking gauge to mark the depth of the pockets on the cheeks. The pockets should be deep enough to allow for lateral adjustments of the blade. With a handsaw and a saw guide, cut the sides of the pocket. Then follow up with a straight bit in a trim router to remove the waste as close to the line as you're comfortable with. Clean up with a chisel and router plane.*

# Sizing the wedge

***Fit and trim the wedge.*** *With the plane parts aligned by eye and lightly clamped on the bed side, test the fit of the wedge. If the wedge is too wide, simply trim it with a block plane on a shooting board until you dial in the fit.*

## Glue it up

The blade and wedge keeps the parts aligned.






***Glue up.*** *Apply the glue to the core pieces (1). Align and clamp the parts loosely (2). Tap the blade and wedge into place (3). Tighten the rear clamps a bit more. Slide the front core piece to meet the blade, then clamp in place (4). Tighten the clamps, then remove the blade and wedge (5) and let the glue dry.*



the blade and tap the wedge into place. Tighten the rear clamps a bit more, then turn your attention to the front of the plane. Slide the front core piece to meet the blade and clamp it in place. Be sure that the parts remain flat referencing the sole and don't worry about the cheek alignment. You will trim the cheeks flush later. Go around the plane, tightening clamps, and then remove the blade and wedge and let the glue do its thing. Use a damp cloth to remove any squeeze-out.

Once the glue is dry, remove the clamps and inspect the interior surfaces for any rogue glue, removing it with a sharp chisel. Gently scrape away any hard glue left on the top and sole of the plane. Trim the ends flush and to final dimension.

### Fine-tune the mouth opening, pocket, wedge, and sole

To open the mouth, start by marking a line parallel to the front of the mouth opening. This will serve as a visual gauge to keep your filing in check. Pick a small, flat file or float to slowly open the mouth. Be mindful of the file's position, focusing on keeping it perpendicular to the sole. Remove a bit of material, then test with the blade to gauge your progress. The mouth should only be open a whisper for a fine smoother. It can be much wider if the tool will be used for rougher tasks like mass stock removal. I also use a file to fine-tune the fit of the pocket.

Once you have opened the mouth, install the blade and set the wedge, keeping the blade retracted. Lay some adhesive-backed sandpaper on a flat surface and pull the plane along the paper to flatten the sole. Draw pencil marks on the sole to gauge your progress. Once it is flat, create chamfers about 3⁄16 in. wide on all the edges including the sole. I put a light coat of wax or a single coat of oil like boiled linseed on my tools because I like to feel the wood rather than a candy-coated finish, but you can use whatever you like. Now it's time to play!

# Sweating the little things

**Fine-tuning the mouth, pockets, and sole of the plane will make a huge difference in how it performs.**

***File the mouth and pocket openings.*** *Working to a pen or pencil line, file the mouth opening, holding the file perpendicular to the sole (far right). File just a hair before inserting the blade to check the opening. Additionally, file the pockets clean and in line with the mouth opening (middle).*

***A flat sole.*** *With the blade installed but backed out slightly, pull the plane bottom across sandpaper adhered to a flat surface. Use pencil lines across the sole to gauge progress until it is flat.*

### Set it up and use it

Set this plane up by starting with the blade just above the sole with the wedge tapped in place to hold the blade. Start to pull the plane toward you while gently tapping the blade deeper into the plane body with a small hammer. If you listen carefully, you should hear the blade sliding against the wood before it makes a shaving. At this point tap the wedge tighter and take a test cut. To retract the blade, tap the back, top corner of the plane body at roughly the same angle that the blade is bedded.

This plane works as well as I hoped it would. The wood-on-wood burnishing makes a lustrous surface and the warmth of the wooden tool in your hands is lovely.

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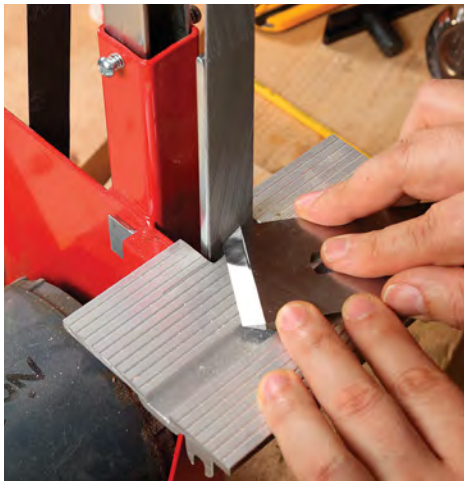
*Vic Tesolin, author of* The Minimalist Woodworker *(Blue Hills Press), recently set up a new shop in Burlington, Ontario, Canada.*

***Shape the bottom of the wedge.*** *At this point, Tesolin cuts a V-shape, which is purely an aesthetic choice, into the wedge on the bandsaw and cleans it up by hand with a chisel.*

## Set up and use



***Prevent gouging.*** *Knocking off the corners of the blade is a good practice in order to prevent the shaving from jamming in the pockets.*

***Adjusting the blade.*** *With the blade just above the sole and the wedge tapped in place, pull the plane toward you while gently tapping the blade deeper into the plane body. Tap the wedge tighter and make a test cut. To retract the blade, tap the back top corner of the plane body.*


***Pull for shavings.*** *Tesolin built this plane to cut on the pull stroke because it gives him more control and he prefers the way the wooden plane sole burnishes the wood as it cuts.*