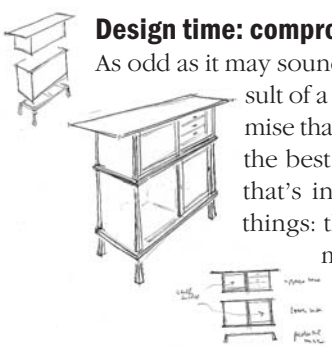
Component-Built Sideboard

Separate assemblies make construction manageable, and careful detailing produces a unified design

BY SETH JANOFSKY

I work alone in a very small shop. Actually, in two small shops. My machines rub elbows in a cramped basement room, while my workbench and hand tools are up on the first floor in another small room. The two shops are not connected by a stair, and getting from the machines to the workbench requires a walk outside, uphill around the house. So one of the things I try to do when making furniture is design for efficient construction, breaking things down into subassemblies that I can handle easily in my small space and work on comfortably by myself. I also like the finished pieces of furniture to be as easy to handle, pack and move as possible. I've developed ways of designing that take these things into account while still aiming to produce striking, useful pieces. The white oak sideboard I recently completed is a good example of the way I design to accommodate these various needs while bringing unity to a piece that, when finished, remains essentially a stack of separate components.



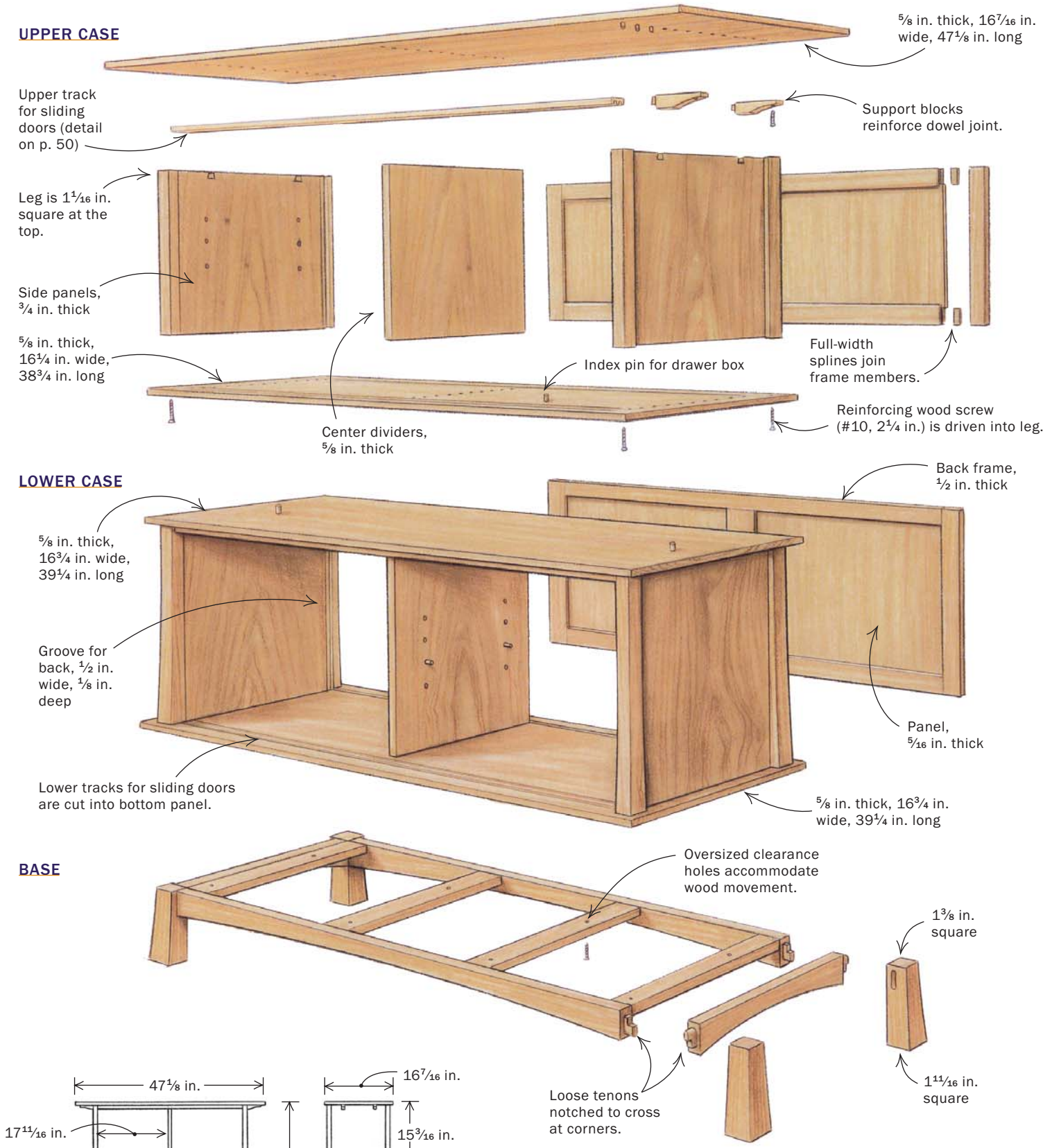
Design time: compromise begets good furniture

As odd as it may sound at first, I think the finest furniture is the result of a lot of compromise. Not the kind of compromise that leads to cutting corners and doing less than the best possible work, but rather the compromise that's involved when you strive to balance three things: the aesthetic needs of a piece, the requirements of function, and construction that is sound and efficient. There should be a back-and-forth between aesthetics, function and construction during the design process; the craftsman has to see to it that all three purposes are well served and that none of the three dominates at the expense of the others. With skill and conscientious effort, and a little luck, the end result will be a piece of furniture that sits, as it were, at the best possible balance point of these three demands.

When I set out to make this sideboard, I had a number of considerations in mind. In terms of function, I wanted a useful piece with a serving surface, compartments for dishes, probably with some adjustable shelves, and drawers for silverware. I didn't want a piece that was limited to use as a sideboard, however. I wanted one that could also function as a display cabinet for pottery or for other decorative objects. Aesthetically, I had in mind something light and delicate looking, even as it was strong and durable. Nothing flamboyant but rather a quiet, refined kind of thing. As for the specific style, I explored in the general direction of other cabinets I've made, which blend traditional Japanese and Scandinavian-modern influences. In terms of construction, I wanted solid, straightforward joinery—structurally sound, efficient to make, subjugated to the quiet design I envisioned.

Putting these factors together, I came up with a solid white oak sideboard that is, in its essence, simply two boxes on a base. To best use the beautiful wide boards I found, I opted for a solid wood structure, which is a hybrid of simple plank construction and post-and-panel construction. A top surface with long overhangs on both ends showcases the single-board top and establishes the visual tone of the piece. To give the separate boxes

Photos, except where noted: Jonathan Binzen; this page: Author



TWO CASES ON A BASE

For convenience of construction, the sideboard is built in stacking components. The upper case is indexed on the lower one by a pair of pins, and it can be lifted off; the base is screwed to the lower case. All parts are solid wood. To avoid wood-movement problems, the grain is run vertically on end panels and center partitions and end-to-end on horizontal panels.

Drawings, except where noted: Bob La Pointe; facing page and p. 49: Author

visual unity and to create a vertical sweep to balance the strong horizontal line of the top, I designed curved legs that extend up through the piece. The legs have a powerful impact both on the aesthetics of the sideboard and on the method of construction. They provide just one example among many of how an aesthetic decision dictates to the technical, and how the technical responds to the aesthetic and exerts its influence. Likewise with the functional requirements. Back and forth, as the design comes together.

Legs and sides made as a unit

The success of the sideboard depended on getting the legs and sides just right; I needed to create a convincing sense of continuity up the sides to make the components of the sideboard read as a unified piece. To get the best possible continuity of grain and color and curvature, I decided to make the legs and the side panels full length, mark them carefully, do most of the machining and sanding and only then cut them apart into segments. It was necessary to think of and work on the legs and side panels as a unit.

When I had sorted the wood for the project and laid out the basic parts, I began cutting and shaping the legs and preparing the side panels. After initial milling of the pieces, I cut the two side panels to exact width (but leaving them long) and put them aside. I made a full-sized template of the leg out of medium-density fiberboard (MDF) and marked it with the cabinet divisions so that it could be used as a story stick. Then I cut the leg blanks to length, traced the outer curve off the template and bandsawed them to rough shape. I clamped all four legs together on the top of the tablesaw and quickly smoothed the curve, first with a belt sander, then with a random-orbit sander. This is perhaps a somewhat inelegant method, but it brought the legs to a smooth, uniform curve very quickly. I touched up each leg individually with a block plane and scraper and finished by chamfering the edges with the block plane and sanding block. All of this was done before cutting the legs into their segments to ensure that when the sideboard was finished each leg would read as one uninterrupted, flowing curve, despite the divisions in it.

I had marked the sides and the legs carefully to preserve the orientation of all of the parts after they were cut into segments. Then I began the cutting. Using a crosscut sled on the tablesaw, I cut the legs and sides into their component parts. I set the stop blocks for these cuts directly from the marks on the leg template. Before leaving the tablesaw, I also cut grooves in the legs and sides for the splines that would align the parts during glue-up. Also, with a ½-in. dado set, I cut grooves in the rear legs for the case backs.

Before I could glue the legs to the side panels to make the completed case sides, I had to drill dowel holes in the side panels and

LEGS AND SIDES ARE FIRST LAID OUT AND CUT

Template with a brain. *Before bandsawing, the author traces the curve of the leg from a ¼-in.-thick MDF template. The template is also a story stick, marked with the locations of all of the horizontal elements in the sideboard.*

Clever measurement. *The leg template itself is used to set the stop block for crosscutting the case sides and legs. When the template is removed, there is a gap beneath the stop block for sawdust relief.*

Don't move that stop block. *After cutting the leg segments for the upper case, the author leaves the stop block where it is to cut the sides for the upper case.*

Photo, facing page (top): Author

prefinish the legs and panels (these processes are described below). Also, to solve the problem of clamping curved legs, I made a set of kerfed, cork-faced softwood cauls that would conform to the gentle curve of the legs under clamping pressure. As I glued up, the splines kept the sides and legs in plane, but I had to check carefully during the clamping to make sure I kept the end-to-end alignment of the parts exact.

Doweling: a great place for things to go wrong

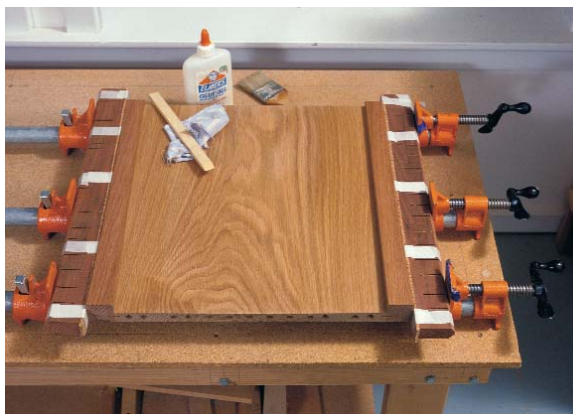
I often use dowels in carcase joinery. I prefer to use concealed joinery on many of the pieces I build, and dowel joints are straightforward to make and structurally sound. But I don't much like the actual work of doweling. It's nerve-wracking, and there's a lot of potential to botch things at this stage, especially when there are many parts involved and many holes to drill, with a lot of careful alignment to be kept. To counter the tendency to lose track of what holes need to be drilled where, I take the time to set things up very carefully indeed.

The job begins with making doweling jigs, new ones for each piece of furniture. The jigs are simply pieces of hardwood cut to the length of the joint to be made and sized to the thickness of the parts to be joined. The jigs don't take long to make, but I take care to make them precisely—a precise jig will save a lot of time and trouble. I drill the guide holes carefully at the drill press. Each jig has a block of wood at the back to reference it off of the back edge of the workpieces, keeping everything in alignment. For this sideboard I also needed a few spacers to locate the jigs properly when I was joining parts of differing widths. For the basic joinery in the sideboard, I made two jigs: one ¾-in.-thick jig for the case sides and one ⅝-in.-thick jig for the center partitions, to match the thickness of these components. Each vertical-to-horizontal joint in this sideboard has 12 to 14, ⅝-in. dowels spaced on approximately 1-in. centers. I chose a dowel diameter slightly on the small side to reduce the risk of corrugating the outside of the panels, which can be caused by dowel expansion and hydraulic pressure from the glue if the dowels are too close to the outer surface.

For setting the jigs on the horizontal parts with maximum accuracy, I made a ¼-in. plywood spacer sized exactly to the interior width of the sideboard. I marked the precise centerline of the spacer and marked centerlines on all of the horizontal parts. This enabled me to locate the doweling jigs accurately and easily even though the horizontal parts were all left long at the time of doweling. I wanted them long so that I could dry-assemble the cases and

THEN THEY ARE SPLINED AND GLUED

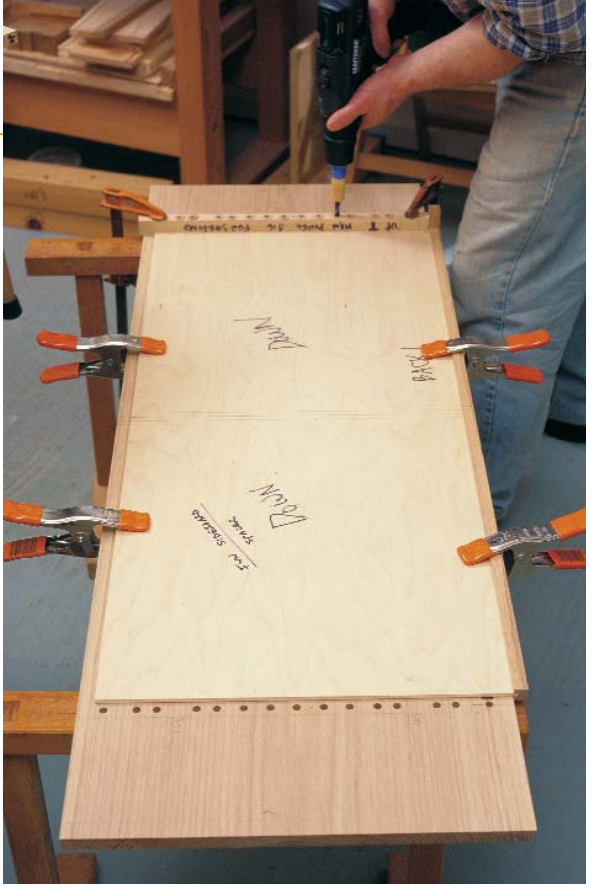
Legs: the heart of the design. *To bring visual unity to a sideboard comprised of stacked components, the author designed legs that carry through the cases and the base. He achieves continuity of grain and color by shaping the legs and the side panels as full-height pieces and cutting them apart. Where horizontal members interrupt the flow, he removes a matching amount of material from the legs and sides.*



Special cauls, kerfed and corked. *For gluing the legs to the case sides, the author makes kerfed cauls that conform to the curve of the legs. A layer of cork on the unkerfed edge protects the workpiece.*

DOWEL DUTY

Registration, quick and clean. *The author makes custom doweling jigs for each new piece he builds. He sizes the jigs to the thickness of the stock, so they are automatically in proper alignment when clamped to the workpiece. He uses a pair of shopmade depth stops, one for end-drilling and a longer one for the shallower face-drilling. A level in the drill body helps him keep the drill horizontal.*



Guide board eliminates layout. *With their varying setbacks and overhangs, the horizontals in the sideboard differ in length. But the author can dowel them all with the same template because it works off a centerline registration mark. A strip of wood tacked to one long edge of the template serves as a stop.*

look at them before deciding how long the various setbacks and overhangs should be.

Drilling the dowel holes took an entire day, the first part of it given over to making sure everything was properly prepared, clearly marked, at hand and thoroughly thought through. Then I spent about eight hours anxiously checking, double-checking and finally drilling some 320 holes.

The fit of the dowels in the holes is very critical in glue-ups with this many dowels (80 in each box); a bit too tight and it may be impossible to pull the joints together even with all of the clamps in the shop. In this case I ended up shaving all 160 dowels with a handplane to get them just right. Also, because of the time involved in actually applying the glue and getting the joints together, I glued each case in two separate operations; first gluing the sides to the bottom, then to the top.

I have considerable faith in the integrity of dowel joinery, but still I decided to reinforce the cases at each corner with a long wood screw driven into the center of each leg. These screws were insurance against mishandling of the sideboard. It's always possible someone might try to carry this sideboard away by its overhanging top, perhaps even full of heavy dishes. At the top I used a different method of reinforcement. Screws weren't appropriate there because even if the holes were carefully plugged with tapered face-grain plugs, they would have interrupted the pristine top surface. So instead I made a pair of supports for each end of the top. These supports are glued and screwed to the underside of the top and

PREFINISH BEFORE GLUE-UP

Tape it off and finish it up. *Finish is applied to some parts before assembly to make glue cleanup easier. Areas that will receive glue are taped off.*

Component construction greatly simplifies assembly. *Instead of one big, unwieldy, hair-raising glue-up, there are four smaller ones: two cases, one base and one drawer box.*

Photos, this page (bottom right) and facing page (top left, bottom right): Author

dovetailed into the case sides, mechanically locking the top to the sides.

Finish before reaching the end

I begin applying finish as the parts of a piece are made, before the gluing-together starts—sometimes even before the parts are completed. Although it is a little time-consuming at certain stages of the work, this method saves time in the long run by making errant glue so easy to clean up. Not all surfaces need to be prefinished—just those that are involved in gluing operations or those that will be difficult to finish after assembly. I tape the glue-joint areas before applying finish.

I use only two types of finish for fine furniture: oil finishes (usually a Danish oil) and shellac, both with an overcoat of wax. Either is suitable for use on white oak, but I think the padded-on shellac finish—sort of a French polish but without the intent to fill the pores fully and without the technique associated with that aim—is the more delicate of the two methods, so that's what I chose. For nearly all of the parts of this piece, I used two coats of padded-on shellac. The exceptions were the Port Orford cedar door panels, which required more, and the top surface of the sideboard, which, for durability in use, got a sealer coat of shellac and then several coats of oil. The visible end-grain areas generally needed an extra coat or two of shellac and some extra polishing between coats. When the shellacking was completed, I applied an overcoat of furniture wax and buffed up the sheen I wanted—a little, but not too much.

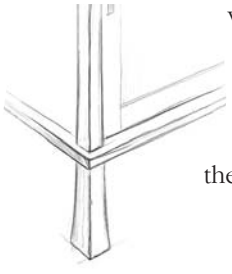
And now for my appalling confession: Despite being skilled with a handplane, I rely heavily on the use of a random-orbit sander to prepare wood for finishing and even between coats of finish. It simply is faster when there's a lot of work to do. I reach for the handplane whenever it looks as though I can get a job done quicker and better that way, but most surfaces get sanded with the random-orbit sander.

At the start of this sideboard job, I had the panels thicknessed by a wide belt sander, so now I could start the random-orbit sanding at 180 grit. I followed that with 320 grit. I used the random-orbit machine even after I'd begun applying the finish, knocking down each coat of shellac with progressively more worn 320-grit discs until I had the fine finish I wanted. On smaller parts I often sand by hand, but it's necessary to go to 400 or 600 grit and sometimes the finest steel wool to get a finish equivalent to the one produced by the sander at 320 grit.

I drilled the holes for the shelf pins after the parts were completely finished. To get a very clean, polished, slight chamfer around the rim of each hole, I used a pointed aluminum-oxide grinding tip in my cordless drill, instead of a countersink bit.

The base: expedient support

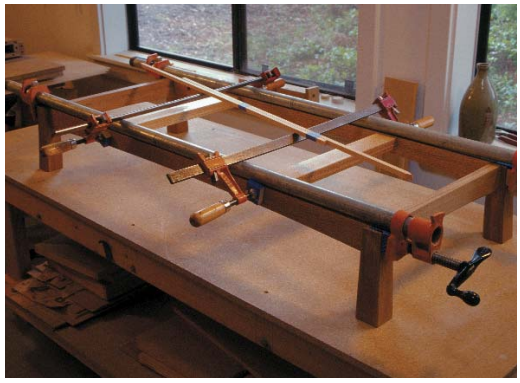
My original sketches of the sideboard (see the drawing at left) showed feet tenoned directly into the bottom of the lower case. But as soon as I looked at my mock-up, I could see that the piece would require some additional support underneath. I decided to make a base that was a separate structure screwed to the underside of the lower case. It seemed to me that a little additional mass below would be desirable from an aesthetic point of view as well. To link the base visually with the case above, I bandsawed an arch along the bottom edge of the rails, echoing the curve of the legs. The rails are fairly thick, and cross braces between the front and back rails, directly under the center of each compartment, give additional support.



The base was assembled with spline-tenon joinery, a strong, simple method that allowed me to build the whole base in a couple of hours. With spline tenons, all of the parts can be cut to exact length on the tablesaw. This makes for great accuracy, and the construction is very expedient, with no tenon shoulders to cut and adjust. I cut all of the mortises on a horizontal mortising machine using a single setup.

To avoid an awkward look in the finished legs, I planed a very slight curve on the two inside faces of each foot to echo the more pronounced sweep of the two outer faces. This is a fine point, but it lightened the stance of the sideboard noticeably.

BASE BASICS



Slim but strong. *To make a strong base without wide rails, the author made the rails 15/16 in. thick, added cross braces and notched the spline tenons for deeper penetration into the legs.*

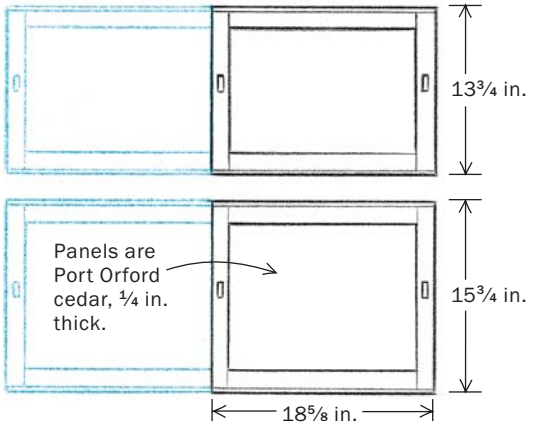
Sliding doors left open

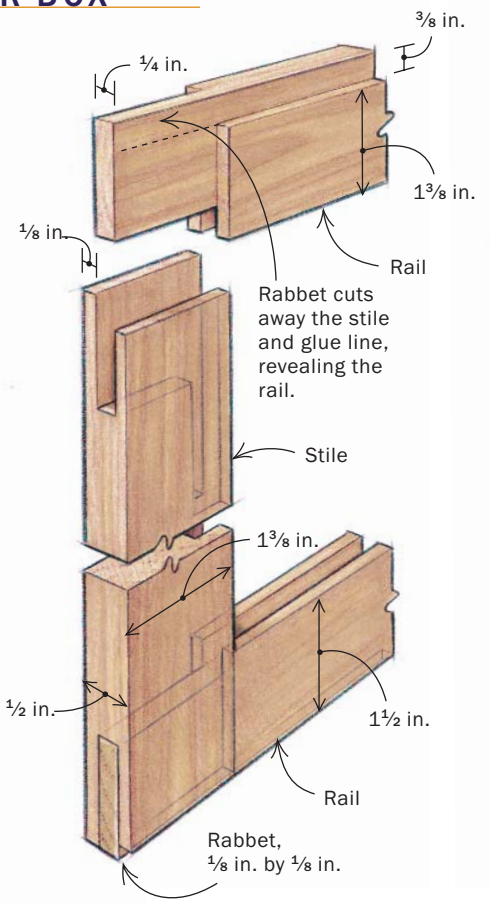
I like sliding cabinet doors. They suit my Japanese-inspired aesthetic, and they are basic to make and quick to fit. They work equally well as flat, unframed, veneered panels (even decorated with marquetry or inlay work) or, as in this case, traditional frame-and-panel constructions of solid wood. They do have limitations, both aesthetic and functional. Foremost among these are the (aesthetic) fact that two doors need to lie in separate planes, and the (functional) fact that, unless the doors are completely removed from the cabinet, only one side of it can be open at a time.

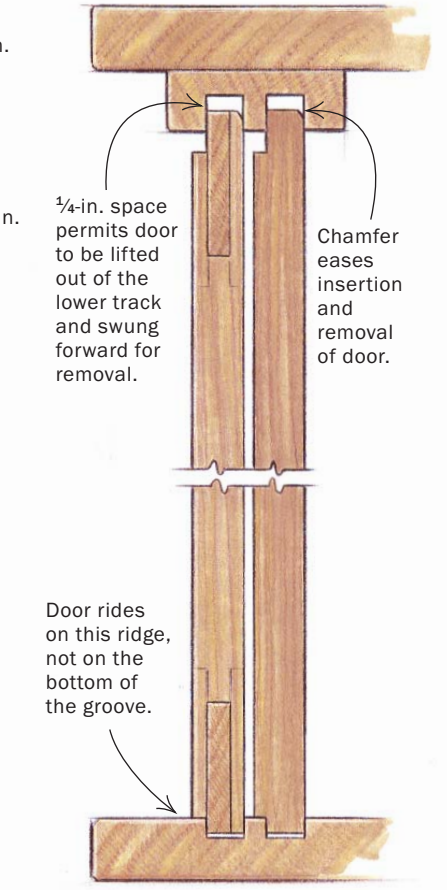
In this sideboard, these limitations worked to my advantage. Be-

SLIDING DOORS

Providing closure without hardware, sliding doors are simple, functional and elegant. Bridle-joined white oak frames surround cedar panels. Handles are scooped out on a router table against a high fence.

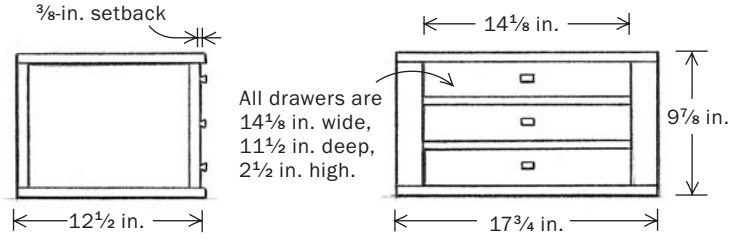


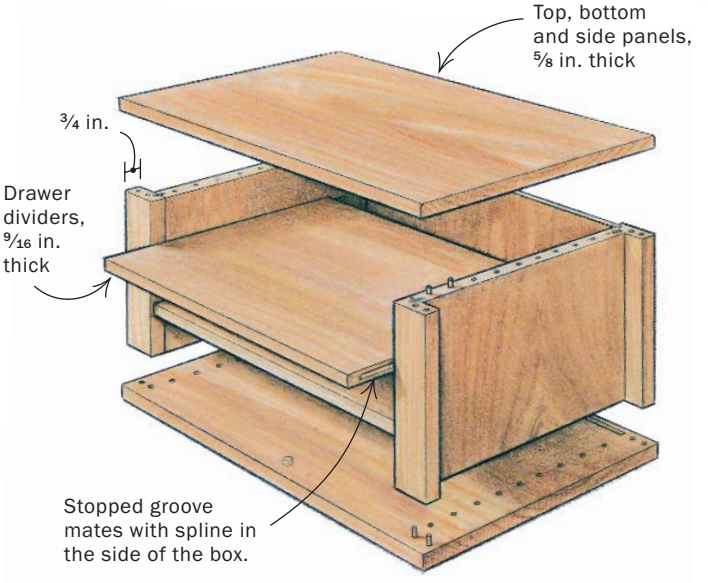




DRAWER BOX

The solid wood box is a separate component, which is indexed on a pin, and can be removed, if necessary. Inset sides facilitate fitting and create clearance on both sides of an opened drawer.





cause I was thinking of it in part as a display case, I had originally thought to have only one upper and one lower door, with a single track in each box, so that two of the four compartments would always be open. In the end I decided on four doors because it gives more versatility and still leaves open the option of using the sideboard for display and letting one door hide behind the other.

A technical point on sliding doors: I always construct them so that the tongue at the bottom of the door does not ride on the bottom surface of the lower groove. Rather, the shoulder in front of the tongue rides on the ledge just in front of the groove. This provides for very smooth running and prevents the door from jumping out of its track. It also prevents problems that might be caused when particles of grit accumulate in the groove.

The drawer box: a separate construction

Rather than building drawer pockets directly into the cases, I decided to fit the drawers into a separate structure that would sit inside the upper right compartment. I liked the idea of this

Photos, this page: Author

DRAWERS *Seth Janofsky doesn't argue the effectiveness of the dovetail joint, but for a change*

Start with a square groove. *The joint begins with blade-width grooves cut in the drawer sides. Blade height is set to half the thickness of the side. A flat-topped rip blade creates a clean, square-topped kerf.*

Minimortises. *Using a horizontal mortiser and a ⅛-in.-dia. end mill bit, the author cuts through-mortises in the drawer sides exactly aligned with the tablesawn groove.*

Long tongue. *In the first step toward making tenons, a tongue is made at each end of the drawer fronts and backs with two cuts on the tablesaw. The tongue is as long as the sides are thick.*

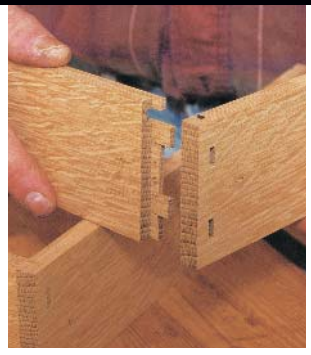
File it away. *A file is used to square up the round corners left by the mortiser. This takes time, so be sure to use a sharp file small enough to maneuver easily.*

Mark through the mortises. *To mark out the tenons, the author pushes the tongues into the grooves. Then he traces the mortises with a sharp pencil.*

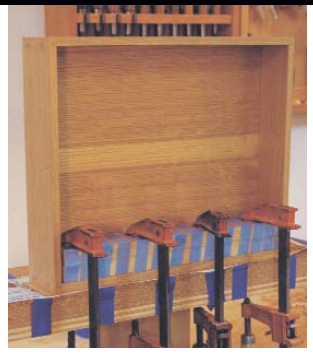
of pace he sometimes substitutes a handsome, half-blind, multiple through-tenon joint of his own devising.

Quick saw. *A thin saw makes quick work of cutting the tenons.*

Chisel out the middle. *Between the tenons where the handsaw won't reach, the author chops out the waste with a bench chisel. The waste can also be removed with the part held upright on a tablesaw crosscut sled.*



Going home. *The completed drawer, ready to be glued up and then veneered front and back.*



A new face. *Thick, shop-sawn veneers are glued to the front and back, tidying up and strengthening the joint.*

Apt joinery. *Squared-off tenons suit the author's largely rectilinear sideboard.*

aesthetically, and it would simplify the construction as well, breaking it into discrete subassemblies as I like to do.

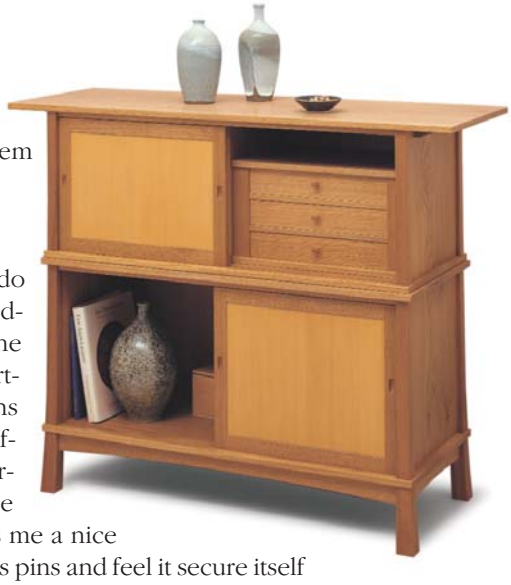
The construction of the drawer box is similar to that of the two larger cases—a basic solid wood box doweled together. But the drawer box's sides are U-shaped in plan. This permitted the box to be trimmed more easily to fit into the compartment and provided clearance on both sides of the drawers, so there is less risk of the drawers being opened into the back side of a not-quite fully opened door.

The drawer box has two solid wood horizontal dividers in it to create three drawer pockets. To hang the dividers I glued splines in stopped grooves in the box sides and cut mating grooves, stopped at the front, in the ends of the dividers.

When I was fitting the dividers, I first cut them so that they fit tightly between the box sides. Then I took the dividers to the jointer and, standing the pieces on the end grain, I took a fine pass off each end—all but the front 2 in. With the dividers trimmed this way, I could slide them home in the box easily with a little glue in the groove and have them snug up at the front nicely.

Last bit

Among the last things to do was to install the two adjustable shelves. I fitted the shelves to their compartments and made brass pins to hang them on. I cut half-round notches in the underside of each shelf to fit the pins. This little touch gives me a nice feeling: to drop a shelf on its pins and feel it secure itself snugly in place. This somehow let me finally stand back and admire the completed sideboard. □



Seth Janofsky is a furniture craftsman in Fort Bragg, Calif.

Photos, this page, top (second from left), middle (last two on right) and bottom: Author