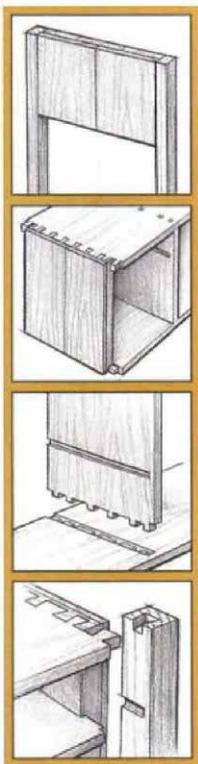


Sideboard Strategies



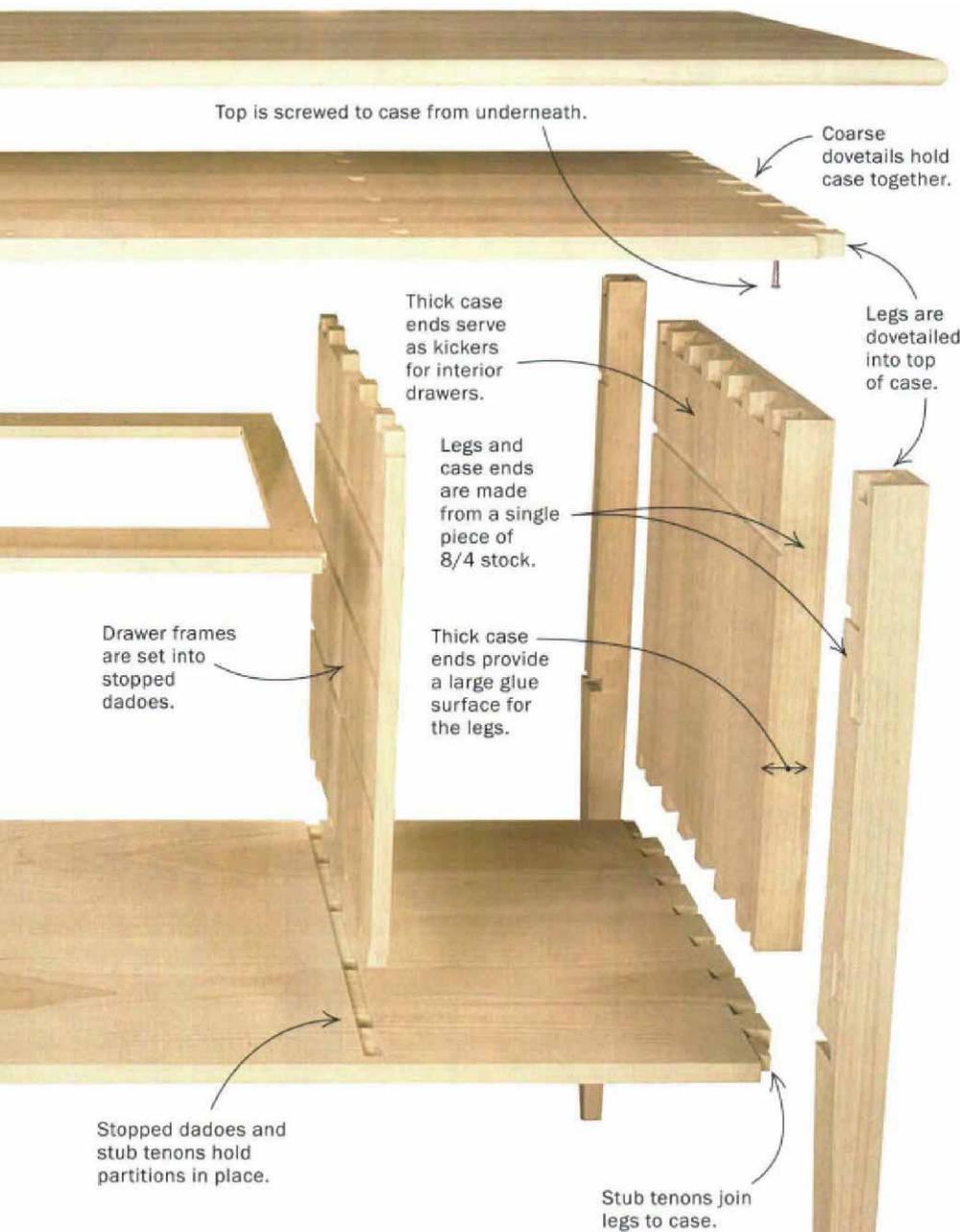
With this four-part construction system, you can design and build in any style



BY WILL NEPTUNE

It is all too easy to sketch something that looks good, only to discover that you have no reasonable way to build it. You either develop overly complex construction methods or sacrifice the design you really want because it's too difficult to build. The solution is to strike a balance between design complexity and construction simplicity. It helps to start by thinking of a piece in its most basic form, then develop a single construction system that can accommodate a wide range of design options.

I like to tell my students at North Bennet Street School that a sideboard is little more than a box with legs attached. Though it sounds oversimplified, this approach puts things in familiar terms—everyone knows



CASE SWELLS AND SHRINKS AS ONE

By building what is essentially a box turned on its side, a dovetailed design allows you to align wood so that all grain runs in the same direction, eliminating problems with wood movement.



how to build a box. It becomes a question of how to build the better box. Historically, sideboards were built using post-and-rail or frame-and-panel construction, but I prefer this method, which calls for a dovetailed box turned on its side. My alternative approach is less familiar, but when you start counting the joints necessary to build a frame-and-panel sideboard, you understand the logic of a dovetailed design. With this method, there are fewer joints to cut, and the ones you do cut aren't seen, so there's no need to be overly meticulous.

This construction system is based on a few rules concerning joinery: If a case part joins another at a corner, dovetail it; if one part meets along another's length, use multiple tenons. Dovetails and tenons are both strong joints that allow for wood movement and resist racking. Because all of the structural parts of the case have grain running in the same direction, the case expands and contracts together. Put simply, the case is still just a long, dovetailed box with legs attached.

Sideboards built using this approach may vary in size, line and style, but they retain a family resemblance based on the construction system. The mocked-up sideboard shown on these pages is the most basic variation of this system, but it lays a foundation that can be used on more complex designs. Once you understand the construction system, you can focus on design and build in styles ranging from Federal to Arts and Crafts (see the story on p. 47).

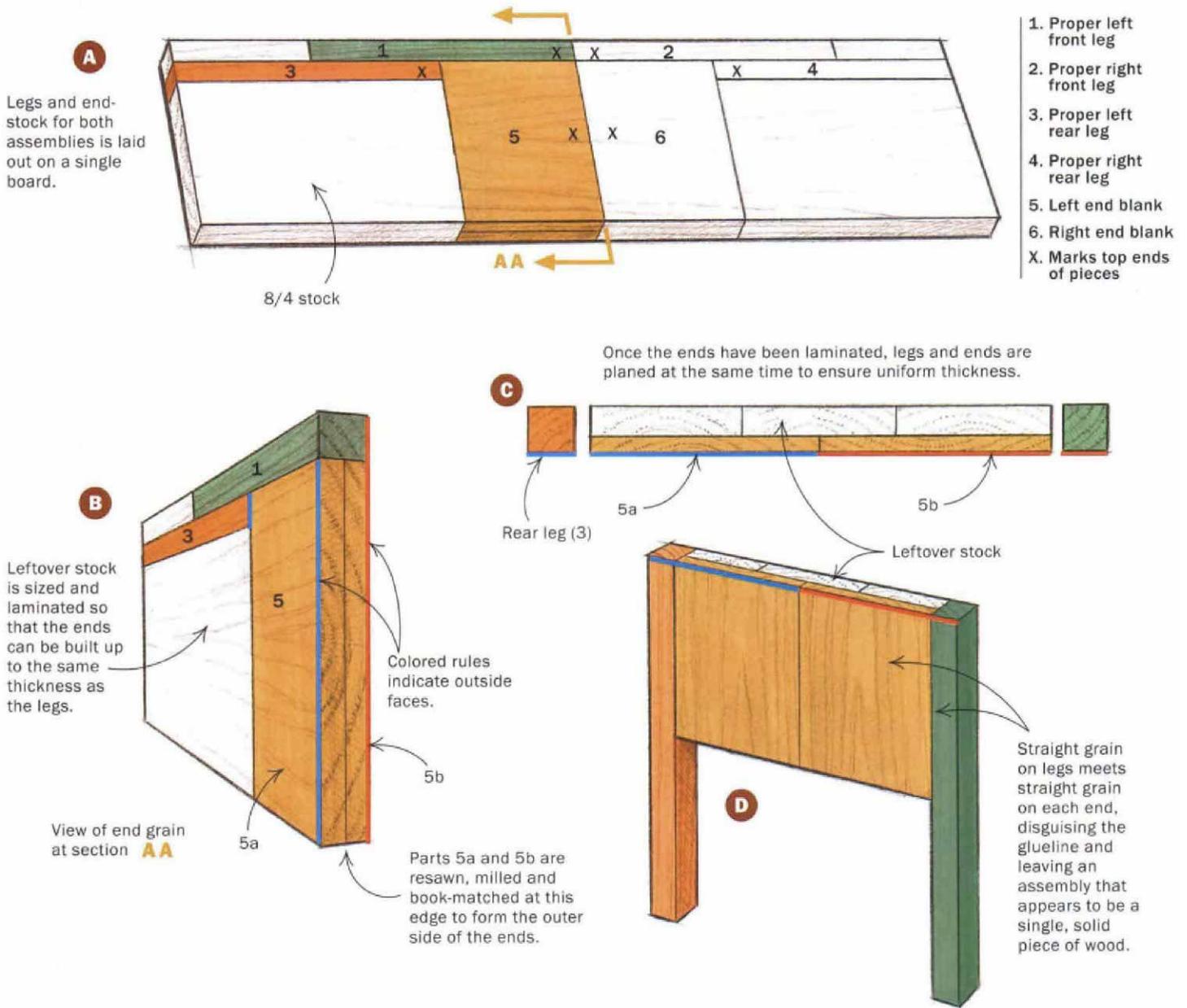
Basic sideboard design

A sideboard is typically a tall case piece that's often 40 in. high and taller, a convenient working height for a standing person. The height of a sideboard makes anything displayed on its top more visible because it isn't overpowered by the forest of chairs surrounding a dining-room table. A sideboard is also strongly horizontal because the tall legs hold the mass of the case off the floor and because the case length exceeds the height. The open space below the case keeps the sideboard from appear-

1. BUILT-UP ENDS

USING THE GRAIN TO MAKE INVISIBLE JOINTS

By carefully planning the cuts, a single 8/4 board can be laid out to form leg-and-end assemblies that appear to be a single, solid board. The legs are cut from the straight-grained edge of the board, and the ends are book-matched and laminated from resawn stock. When the legs join the ends, you're left with virtually invisible gluelines.



ing too massive, an effect you get with many large case pieces. With lengths of 4 ft. and 5 ft. being common, the facade can be divided using a combination of drawers and doors (see the drawings on p. 49).

In designing the mocked-up poplar sideboard seen on these pages, I wanted a simple piece with a country feel. In form, it refers to the Federal period but avoids the use of veneers, inlay and hardware seen in period, high-style examples. To simplify construction, I decided on a small, four-

legged version without the curved facade often seen in Federal examples. Country furniture makers made similar design choices in earlier times, using the grain and figure of local woods or even painted finishes to give a piece visual interest. These designs rely on proportion and line to create a sense of balance and harmony.

The construction system

One key feature of this construction system is the use of built-up ends, which are thick-

nessed to the same dimension as the legs. The thicknesses of the ends provide large glue surfaces for the legs. In addition, the top and bottom join the legs and ends without having to be notched around the legs. This structural solution creates a lined interior for the cupboard areas.

The partitions that divide the facade are not only design variables, but they are also structural elements. The multiple stub tenons tying the long top and bottom together eliminate sagging almost complete-

ly. All of the drawers run on frames let into stopped dados.

In a real project, if saving primary wood is important, all of the case parts other than the legs can be made of a secondary species and faced or edged with your primary wood. Using a less dense secondary species also saves weight.

Using built-up ends—Even though this entire mock-up is made of poplar, I laminated the ends the same way I might for a sideboard built in cherry or mahogany. By resawing a piece of 8/4 stock, you're able to show a book-matched pattern on the ends. The inner part of each end is glued up from the leftover pieces of the 8/4 stock. This is a nice way to keep the legs from appearing as though they were stuck on as an afterthought. This effect is enhanced by good grain matches on the legs and ends, which make each assembly look like one solid piece (see the drawings on the facing page). This is particularly effective if you can choose an 8/4 board that is flatsawn and wide enough for the edges to have growth rings running at about 45° (as seen on the end grain). This gives you straight grain on the legs, which helps disguise the glue line. As a bonus, the adjacent faces of the legs also match each other.

In the mock-up, I resawed the 8/4 stock thin, trying to avoid the green heartwood, but the thickness of the layers doesn't matter. The object is to calculate the width of each end so that little wood is lost between the ends and the legs, which would disturb the grain match. Also, you must start thick with both layers to allow for later milling. Once the inner and outer layers have been edge-glued, skim them with a handplane before gluing them together.

Alignment is much easier if you leave the parts long at this stage. The extra length allows you to nail the parts together in the waste areas when you clamp them up. The laminated parts should be given several days to move and reach equilibrium. After they are done moving, both the leg blanks and the ends can be flattened and thickened at the same time. When you trim the ends to finished length and width, remember to keep the book-match line centered and parallel to the edges.

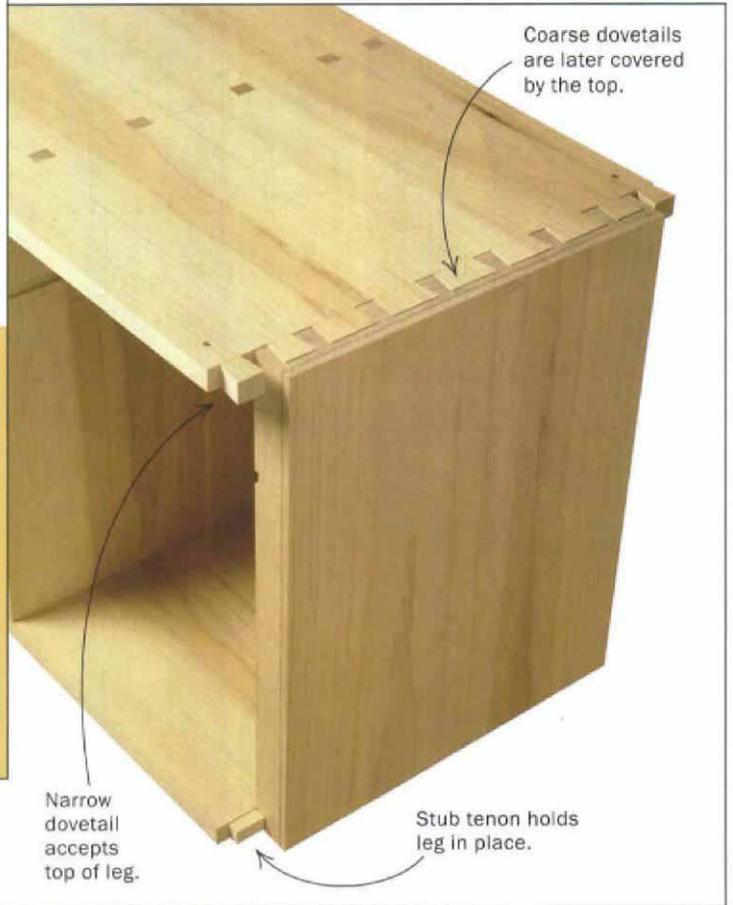
Dovetailing the case—The top and bottom of the case are milled and glued up like any large panels, then cut to final size.

2. DOVETAILED BOX



THE BASIC CASE

A simple dovetailed box is modified to accommodate the legs. Dovetails can be cut coarse (with wide pins and tails) because the top will later cover them. Narrow tails at the front and back of the top and stub tenons at the case bottom are later fit to the legs.

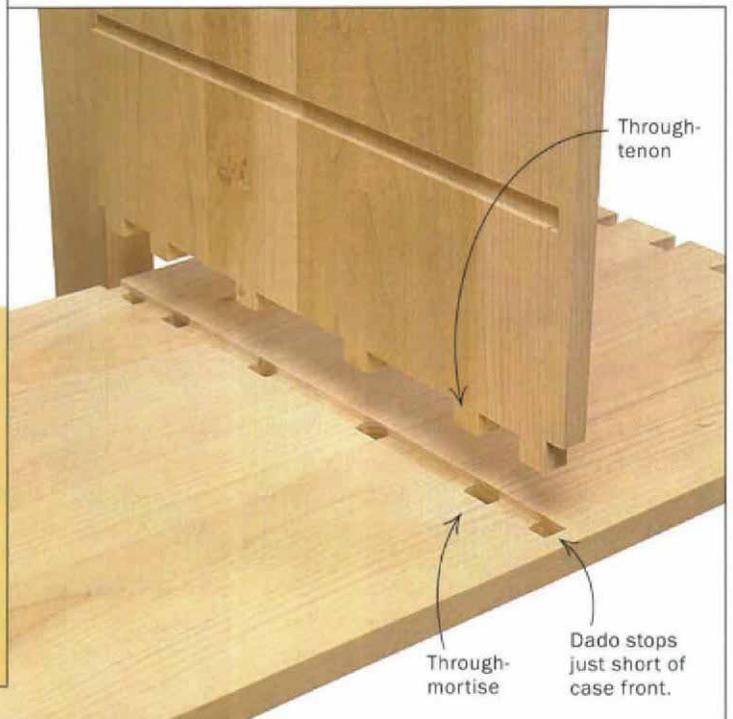


3. PARTITIONS



THROUGH-TENONS RESIST SAGGING

The partitions are set into stopped dados cut into the top and bottom of the case. Through-tenons on the partitions are housed in mortises cut into the case.

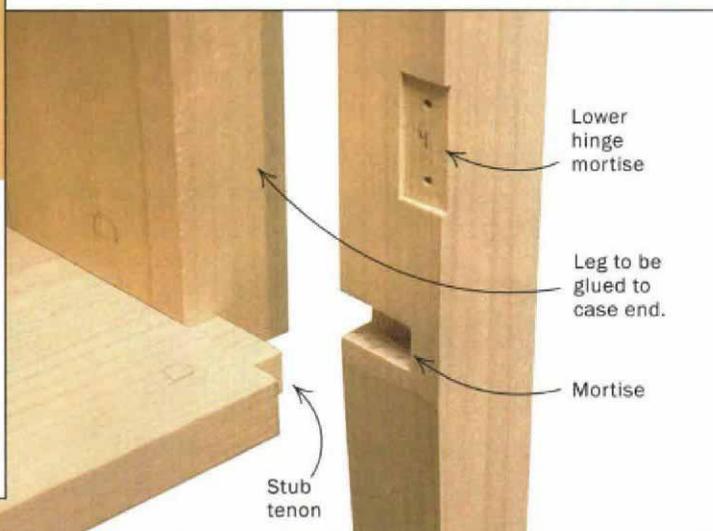
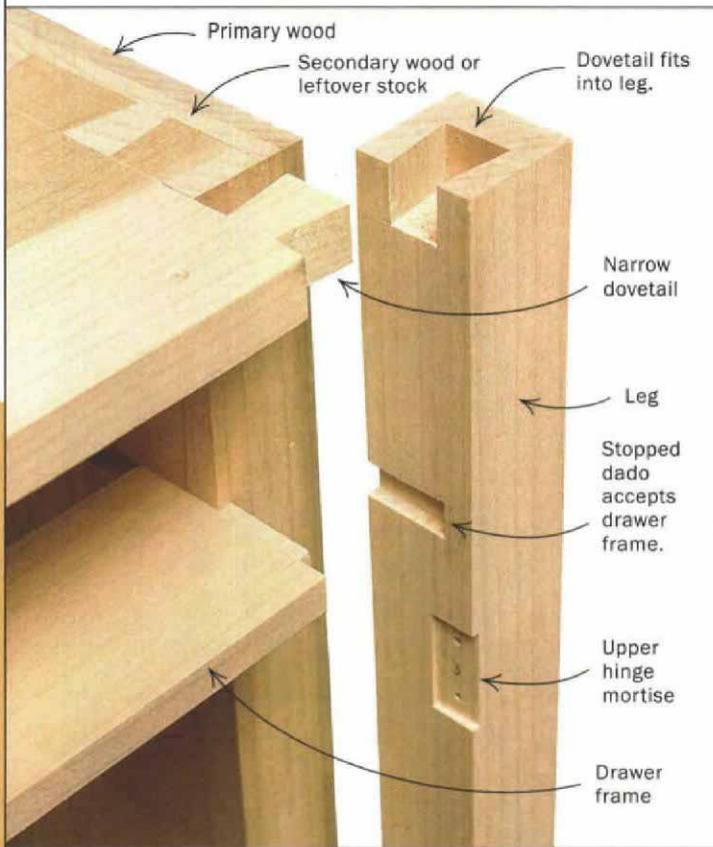


4. DOVETAILED LEGS



LEGS SLIDE INTO PLACE

By housing each leg in a narrow dovetail at the top of the case and a stub tenon at the bottom, the leg can be slipped into place from underneath after the basic case has been assembled. Stopped dadoes are cut to accept the drawer frames. Cutting the dadoes with ends and legs clamped up before assembly ensures perfect alignment. The exposed top is screwed to the top of the case from underneath.



Partitions. Tenons are positioned on the partition ends so that there is extra holding power at the edges with enough tenons across the middle to help the top and bottom resist sagging. The partitions are held in line by the dadoes, which makes fitting the thickness of the partitions to the dadoes careful work. Partitions should be cut a bit longer than the ends to leave some extra tenon length for final flushing.

Because the partitions are fully housed in the dadoes, there are only small shoulders at the front. It is very important that when clamped, the tenon shoulders bottom out in the dadoes, keeping both the top and bottom of the case parallel. Router planes can be fussy, but because the depth should be consistent, I took the time to run one through the dadoes of the mock-up.

To gauge the front shoulders, work in from both ends with a cutting gauge at the front until what's left between the lines equals the distance between the base of the pins cut on the case ends. Then add the depth of the dado and mark the space between the tenons. The trick is to get the small front shoulder to close at the same time that the end grain between the tenons bottoms out in the dado. This ensures that the top and bottom will remain parallel.

Once the tenons have been cut, locate the mortises in the dadoes. Line up the fronts of the partitions with the front of the case and mark around the tenons to establish your mortises. There is no need to run the tenons through, but it does add strength and keeps you from having to clean the bottoms of the mortises. When the partitions fit squarely into place, you've finished framing the basic case.

Attaching the legs to the case—The legs are mortised to accept the stub tenons cut into the bottom board (see the photos at left). Because these tenons and the top dovetails share the same shoulder line, the legs should register flush to the case ends. Once the top dovetails are let into the legs, you can't trim any more wood off the legs and ends, so make sure this joint is accurate before you cut it. This method puts one serious requirement on the legs. They can be sawn to shape, turned or carved, but the solid glue surfaces must meet the case ends.

To guarantee alignment, it's best to cut the dadoes for the drawer dividers using a router with the case ends and legs clamped

The dovetails that hold the case together are fairly easy to cut, either by hand or machine, but remember that the layout is different at each corner where a leg joins the case (see the top photos on p. 45). The top rear dovetails are cut narrow to make room for the back boards where the leg will be rabbeted. The case bottom has stub tenons that will be housed into the legs. These tenons are shouldered so that any later

sanding won't change the fit of the joints. Once the piece is finished, none of the joinery will be visible, so the dovetails can be coarse (with wide pins and tails).

Filling out the facade—The partition joints are somewhat fussy to cut, but they add considerable strength to the case (see the bottom photos on p. 45). Shallow stopped dadoes are used to locate the par-

Details for any style

With the construction system illustrated in this article, proportion and detail can be used to lend a sideboard a period feel. Working out a new design gives you a chance to try some of these possibilities and find a good fit for the design and style ideas of the piece you want to build. The size, shape and proportions of a piece, along with the choice of materials, finish, hardware and any embellishments, work together for an overall effect.

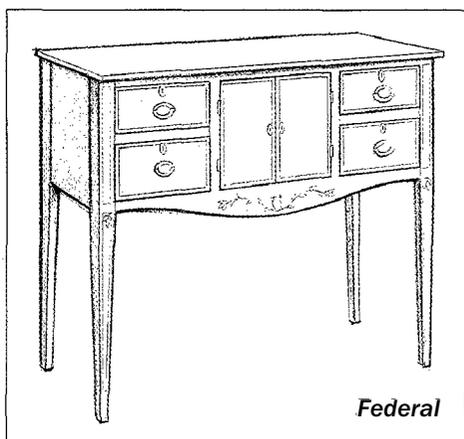
The mocked-up sideboard was designed only as a model for construction, but the size and proportions, along with the tapered legs, give it a country, Shaker feeling. This same design could be made of maple or cherry with a simple molding for the doors. I made the storage capacity as large as possible without losing the horizontal effect of the case. The central bay of drawers is wider than the side bays, partly to allow for some larger drawers but also because the narrow side bays keep the doors from looking too square. The resulting side bays have a vertical effect that frames and balances the strongly horizontal case.

Federal-period sideboards typically rely on large veneered surfaces for decoration. But a simpler, solid-wood construction inspired by the period could be built easily using this construction system (see the top drawing at left). Touches of inlay and the use of simple stringing (inlaid veneer strips) echo the effect of the more complex examples. I would use legs that are either tapered and inlaid or turned below the case bottom. Turned legs could be embellished by reeding the long tapers. The square top section of the legs could have a rectangular panel defined by holly stringing. To maintain the flat appearance of Federal veneered doors, two options come to mind: 1) a solid-wood frame-and-panel door with the panel rabbeted to be flush to the frame or 2) a mitered solid-wood frame with a veneered panel for contrast. A small, curved apron below the bottom edge of the case would soften the shape of the case. The long, slender legs and small case section give the piece a delicate appearance.

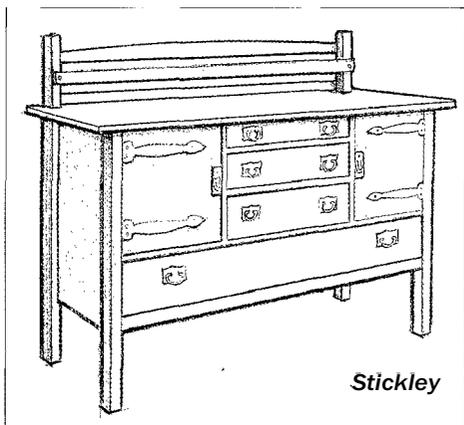
Where the Federal piece exhibits delicacy and two-dimensional patterns, a Stickley-influenced, Arts-and-Crafts sideboard should be heavier looking to emphasize its medieval inspiration (see the middle drawing). To support this idea, I would use oak, fumed or stained to look old. Unlike the other examples, the legs could be thicker to stand proud of the case. The case ends as well as the front framing members would be set back $\frac{1}{8}$ in. to make the construction distinct. The divisions of the front space enhance the overall effect: The doors are square and severe, eliminating any sense of vertical lift. The large drawer at the bottom has a slablike appearance. The entire piece looks solid and heavy.

Also under the umbrella of the Arts-and-Crafts movement is the Greene-and-Greene sideboard at left, which is based on a "Hall Cabinet" built for the Blacker House in 1907. The furniture and architecture of Greene and Greene are a bit more refined and softer than Stickley's, with more gentle curves. The piece at left is strongly horizontal—even the doors are wider than they are tall. You can incorporate these and other details typical of Greene-and-Greene designs: carved door panels or stepped cloud-lift door rails, ebony splines and details, and bordering surfaces enhanced by setbacks and rounded corners. The overall effect should balance explicit construction with softness in detail.

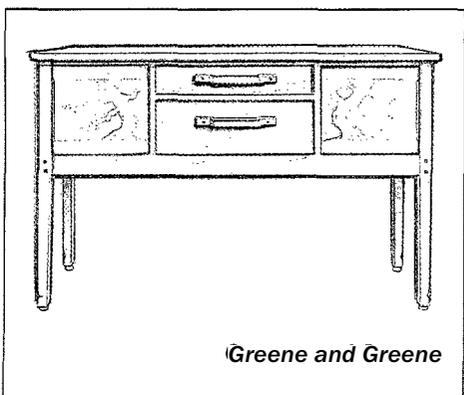
The designs included here should show the endless variety of styles that can be built using this construction method. Feel free to incorporate ideas from any traditional form or to invent your own to achieve a design that better suits your tastes.



By adding an inlaid apron and carefully choosing the leg style, a simple design turns into a Federal showpiece.

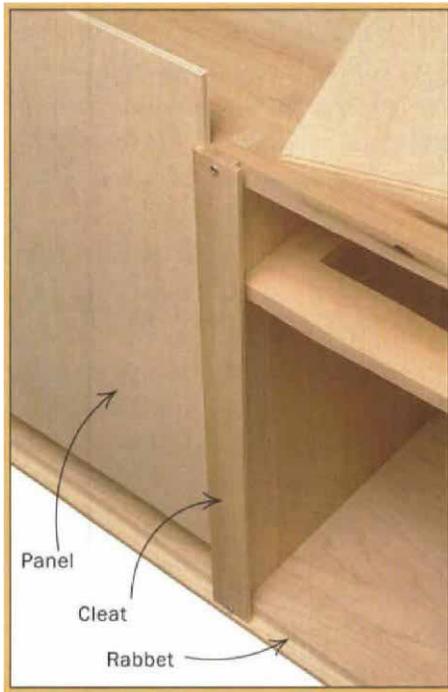


Typical of the Arts-and-Crafts movement, this design uses heft and hardware to create a solid sideboard with a medieval inspiration.



Ebony splines and details, rounded corners and carefully recessed legs can be used to build in a softer Arts-and-Crafts style.

SIDEBOARD BACK



BACK RIDGES IN RABBETED CLEATS

Rabbeted cleats are screwed to the rear top and bottom of the case. Three panels of 1/4-in. plywood slide easily into place.

up. Once the stopped dadoses have been cut, the case construction becomes fairly ordinary. Mortise-and-tenon frames that separate the drawers are glued in the front 3 in. or so but not at the back. Leaving space at the back ensures that when the case shrinks the frames don't push against the back of the case. Both the frame-and-panel doors and the dovetailed drawers are built using the usual methods, but I put small vertical stops behind the doors.

The rear legs and the bottom are rabbeted to accept the back. The back on the mock-up is a series of 1/4-in. panels held by rabbeted cleats that are attached with screws. The top is ripped even with the bottom of the back rabbets so that the back boards run up to the exposed top. (This is not critical, but it does make it easier to fit the back.) A more elegant solution would be to resaw thin shiplap boards and run them vertically across the back. The top can be cut to allow some overhang, then molded and screwed down from below.

Alternative constructions

There are a number of places where construction can be altered to save wood or to

produce a slightly different effect. People are often surprised by the use of a full-board top and bottom. While it does use extra wood, it also adds strength to the case, resists cupping at the ends and provides built-in kickers for the top drawers.

As a substitute, you could use two wide rails, with gussets or without. If your design has no cupboard space, you could use similar rails at the bottom. To allow for wood shrinkage, remember to fit any kickers with gaps at the shoulders and leave the rear tenons unglued.

The case ends could also be thinner than the legs, creating either a reveal where the ends join the legs or a recessed nook inside the case. Because of the added complexity of the case dovetails and drawer frames in the latter option, I would use it only if saving weight or wood is an issue.

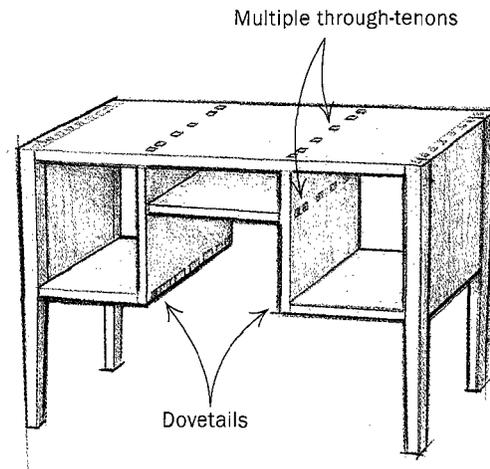
It's easy to add decorative aprons between the legs (see the bottom drawing at right). At the lamination stage of making the case ends, glue on the outer layer long at the bottom. This creates a large lap for the dovetails, which, as before, are cut flush on the inner layer of the end. The outer layer hangs down and can be sawn to shape. To add an apron across the front, the bottom can be cut back and an apron piece glued onto the edge of the bottom. If the apron is wide at the center, it can be braced from behind. If it is wide at the leg, it should be tenoned into the leg to prevent racking and twisting.

The most common change to the case is to have the bottom step up in the middle. This introduces movement, breaks up the strongly horizontal case and allows different ways of arranging the doors and drawers. This type of case construction is more complex, but it uses the same joints as before (see the top drawing at right). Just remember how this system works: If a case part joins another at a corner, dovetail it; if a part meets along another's length, use multiple tenons. When you add a step up in the center of the case, only the fitting sequence changes.

First cut and fit the multiple stub-tenon joints between the inner verticals and center bottom panel. All of the stub tenons can be cut at the same time, but put off dadoing the top until the center panel is in place. The important thing here is to keep the inner verticals parallel. If the center panel clamps up shorter than planned, it's easier to move the dadoses in the top board

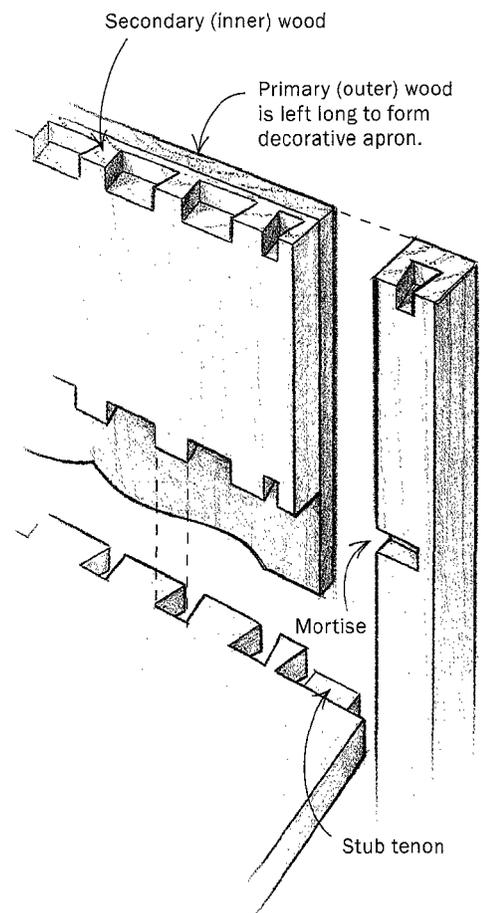
CONSTRUCTION BASICS REMAIN UNCHANGED

No matter how you change the design, the rules of construction are simple—dovetail joinery is used at all corners, and multiple through-tenons are used where a board joins another along its length.



DECORATIVE APRON ADDS TO DESIGN

With the primary wood cut long and glued onto the secondary wood, an apron is formed and can be accented with scrollwork inlay. Cutting the secondary wood shorter allows you to employ the simple construction methods used on the basic case of the mock-up.



Finding the right proportions

With a sideboard, as the case gets larger and the negative space between the legs grows smaller, the piece begins to look more massive. But take a look and compare cases 1 and 2. Case 1 is far more delicate in size, but the case divisions give a static effect because they are based on squares and 2:1 rectangles. Although case 2 is much bigger, both the vertical rectangles of the doors and the graduated drawer sizes help relieve any sense of heaviness. What if the drawers were the same size and the doors more square?

Putting the doors on the outer parts of case 3 leaves the drawer compartment overpowered, at least to my eye. Even though the initial placement of the partition gives equal divisions, once the central space is divided, it looks too small.

Case 4 uses proportions that I often rely on. Leaving 50% in the middle gives a strong impression but is not as obvious to the eye as halves or thirds. Dividing the total sideboard height in half is also satisfying but remarkably subtle because it takes a moment to see the relationship of the positive space to the negative. Overall, I like the interplay of vertical and horizontal rectangular spaces. But I would still be willing to adjust things by eye to get a more pleasant drawer spacing, for instance. For me, it's less important that the height be exactly divided in half than it is for the divisions of space to produce an impression of these proportions.

(and make the center section smaller) than it is to live with verticals that aren't perpendicular to the case.

Now fit the dovetails of the ends to the top. While cutting the outer bottom panels, you can make any necessary adjustments. The most important thing is to keep the verticals parallel. Many things can creep in to change the exact locations of the verticals, but the top now tells you the actual distance between the inside faces of the verticals, a measurement that is more important than the overall length of the bottom pieces. So if the bottom location changed or you cut the bottom a bit short, adjust the gauge line for the dovetails until the distance between them is the amount required. The slight change of length in the tails is absorbed in the lap of the pin piece. As before, the space below the raised center section can be filled with decorative apron pieces.

Proportions and style

In designing a sideboard, it's important to consider the visual effect that the proportions and construction methods will have,

then choose ones that help express the intent of the design. Before considering any decorative effects, sketch a few cases of different sizes and proportions (see the story above). Then use tracing paper to try out a variety of partition locations and to vary the door and drawer sizes. This exercise gives you a sense of how changes in proportion alter the effect. You may find yourself discarding all of these sketches, preferring to develop a second set using your eye to judge correctness.

The methods used on the mocked-up sideboard should provide the basics of construction. Most of the alternatives discussed don't really change the construction methods much. They are additions to the basic case that either save wood or provide surfaces for design options. More complex cases are possible, but they are all offshoots of this basic method. You can choose details to design a sideboard with a refined period look, or opt for something more contemporary. □

Will Neptune teaches woodworking at North Bennet Street School in Boston.

