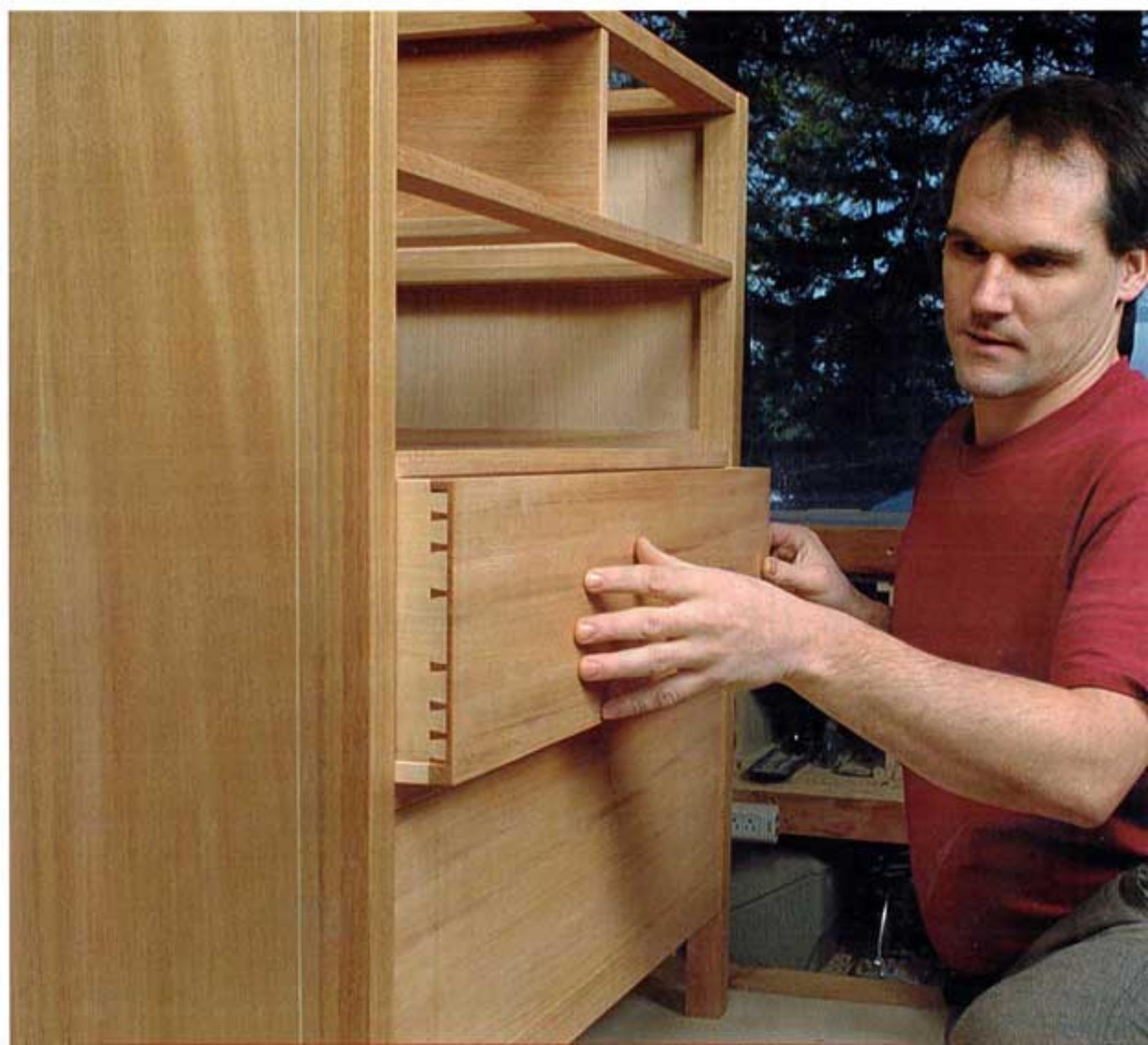
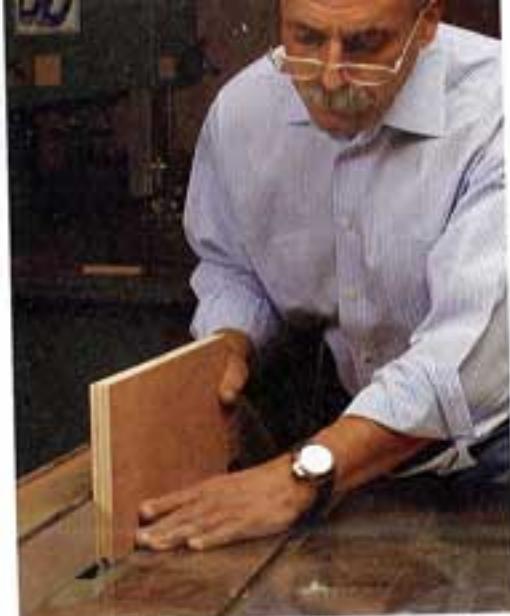


THE NEW BEST OF FINE WOODWORKING

# Designing and Building Cabinets



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# Making Big Cabinets Manageable

BY NIALL BARRETT



THE AUTHOR USES small parts and knockdown hardware for his cabinets. Parts easily fit inside his standard minivan.

# A Game Plan for Big Cabinet Jobs

Over the years, I've built close to 20 libraries for residential clients. To me, these rooms of cabinet-work and millwork are interesting for their variety. A library—more than any other room in a house—brings together a lot of different components. Case work, shelving, drawers and pull-outs, frame-and-panel doors, glass doors, paneling, and unique moldings all make up the finished job. Case

work may vary from simple bookcases to more elaborate storage units for television and audio equipment. But in the end, they're all just plywood boxes dressed up to look good.

For a large and complicated job like this one (see the photo below), I always measure the room twice, on two separate days, to reduce the chance of making a mistake in laying out and sizing the work. By

BY JOHN W. WEST

**ON ANY JOB, particularly those that are large and complicated, accurate measuring can mean the difference between success and failure.**



# Cabinets Built for the Long Haul

BY BILL CROZIER

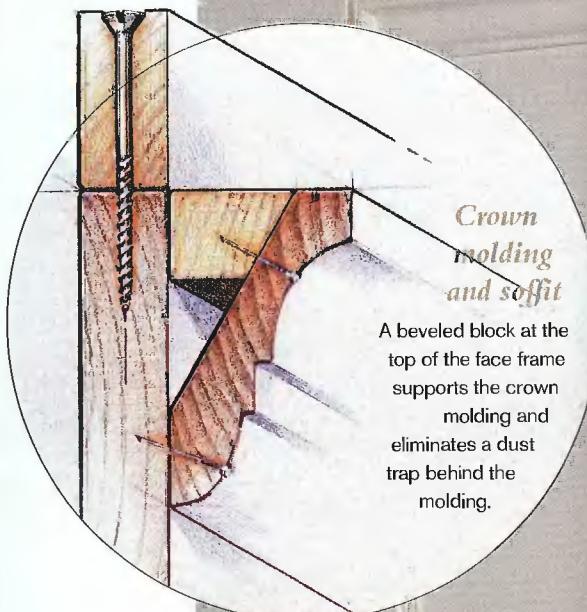
**F**or the past several years I have had a lot of clients in New York City, about 175 miles away from my cabinet shop in Providence, R.I. When I finish the cabinets in the shop, everything gets packed in my truck, and I head down Interstate 95, one of the most heavily traveled roads in the country. Some of the roadway bumps are more like jumps, and some of the potholes are more like sinkholes. It's a jarring ride, and if you're not going 65 mph, you're in danger of getting run off the road by everyone else who's going even faster.

Typically, the cabinets I build require the fitting and hanging of numerous doors and drawers. And as anybody who has hung even one door or drawer knows, precision in the execution is of the utmost importance, especially if the job is going to be made to last for a long time, to continue to work properly, and to survive the trip to the big city.

I construct cabinetwork in such a way that the final product meets many criteria. The cabinet must be incredibly strong, be very, very square, and take lots of abuse without showing signs of wear over a long period of time. The last and most important criterion is that the construction techniques be based around machinery that I have in



**CAULING ALL CLAMPS.** Strips of wood, called cauls, are placed between the clamps and the face frame to prevent marring. The author uses numerous clamps when gluing the face frame to the cabinet's plywood carcass.





A UNIFYING THEME. Latticework is used on all of the cabinet doors. Some intersecting members are pinned using brass, colored an antique brown.

## Extraordinary Built-Ins

BY ROSS DAY

**A** few years ago, two women walked into my shop unannounced. One of them was the daughter of a client; the other was her interior designer. They were familiar with my furniture and asked whether I would consider making built-in cabinets for them. I said I was not doing cabinets anymore, just furniture. But the women said they didn't want cabinets in the traditional sense. They were looking for built-ins that looked like high-quality furniture.

My curiosity was piqued, because I had never done anything like this before. Case-good construction and furniture making really are two separate disciplines. Built-in cabinets generally are utilitarian in nature. To keep costs under control, the choice of materials and construction follow certain predictable paths. For one, doors often are attached with large European-style hinges, and drawers are usually set on metal slides, all of which make for easier adjustment and faster construction. Cabinets usually are



BY COMBINING HIS FURNITURE-MAKING SENSIBILITIES with good case construction techniques, the author designed and built this bedroom furniture that looks like high-quality built-ins.

# A Woodworker's Guide to Medium-Density Fiberboard

BY JIM HAYDEN

**M**edium-density fiberboard, or MDF as it is more commonly known, is the newest of the furniture-quality wood composites. Because of its dense, uniform composition and flatness, it has surpassed plywood and particleboard as the sheet good of choice for fine work and more routine uses.

Pre-finished faces are flat as the slate on a pool table, which along with its dimensional stability makes it an excellent substrate for veneer. The edges machine well, with no chipout, and MDF accepts a full range of joinery and fasteners.

But if you have never seen a 4x8 or 5x8 sheet of MDF or have never even heard of MDF, you have plenty of company. MDF has been an industrial product for its entire 28-year history, with most shipments earmarked for furniture factories and cabinet producers. Only recently has it become more available to retail consumers and small shops. Once you have some MDF in your shop, you may find, as I have, that it is also good stuff to make some of your jigs, fixtures, and templates.

Whether you use it for jigs or the substrate for fine veneered furniture, there are some special tricks and tips for using MDF. I'll share what I've learned from my own

experience and from research done for the National Particleboard Association<sup>SM</sup> (NPA), which includes eight of the nine MDF companies, as well as from the reactions of woodworkers who regularly use MDF in the cabinet shop of the Arthur M. Sackler and Freer Galleries in the Smithsonian Institution (see the photos on p. 34).

## Machining MDF

Because it's homogeneous (see the inset photo on the facing page), MDF machines better than plywood or particleboard and even some natural woods. There are no layers or chips, brittle edges, knots, or grain. I routed all 15 types of MDF made in the United States, courtesy of the nine MDF companies (see the photo on the facing page). The boards share a sameness in meeting industry standards: They match in density and superb flatness. They differ because the trees harvested near the plants differ. The wood chips, shavings, and sawdust (or residuals) from the local sawmills and plywood mills are the raw material of MDF. Also, the companies use proprietary formulas, thus adding a few minor, and in some cases, a few major differences, such as formaldehyde content.

# Working with Synthetic Countertop Materials

BY KEN PICOU

**S**ynthetic countertop materials are often specified for kitchen and bath installations as well as for most office furnishings. Their durability, low maintenance, and, at least for the plastic laminates, their comparative inexpensiveness as a countertop material make them an excellent choice anywhere you don't want to worry about ruining wood. Moreover, they'll actually protect the custom cabinets you've built down below by keeping liquids away from the woodwork.

That's why every professional woodworker should have some familiarity with how to work plastic laminates and the

newer solid surface materials. Even if you're a hobbyist, knowing how to work with these materials can save you money and open up your options. Working these materials isn't difficult, but because they're so different from wood, it helps to understand a little about them and the special tools and materials they require.

## The Materials

The countertop material we see most commonly, like Wilsonart®, Formica®, and Micarta®, is made of kraft (grocery bag) paper saturated with melamine, the plastic that was used to make those unbreakable



**SYNTHETIC COUNTERTOP MATERIALS ARE DURABLE, VIRTUALLY MAINTENANCE-FREE, AND EASY TO WORK.**  
Plastic laminate with only its top layer colored is the least expensive (left), followed by laminate colored all the way through (center), which costs about three times as much. Solid surface materials (right) are more expensive yet, but look like natural stone and can be refurbished if scratched.

# No-Hassle Panel Handling

BY SKIP LAUDERBAUGH

**W**hen you need big, flat panels that are stable, smooth, and ready to be cut, you just can't beat sheet goods. But moving plywood, melamine, or medium-density fiberboard (MDF) is a backbreaker. A single 4x8 sheet of  $\frac{3}{4}$ -in. MDF weighs almost 90 lb., and it's terribly awkward to maneuver, especially by yourself.

I used to think that schlepping panels by hand was a necessary evil in my cabinet-making business. Like many small-shop owners, I didn't have the space or the budget for material-handling equipment like a forklift. I stored panels near my saw in a stack. But it seemed whichever panel I wanted was always buried at the bottom of the pile. The day I needed a panel that was



# Paint-Grade Cabinets

BY LARS MIKKELSEN

**M**ost of us who work in wood love its color, grain, and texture, and we usually build to show off these characteristics. So when a client called and asked me to make a built-in stereo and display cabinet that had to be painted high-gloss white, I hesitated a little. But when I saw his house and the room the cabinet was to go in, it was obvious to me that paint was what this job called for. It is a modern house, sparsely furnished, with light-filled rooms defined by strong geometric forms. It was an excellent setting for a built-in cabinet that blends architectural and furniture detailing, and a good place for paint. Once I had accepted the logic of a paint finish, and also had accepted the job, every subsequent move I made was affected by the choice of finish—from decorative and structural decisions through selection of the materials to construction and sanding.

## Planning for Paint

There are all grades of paint finishes, and it's important to have a clear idea of what you are aiming for before you begin. I talked with the client at length about the level to which the painting should be done. We wanted something well above the average wall-and-trim job, but taking it to the level of a grand piano would have made the cost

of the prep work and the painting prohibitive. So we agreed to try for something in between: A bit of grain texture might show under careful inspection, but the overall impression should be clean and unblemished. With an understanding of what we both expected, I was ready to begin.

When designing for a clear finish, the color and grain of the wood are often the central point. A big, flat panel can be spectacular if the grain is right, and curved grain along a focal axis can pull a piece together and make an otherwise very plain design a thing of beauty. All this is lost when you paint. What you gain in return is beautiful clean shadow lines, undisturbed by grain pattern and texture. Paint emphasizes the volume of intersecting planes, and I took advantage of this in the design of the cabinet. The piece was to be built into an alcove formed by a series of sharp-edged, squared-off arches that stepped out into the room. I adapted this step pattern for the cabinet's detailing, echoing and altering the step motif, playing off it without exactly reproducing it. I would have designed differently for a clear finish because the distinctive geometric patterns and proportions I settled on would have seemed cluttered and confused had they not been painted.

# Solid-Wood Edging for Plywood

BY STEVEN COOK

A LIGHTLY BOWED CAUL, faced with felt, needs only a few clamps to apply even pressure on plywood edging.

Plywood cabinets are great: strong, quickly assembled, and relatively light. But what do you do with all those raw edges? Veneer tape is certainly the easiest way to cover an edge, but I've found that sooner or later the tape chips and frays. An edge made of  $\frac{1}{4}$ -in.-sq. stock stays put, but it looks clunky, especially around a cabinet door. I experimented with a number of

ways of concealing plywood edges before finding one I liked.

I now use  $\frac{1}{8}$ -in.-thick edging and glue it to the plywood before the cabinets are assembled. The look is clean and sophisticated, and the quality of the finished product is obvious. It's sold many jobs for me.

The secret to using such thin edging successfully is in the clamping. The glueline must be even and free of gaps. Rather than using heavy cauls held flat with many clamps, I use light bowed cauls faced with dense felt. A clamp on each end of the panel is all I need because flattening the bow presses the felt face against the edging from end to end of the panel. I get a clean, even



FINISH THE EDGES OF A DOOR WITH A  $\frac{1}{8}$ -IN. ROUNDOVER BIT. Run the sides by the top and bottom to cover the end grain.

# Dressing Up Plywood Cabinets with Face Frames

One of the first face frames I built was a nightmare at every step. It was a maple behemoth, more than 11 ft. long, for a row of cabinets I had built at the job site. When I glued up the frame in my shop, the dowel joints would not line up until I fairly beat them together. I applied the finished frame on site just as a thunderstorm blew in. I spread white glue on the back of the frame and used two hands, two knees, and my forehead to hold

it in place. A lightning bolt took out the power at about the third nail. As I set the frame by kerosene lamp, I decided face frames must be the nastiest job invented.

I have made plenty of face frames since then, and they don't seem nearly as difficult anymore. I now make them with mortise-and-tenon joints and attach them to carcasses with biscuits or with counterbored and plugged screws.

BY JOSEPH BEALS

**FACE FRAMES COMPLETE A CABINET.** The author fits a face frame to a plywood carcass, giving the cabinet the appearance of solid-wood furniture.



# Fine Furniture from Plywood

BY  
MARK EDMUNDSON



**INCORPORATING CUSTOM THICKNESSES, matched grain and seams, and solid-wood details will help shopmade furniture beat the plywood box look.**

## Selecting Sheet Goods



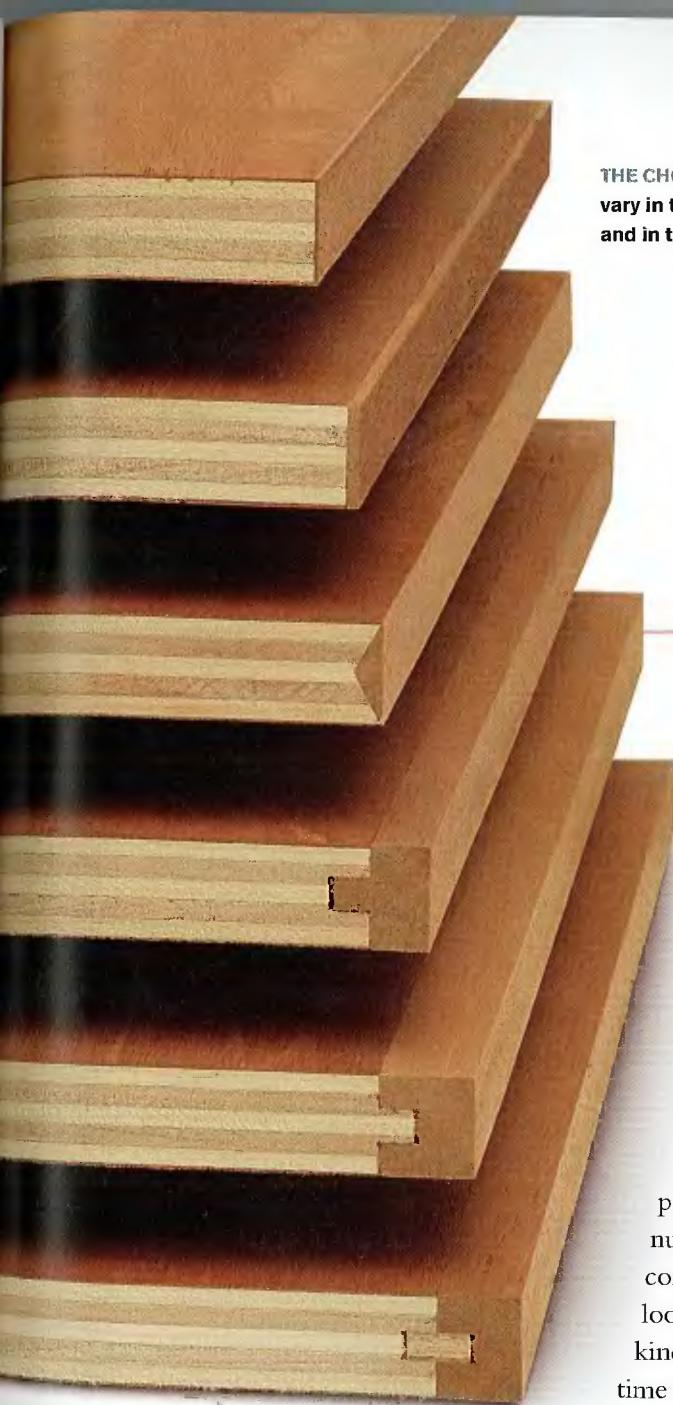
**SOME OF THE FINEST LOGS** end up as plywood veneers. Most hardware plywood dealers sell attractive sheet goods in a variety of common species, featuring rotary-sliced, book-matched, and quarter-sawn veneers.

**W**oodworkers can choose from a wide selection of hardwood plywood. Whatever you want is likely to be available somewhere, especially if you live in a city. And if your dealer doesn't have it in stock, the dealer can order it from a supplier. Most places carry a pretty good selection of  $\frac{1}{4}$ -in.-thick hardwood plywood (another reason to use my sandwich system rather than  $\frac{3}{8}$ -in.-thick plywood). If you're forced to order something sight unseen, try to be as specific as you can about your needs. Most places will let you decline something if it's not up to your expectations.

You'll most likely have to make decisions about veneer slice, core type, face grade, and back grade. I put the highest value on the veneer slice, which is the

manner in which the veneer has been cut. The best choices for the exterior are either a plain-sliced or quarter-sliced veneer. Both of these are cut in a straight line, duplicating the figure of sawn lumber. Rotary slicing involves centering the log in a lathe and turning it against a broad cutting knife. The grain pattern does not match that typically found in solid wood.

For a hardwood plywood core, I prefer MDF because there's no chance of a void being telegraphed onto the surface veneers. The face grade will most likely be A if you've chosen plain- or quarter-sliced veneer. It's also helpful to know that veneer-core plywood tends to run a little under its stated size, usually by a



THE CHOICES FOR EDGING PLYWOOD vary in their complexity and durability and in the time they take to execute.

## Six Ways to Edge Plywood

The choices vary in their complexity and durability and the time they take to execute.

To the world of woodworking, the innovation of plywood ranks right up there with the invention of the table saw. It's hard to imagine building some furniture and cabinetry without it. Plywood gives you the relative stability and flatness of a 4x8 panel, combined with the beauty of select veneers. You also get a variety of thicknesses, from  $\frac{1}{8}$  in. to  $\frac{3}{8}$  in. on stock items and up to  $1\frac{1}{2}$  in. on special orders—and you get all of this at a reasonable price. The challenge when using plywood is, of course, what to

do about that ugly laminated edge. The goal is to create an edge treatment that looks like a continuation of the veneered surface without an obvious seam. You can achieve that goal with a simple layer of veneer or a more complex edge treatment that requires sophisticated joinery techniques.

The decision about how to treat a plywood edge can be influenced by a number of factors—esthetic and design considerations (how do you want it to look?), function and durability (what kind of wear and tear will this edge face?), time and labor (how much of either do you want to spend?). The choice should depend on the planned use of the furniture piece or cabinet component. For example, a thick, solid edge would be appropriate for the exposed edge of a cabinet carcass. But for shelves contained and protected within a cabinet, an iron-on veneer edge would probably be sufficient. What follows is a look at the choices, from the easiest to apply but least durable to the more complicated versions that take longer but offer more protection.

BY MARIO RODRIGUEZ

MARIO RODRIGUEZ teaches woodworking in New York City and is a contributing editor to *Fine Woodworking*, as well as the author of several woodworking books.

# Frame-and-Panel Doors: An Illustrated Guide

BY

GRAHAM BLACKBURN

**B**efore the advent of frame-and-panel construction, doors (and their owners) were at the mercy of wood movement. Solid plank doors were unruly—likely to split, warp, and twist. Subject to expansion and contraction across their entire width, they'd gape open when the weather was dry and swell shut when it was wet. Frame and panel changed all that. Instead of ignoring or resisting wood movement, frame and panel was designed to accommodate it.

Frame and panel soon became one of the indispensable building blocks of work in solid wood, used not just in doors but in all sorts of case construction and paneling. Over the centuries, the range of its applications has been equalled only by the diversity of stylistic treatments it has received.

Given all this variety, where does a woodworker start when designing frame-and-panel doors? With the structure. It is my feeling that before you can make something look good, you have to be able to make it work well. Once you understand why and how frame and panel works, you are halfway to a successful design. In the drawings on the following pages, I've laid out the underpinnings of frame-and-panel construction and followed them with a selection of considerations that inform the design process.

*Whatever else is required, design in a style that is in harmony with other woodwork in the room.*

## The Structural Nitty-Gritty

The simple genius of the frame-and-panel system is in making a dimensionally stable frame of narrow members and allowing a large solid panel to expand and contract freely inside it. The panel may be large or small, plain or simple, but as long as it is made of solid wood it must be free to move (so that it will not split or buckle with changes in humidity) and at the same time be securely held (so that it cannot warp). Panels are typically held by their edges in grooves formed in the surrounding frame, and they are pinned or glued only at the center. Occasionally, the grooves are formed by adding a strip of molding to a rabbet, but most often the groove is integral.

The frame members are most commonly mortised and tenoned together, although other methods such as plate joinery or doweling can be used. Because most panels are oriented with their grain running vertically, the rails have the most work to do in preventing the panel from warping. Therefore, the rails are usually the widest parts of the frame. So the frame does not appear top-heavy, the top rail is often made a little narrower than the bottom rail. The stiles are generally made narrower still, giving a pleasing appearance and minimizing the seasonal change in the width of the door.

## Solid Panel

# Three Ways to Make Cabinet Doors

BY STEVE LATTA

In a perfect world, all cabinet doors would be constructed using stout mortise-and-tenon joints, built to last generations. When I reproduce an 18th-century piece, I build doors whose joints will outlast these achy joints of mine. My clients pay for that, and I would not sleep at night giving them anything less.

At the other end of the spectrum, would I go to the same effort for a bathroom vanity that will end up on the curb after the next remodel? Probably not. There are faster ways to make a door. A door meant for hiding everything from towels to toilet cleansers doesn't have to rise to the level of a hutch.

I could come up with a dozen or more methods to join doors, but there are three that will solve most needs: doors for the finest furniture, doors for glass panels, and low-budget doors that you need to get done in a hurry.



**FULL MORTISE-AND-TENON JOINTS** make this the best method for constructing fine furniture. Additionally, the tenon's offset shoulder adds rigidity to the joint. The profiled corner must be mitered for the joint to close.

### Best Method for Strong, Classic Frames

After cutting the stock to its rough size, mold a profile and cut a slot in all of the frame members. Although sometimes I'll use just the sticking portion of a cope-and-stick set to cut the profile and groove in one pass, I often resort to standard router bits. By mixing and matching standard bits, I have an infinite variety of profiles available to me. Cope-and-stick bits come in just a handful of profiles. To cut the slot, you can use a slot-cutting bit or a dado head on the table saw.

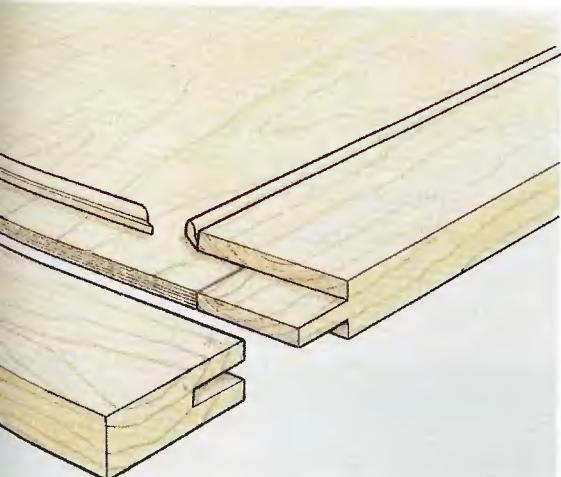
Mortises are cut next. These are usually located on the stile members. Cut them with your preferred tool, the same thickness as the width of the groove, flush with the walls of the groove. I generally cut the mortises to within  $\frac{1}{8}$  in. of the outside edges of the doors. But if you're making doors whose backs will be rabbeted for an overlay construction, leave at least  $\frac{1}{8}$  in. beyond the mortise. That way, when you cut the rabbet



## Quick but Sturdy Cabinet Door

QUIRK-AND-BEAD MOLDING AND AN ANTIQUED STAIN AND LACQUER FINISH give Mario Rodriguez's pine, plywood-paneled door an air of simple period elegance.

BY MARIO RODRIGUEZ



When I had to make a batch of pantry cabinets in a hurry and at a low cost, I developed the design for this frame-and-panel door. I wanted the door to have a traditional flavor and reasonable strength but obtained with the least possible labor and materials. I decided to use a plywood panel and dress it up with a simple quirk-and-bead molding. I planned the simplest joinery I could, and then I decided to apply the molding instead of milling it onto the frame pieces. The molding is easily made with a stock router bit, and the quirk, or recess, behind the bead produces a dramatic shadow that gives the flat-paneled door its visual weight. The design is well-suited for small- or medium-sized doors on kitchen cabinets, vanities, and built-in storage units and will look as good painted as with a clear finish.

# Fitting Flush-Mounted Doors

BY STEVEN THOMAS  
BUNN

**I**nstalling flush-mounted doors is the bane of many woodworkers. The trick is putting them in so they fit with even gaps all around and so they lie smoothly in plane with the case front. I've fitted hundreds of doors for Thomas Moser's cabinet

shop. Over the years, I've learned some tricks for installing doors accurately without a lot of measuring. If, after following this step-by-step guide, your doors still aren't exactly right, the sidebar on pp. 106–107 has some tips on how to make the adjustments.



**WELL-FITTED DOORS SHOW QUALITY CRAFTSMANSHIP.**  
Inset doors that fit with tight even gaps are a sign of quality work. An organized approach simplifies the process and helps eliminate sloppily hung doors.

# Glazing Cabinet Doors

BY TONY KONOVALOFF

I've opened a lot of glass doors on finely crafted cabinets and cringed. The joints are tight, the finish is fine, but the glass is held in place by methods that look, at least to my eye, crude. I've seen big, chunky strips held in place by #8 screws, badly done putty, and perhaps worst of all, vinyl strips screwed or even stapled to the door frame.

What looks much better is glass set in a relatively deep rabbet in the frame and held in place with beveled strips of wood on the back side of the door. The strips function like quarter-round molding, but the profile is more refined. The strips, which are easy to make, are fastened to the shoulder of the rabbet with brass escutcheon pins. Should the glass need to be replaced, the strips easily pop off and can be reused.

Holding glass in a door this way is nothing new. It's an old technique that works because it's simple and practical, and it looks good whether the door is open or closed.

## Designing for Glass

With glass-front cabinets, the focus is not on the furniture but on what's inside it. Before you begin making the cabinet, think about how a glass front will affect the design and construction. For instance,



**GLASS ADDS A WHOLE NEW DIMENSION TO A CABINET.** The inside is as important as the outside. The thin beveled strips holding the glass to the back of these doors looks good from either side.

# Arched Top Cabinet Doors

In woodworking, as in architecture, arches can be both decorative and functional. Positioned below the main structure, an arch adds strength without the visual weight of heftier underpinnings. Placed higher up, such as in the upper rail of a bookcase, an arch lends a bit of elegance. Adding an arch to the upper rail of a cabinet door is also an easy way to refine the sometimes boxy look of frame-and-panel construction.

I wanted to find a quick way to cut arched doors so that I could offer this design option to my clients. After a little planning and experimentation, and in one quick afternoon, I was able to make an adjustable jig that allows me to cut arched raised-panel doors of almost any size. The few hours spent building the jig proved worth the time; over the last four years, I've used it to make countless doors for the kitchen cabinets that are the mainstay of my business.

The only way to get uniformly fair arches is to work from two accurate templates—one for the rail and one for the panel. Each door width also requires a different set of templates. Using the two-piece jig shown on pp. 116–117, I can quickly and efficiently cut a set of panel and rail

BY BILL EWING



IT'S EASY TO MAKE arched raised-panel doors of any size with an adjustable jig and a router.

templates to fit a wide range of cabinet-door sizes. By using these templates in conjunction with rail- and stile-cutting bits, you can cut the door parts for a whole set of kitchen cabinets in a day.

# Smooth Tambours

BY MIKE WEISS

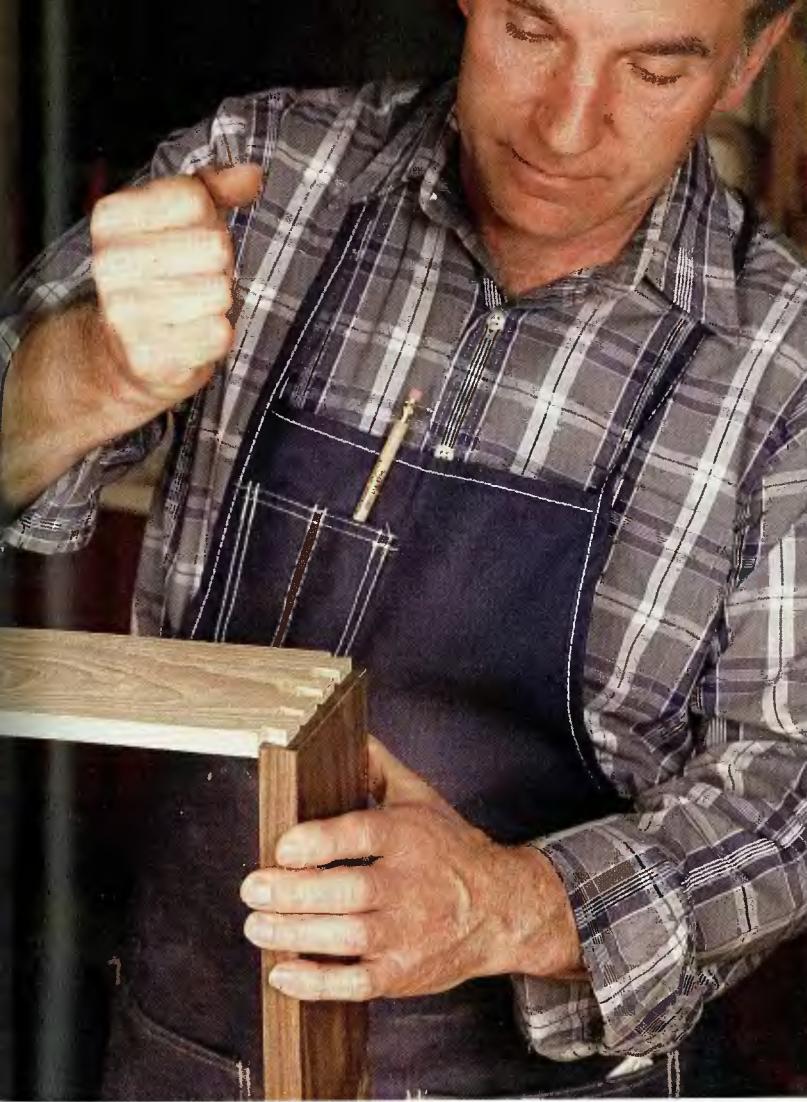


Tambours are universally recognized for their rounded, canvas-backed slats and may be found on everything from rolltop desks to appliance garages. But there's a lesser-known type of tambour that masquerades as a smooth, solid-wood door. The first time I came across a door constructed this way, I pulled on it, assuming it was hinged, to the amusement of the desk's owner.

Suitably impressed with the illusion, I set out to make a set of these tambours for a contemporary entertainment center. My tambours are made of veneered medium-density fiberboard (MDF) cut into slats and held together by canvas, like traditional tambours. The biggest challenge of this project was figuring out how to rip apart the slats with minimal kerf loss and without interrupting the grain on the front of the tambours.

## Tambours Demand Lots of Planning

When building tambours, allowances must be made for the considerable loss of material that results from ripping stock into lots of narrow slats. Then the slats must be dimensioned so that they operate smoothly when going around the interior corner of the case.



# Making a Drawer with Half-Blind Dovetails

BY FRANK KLAUSZ

**HALF-BLIND DOVETAILS**  
**ALLOW DRAWERS TO**  
**BLEND IN with surrounding**  
**surfaces and make for**  
**continuous grain pattern**  
**or figure, top to bottom**  
**and side to side across a**  
**piece. The joint is no more**  
**difficult to cut than**  
**through-dovetails.**

**W**hen I make drawers, I use half-blind dovetails to join the drawer front to the sides. I'm a traditionalist and prefer not to let the joint show through on the face of a piece. To enhance the look of the joinery when the drawer is pulled open, I use two contrasting woods on my drawers, such as walnut for the front and white ash for the sides and back.

Once I've selected the wood, dimensioned it, and cut it to size, I mark each board to indicate which edge is up, what part of the drawer it is (left side, right side, or back), and which face is outside. I look at the grain pattern and growth rings, and I make sure the inside of the tree is on the outside of my work. Then I cut a groove near the bottom of the drawer sides and front with a couple of passes on my table saw, making it a snug fit for the drawer

bottom. I test the fit with a piece of scrap the same thickness as the drawer bottom. I rip the drawer back to the top of the groove, so I can slide the drawer bottom in after assembly.

Next, I set my marking gauge to the thickness of the drawer sides. Then I mark the inside of the drawer front, all around both ends of the drawer back and around the back ends of the two drawer sides, which will be through-dovetailed to the back. I set my marking gauge to about two-thirds the thickness of the drawer front (the tail length), and I mark the two ends of the drawer front.

Then I cut and chisel my dovetails as shown in detail on the next three pages. Once all the pieces are cut, I test-fit them and make any necessary adjustments. Then I disassemble the pieces, finish the inside surfaces with a few strokes of a fine smoothing

# Fitting a Drawer

**M**y wife, Laura, doesn't understand why I make such a fuss about drawer fitting. The drawers in our kitchen cabinets slide on plastic runners, and she says they work better than the drawers in any of my furniture. I can't argue with that—those nylon rollers do their job well. But plastic slides don't belong on dovetailed drawers. Fine furniture

requires another solution, an approach that substitutes craftsmanship for the manufactured precision of drawer slides.

BY ALAN PETERS

The technique we use in my workshop involves three successive levels of fitting. The first is of the individual drawer parts, then the assembled drawer without its bottom, and finally, the drawer with its bottom installed. The result is a drawer that fits so

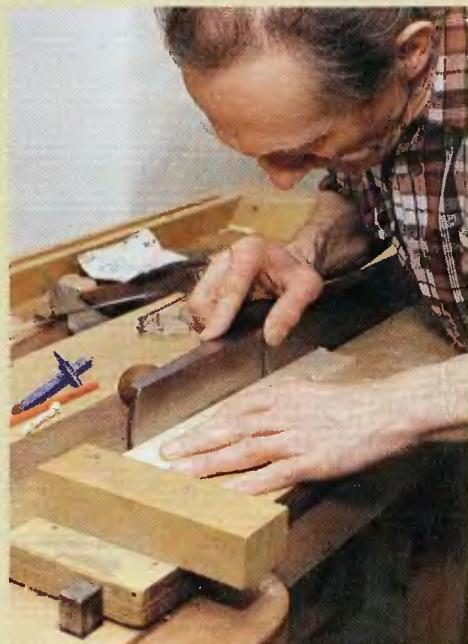
## Fitting Drawer Parts

### Sides first



**1 MARK THE DRAWER SIDES.** Because each drawer is fit precisely to a particular opening, the location and orientation of each part is marked.

**2 SHOOT THE EDGE.** A sharp jointer plane and a shooting board will give you a straight edge that's 90° to the face of the drawer side. A little wax on the sole and side of the plane will help it glide better.

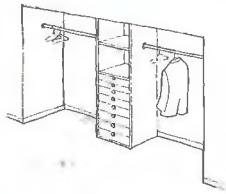


*continued on p. 132*

# Versatile Plywood Drawers

BY GARY ROGOWSKI

**PERFECT FOR HIDING** all the clutter around your house and shop, plywood drawers also are simple to build.



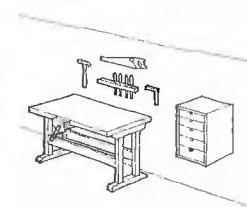
*Closet*



*Caddy*



*Desk*



*Shop*

**S**ome drawers are built with great care, hinting at the treasures hiding behind their polished faces. They have the look and feel of a crisply tailored suit. But plywood utility drawers feel more like loose-fitting jeans: They're made for comfort and use, not for show. Utility drawers are the perfect receptacles for those minor tornadoes of odds and ends.

You can build simple plywood drawers using a table saw, a router, and your choice

of two basic joints: the rabbet or the tongue and dado. For ease of construction, build the drawers with  $\frac{1}{2}$ -in. plywood (I use 9-ply Baltic birch) or a high-density particleboard. Just make sure your sheet goods are flat and of consistent thickness. Millwork then simply involves cutting the parts to length and width. Use  $\frac{1}{4}$ -in. plywood for the drawer bottoms, which also serve as the drawer runners.

# A Better Way to Build Drawers

**C**onsider a dresser drawer that is 16 in. deep and 30 in. wide. Let's say that every time it's opened it travels 12 in. out and 12 in. back in. If this drawer is opened once a day for 30 years, it will have traveled more than four miles, carrying its load of sweaters and jeans solely on the thickness of the drawer sides. By then it's probably running like a brick over

a cheese grater. Worse, if the wear extends into the groove for the drawer bottom, it will damage not only the drawer but also the carcass itself.

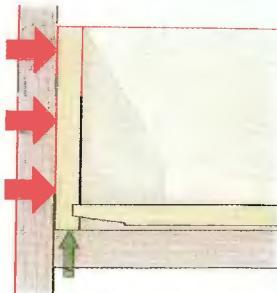
Side-hung drawers avoid this problem by having the drawer run on rails dadoed into the drawer sides. French bottoms avoid

BY MARK EDMUNDSON

## The NK Advantage

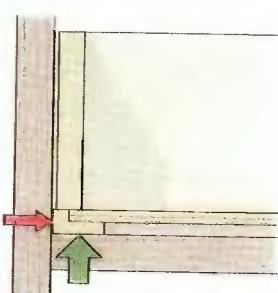
### Traditional drawer

Thin, tall sides create a large friction surface area and are prone to sticking. Narrow glide surfaces wear out quickly.



### NK drawer

Short, wide runners in the bottom assembly reduce the friction area and provide a wide, long-wearing glide surface.



**NK DRAWERS**, named for the Swedish furniture manufacturer that popularized them, use a separate bottom assembly to eliminate the drawbacks of standard drawer designs.