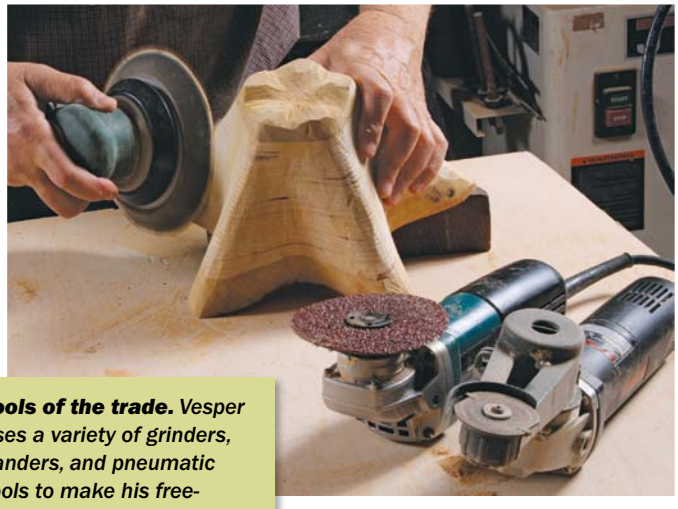
master class

Sculptural bowls

SHAPING BEAUTIFUL CURVES FROM PLYWOOD

BY KERRY VESPER



Tools of the trade. *Vesper uses a variety of grinders, sanders, and pneumatic tools to make his free-flowing forms.*

My process of making vessels evolved out of a desire to create expressive forms in spontaneous fashion. My goal is to capture a fluid form in wood. I start by gluing up multiple pieces of birch plywood cut roughly to shape and then I use power carving and sanding tools to create a flowing, sculptural form.

I began using plywood decades ago because I had no room for the equipment needed to thickness-plane boards. I also was inspired by the stack-lamination work of Wendell Castle, with whom I took a workshop in the early 1980s.

These days, I have a little more space, but by now I am hooked on the design possibilities offered by, among other things, the parallel lines of plywood's edges. Flowing around the organic form of a sculpted bowl, those lines remind me of the rock strata in the Southwest desert where I live, carved into graceful shape by wind and water.

Photos: Steve Scott

Stack it up

Vesper makes his bowls from layers of plywood and solid wood. He cuts them to rough shape and then glues them together, leaving the bottom off until the interior has been shaped.

Cut and stack the rings. *After bandsawing a blank to shape, Vesper uses a shopmade marking gauge (1) to mark for the interior cut, which he makes using a scrollsaw (2). For the hardwood rim, he traces around the top plywood layer (3). A sturdy can elevates the glue-up (4) for easy clamping all around the assembly.*

Cut a stack of rings

Each of my sculptural bowls is shaped from a "blank" created by stacking and gluing together a series of concentric plywood rings, graduated in size and built from the top down. Then I add a top rim and bottom made of solid wood. When I started making bowls years ago, I would draw ideas on paper, starting with the rim and imagining the shape getting smaller with each layer. These days I use a computer and a 3D drawing program.

I start by laying out and cutting the largest and topmost plywood ring. I draw a pattern for the exterior outline of this piece and then secure the pattern to a piece of ¾-in. plywood that is cut to rough size. I cut the piece at the bandsaw using a ¼-in. blade and with the table tilted at about 10°.

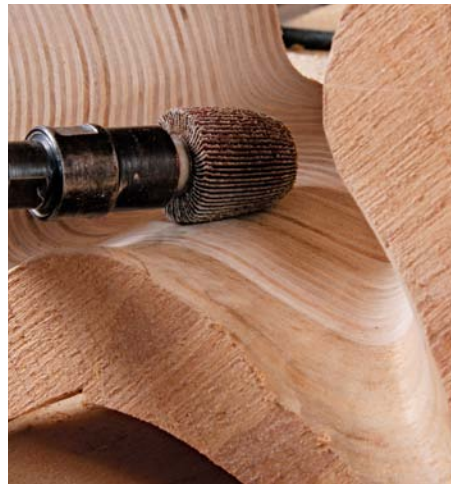
Once the exterior shape is cut, I mark a line for the interior cut as shown above. Then I take the work to the scrollsaw and, with its table also tilted 10°, make the interior cut.

This completed top layer now becomes the pattern for the smaller plywood ring that will go underneath it. To mark out for the next piece, I place the top ring on another sheet of plywood, small side down, and trace both the inside and

Shape the inside and add the bottom

Start with a mini grinder. *The tool hogs away material to bring the walls to rough shape.*

Move to the die grinder. *Abrasive cones smooth the transitions between plywood layers and the faceted surface left by the angle grinder.*



Finish with the flap sander. *This narrow attachment refines the surface left by the abrasive cones.*

outside edges. Then it is back to the bandsaw and scrollsaw. I repeat this process several more times, each time creating a smaller ring. I stack the rings as I cut them out and stop when I have enough to form a nice-looking bowl. For a simple hardwood rim like the one shown here, I place the largest plywood ring on a surfaced board of solid wood (bubinga, wenge, and canarywood are my favorites). With the large side down this time, I trace the pattern for cutting at the bandsaw and scrollsaw. For these cuts, the saw tables are set 90° to the blade. Instead of cutting this piece at an angle, just cut it slightly oversize so you have enough material to shape. The center scrap of the cutout will become the bottom of the bowl.

Now I stack and glue all the plywood rings and the solid-wood rim, leaving off the bottom for now.

Shape and refine the blank

The bowl's irregular shape makes it difficult to hold securely in a vise. Besides, I need to rotate the bowl often while I'm working. So instead of trying to clamp it down, I simply brace it against a piece of thick stock clamped to the top of my bench.

This process creates a lot of dust, so I use a shopmade air cleaner that I estimate filters 80% to 90% of the dust from the air. Also, be sure to use a respirator—every time—and protect your eyes and ears.

To refine the shape of the bowl's interior, I use a variety of grinding and carving tools, starting with an Arbortech Mini Grinder outfitted with a carbide cutter to remove material from the wide flats and convex portions of the interior. I switch to a die grinder with a narrow Kutzall carving burr to reach the inside curves and the tighter spaces at the bottom of the bowl.

To clean up the tool marks and begin creating a final surface, I use a die grinder outfitted with a series of cone-shaped, wrapped abrasives at 60-, 80-, and 150-grit. I switch to a narrow, 220-grit flap wheel to achieve the final surface.

Now the solid-wood bottom goes on. The inside bottoms of most of my bowls are flat, but you can make it concave. I sand the bottom to 220 grit and glue it to the bottom layer of plywood, taking care not to get glue on the inside surface.

Work in both directions. *Leaving the bottom open makes it easier to access all areas of the bowl's interior.*

Glue on the bottom. *Once the shaping and surfacing of the interior is complete, the bottom gets glued in place.*

Smooth the outside

Exterior. *The mini grinder once again removes large amounts of stock to rough out the bowl's shape.*

Smooth the transitions. *Vesper uses an angle grinder with a resin abrasive disk to refine the shape and smooth the surface.*

Feet are optional. *Vesper uses the edge of a resin disk to quickly give the bowl a four-footed stance.*

To shape the outside of the vessel, I again start with the Mini Grinder, using it to blend the transitions between layers and hollow out gentle upward arcs in the angled sides of the blank.

Then I switch to an angle grinder with a 24-grit resin disk. I try to get the walls reasonably thin and uniform in thickness. Because the bowl is asymmetrical and the contours of the outside surface usually are not the same as the inside, the wall thickness will vary. Try not to go thinner than about ⅛ in. As I shape the bowl, I periodically hold it up to a light. If I can see light coming through, I know that area should not get any thinner. I taper the rim to a sharp edge. This gives the illusion that the walls of the bowl are thin and the bowl appears lighter.

With the bowl shaped, I use an orbital sander with a flexible pad to smooth the surface, working sequentially up to 220 grit. For the finish, I use General Seal-A-Cell Clear as the first coat, then apply several coats of Arm-R-Seal semi-gloss topcoats. My vessels are not intended to hold liquid, but this is a very durable, moisture-resistant finish. □

Kerry Vesper builds furniture and sculpture in Tempe, Ariz.

Preparing for finish. *A wide flexible sanding pad follows the curves to gently smooth the surface without reshaping it.*