An Inside Look at Kitchen Cabinets

Manufactured kitchens run the gamut on price, materials and craftsmanship

BY SCOTT GIBSON

At the giant KraftMaid cabinet factory just outside Cleveland, workers stand by with glue guns and pneumatic nailers as parts for a complete set of kitchen cabinets approach on a conveyor. Drawers, face frames, prefinished panels, shelves and moldings arrive from all corners of the million-square-foot plant. Although the customer who ordered this kitchen may have taken months to plan its every detail, KraftMaid assemblers will put it together in 15 minutes. Cabinets are shipped about a week after the order has arrived.

Did you think your new kitchen cabinets would be hand-built by fussy artisans? Guess again. Cabinets are a $6 billion industry, and they pour off assembly lines like hubcaps or lawn chairs. If that prospect unsettles you, consider a smaller company, one like Rutt Custom Cabinetry of Goodville, Pennsylvania. Here, door panels are matched for color and figure, one board at a time. A specialist is standing by to custom-blend a paint color. The catch? Rutt charges more than twice as much, and you can count on waiting 40 or 50 days to get your order.

KraftMaid and Rutt are only two among hundreds of cabinet manufacturers. Yet they help to illustrate the many choices buyers will face before plunking down thousands of dollars for a new kitchen.

Manufactured kitchens fall into three general categories

To help make sense of what's available, the industry has traditionally divided cabinets into three grades: stock, semicustom and custom. The labels don't mean as much as they once did, but they are still a good starting point.

Stock cabinets are at the low end of the market. Available in limited styles and finishes and with fewer options, stock cabinets are built in standard sizes in increments of 3 in. in width. They are manufactured and then stockpiled, without regard to who will buy them. Semicustom cabinets are built to order, also on a 3-in. grid, and offer more choices when it comes to styles, accessories and finishes. Materials may be of higher quality. Custom cabinets, such as those from Rutt, are built to fit the available floor space exactly with just about any option the customer is willing to pay for. They are the most expensive of all.

And then there are the small shops, the local cabinetmakers found in virtually every corner of the country. Working on one job at a time, these shops turn out cabinets designed for just one client. Detailing, construction and wood selection may range from ordinary to exquisite. Yet these cabinets are not manufactured in the same sense as factory-built, mass-produced goods. Examples of that more individual work can be found throughout this issue.

Any cabinet is a sum of its parts, and the choices can seem overwhelmingly complicated. Assessing quality is not always easy. Many manufacturers submit their cabinets to the Kitchen Cabinet Manufacturers Association for voluntary testing and certification. Although the process is wide-ranging and rigorous (roughly half of those seeking certification for the first time will flunk), it's not useful for comparing individual components such as drawers, doors and cabinet boxes. And makers of high-end cabinetry may skip the test altogether.

Whatever the cabinet industry's tests show, it pays to buy cabinets that are carefully built

from good-quality materials and hardware. To me, that means avoiding cabinets made from paper-coated panels or ones with thin shelves that bend under pressure. Drawers should open smoothly, without wobbling. A finish should be silky to the touch, without any visible sanding marks. In short, buyers should seek cabinets that look and feel as if they are solidly made.

Photo this page: Scott Gibson

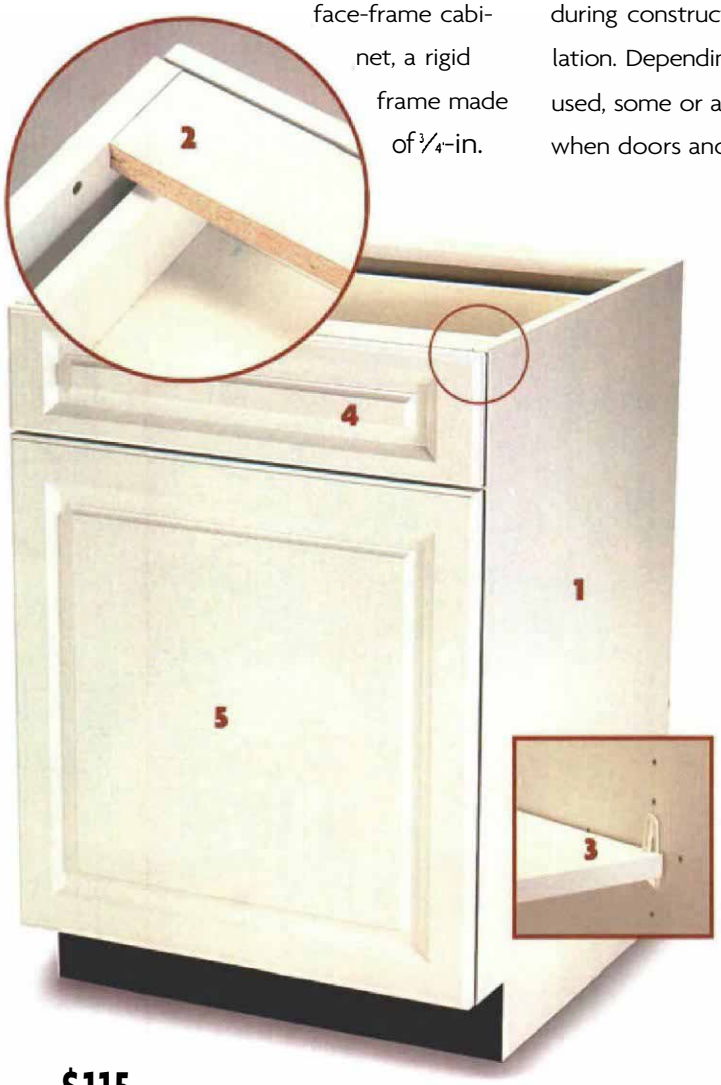
Prices vary as widely as quality. Bottom-of-the-line stock cabinets for a kitchen of roughly 120 sq. ft. are available for less than $2,500, not including countertops and installation. According to estimates provided by both KraftMaid and Merillat, one of the country's largest cabinet manufacturers, a better-quality kitchen might range from just over $5,000 to $12,800, depending on materials and accessories. A custom-manufactured kitchen can approach $20,000.

The following pages look in detail at four manufactured base cabinets that are typical of what's on the market. More expensive often means more quality and a longer life. But getting the best value also should include a careful look at the many differences in construction, hardware, finish and materials.

CABINET BOXES: YOUR KITCHEN'S FOUNDATION

A salesman may call the cabinet French provincial, Shaker or Arts and Crafts, but from a construction standpoint, manufactured cabinets are one of two types: traditional face frame or frameless. In a face-frame cabinet, a rigid frame made of ¾-in. solid wood is attached to the front of a plywood or particleboard box. Face frames create square door and drawer openings while adding strength to the cabinet and helping to keep it square during construction, shipping and installation. Depending on the type of hinge used, some or all of the frame is visible when doors and drawers are installed. In a frameless cabinet, overlay doors and drawer fronts hide the cabinet box. Often made from melamine, which is particleboard covered by a thin layer of plastic laminate, these cabinet boxes are usually held together with dowels and glue.

The days of solid-wood construction are long gone, mainly because panel



$115

FRAMELESS MELAMINE IS INEXPENSIVE, EASY TO CLEAN

Frameless cabinets, such as this melamine base unit from LesCare Kitchens of Waterbury, Connecticut, use a full overlay door and drawer front that span the width of the carcase. Upgrading the door and drawer front to a more durable high-pressure laminate raises the price of this cabinet to $180.

1, 2 Carcase: Cabinet sides are ¾-in. melamine-faced particleboard with a ¼-in. back and a ¾-in. floor. Parts are assembled with glued dowel joints and are reinforced with full-width stretchers.

3 Shelf: Held in place by adjustable plastic clips, the ¾-in. melamine shelf is 12 in. deep, about half the depth of the cabinet itself.

4 Drawer: Sides of ⅝-in. melamine are doweled and glued together with a ¼-in. bottom and a thermofoil drawer front (medium-density fiberboard wrapped in plastic).

5 Door: A full-overlay thermofoil door is hung on adjustable hinges that can be removed without any tools, making it easy to pop off the door for a thorough cleaning.

$125

STOCK FACE-FRAME CABINET MADE WITH LIGHTER MATERIALS

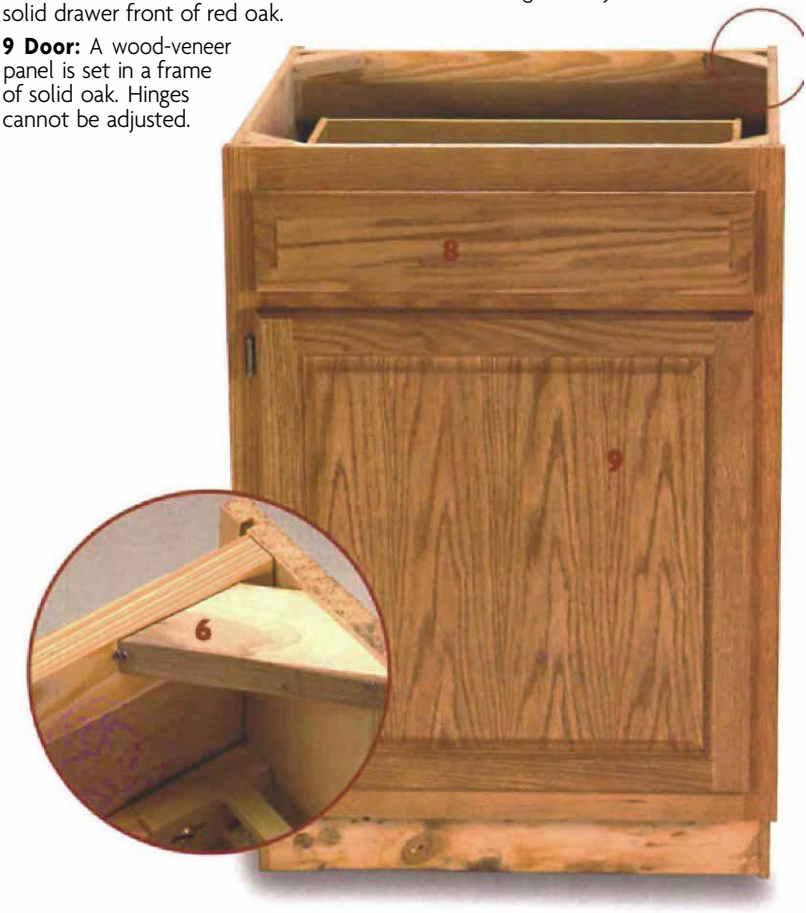
This cabinet, made by Kitchen Kompact of Jeffersonville, Indiana, uses a traditional face frame to reinforce the front of the carcase. In this price range, some materials are likely to be relatively thin with a simulated wood-grain finish.

6 Carcase: Materials include sides of ½-in. wood-veneer particleboard, and a back of ⅛-in. vinyl-covered hardboard. The cabinet floor is ¼-in. vinyl-covered hardboard that flexes under a load. Corner blocks that reinforce the cabinet are stapled in place, but not all of the staples hit their target

7 Shelf: Not adjustable and only ½ in. thick, the 11-in. wide shelf is made of vinyl-covered particleboard.

8 Drawer: Sides are ⅜-in. fiberboard faced in a wood-grain vinyl with a solid drawer front of red oak.

9 Door: A wood-veneer panel is set in a frame of solid oak. Hinges cannot be adjusted.



products such as plywood, particleboard or medium-density fiberboard make a stronger, more stable cabinet at a lower cost. Upper and lower cabinet boxes are now typically constructed of particleboard topped with wood veneer, vinyl paper, melamine or the same kind of high-pressure laminate used on countertops. Boxes of veneer-core plywood, lighter and stronger than particleboard, also are available but often cost more. Whether plywood or particleboard, more expensive cabinets tend to use thicker material for cabinet boxes and shelves.

A solvent-based varnish is a common choice for kitchen cabinets. It's tough and durable. In cheaper cabinets, the top coat may look glossy and rough, with some sanding marks still visible. Many companies, however, offer sophisticated, layered finishes in many colors or wood tones.

$300

FOR MORE MONEY, A STURDIER CABINET

This semicustom KraftMaid cabinet has several advantages over lower-priced alternatives, including heavier materials and more durable construction.

10, 11 Carcase: This cabinet box is made from ½-in. veneer-core plywood with a ⅜-in. plywood back and a fully finished interior. Two 7/16-in. plywood stretchers reinforce the top of the cabinet.

12 Shelf: A ¾-in. plywood shelf runs the full depth of the cabinet. Held in place by plastic clips, the shelf is fully adjustable.

13 Drawer: A dovetailed hardwood drawer box is made with ¾-in. sides with a ¼-in. bottom and a ¾-in. hardwood drawer front.

14 Door: The solid door frame of ¾-in. maple has a solid-wood panel on adjustable hinges.

$700

TOP OF THE LINE, WITH A PRICE TAG TO MATCH

This Rutt Custom Cabinetry base unit has a sophisticated painted finish and an inset door, making it look more like traditional furniture-grade cabinetry. Good quality hardware operates smoothly.

15, 16 Carcase: The cabinet box is made from ⅝-in. veneer-core plywood with a ¼-in. veneered back of medium-density fiberboard. A full dust panel reinforces the top of the cabinet.

17 Shelf: Although the retaining clip on the shelf is plastic, the weight is actually carried by a concealed metal pin, which is stronger. Adjustable and 18 in. deep, the shelf is made from ¾-in. veneer-core plywood.

18 Drawer: The drawer is made from ⅝-in. hardwood joined with glue and dowels at the corners with top-quality undermount drawer slides. The drawer has a ¼-in. bottom.

19 Door: A traditionally mortised and tenoned door frame has a beaded detail on the inside edge and is hung with decorative butt hinges, which are not adjustable.

DRAWERS: A STURDY BOX CAN TAKE A LOT OF ABUSE

Few kitchen components get as much wear and tear as a drawer. Before the introduction of modern drawer slides, a wood drawer box ran on wooden runners fastened to the inside of the cabinet. Often overloaded and yanked on unmercifully in sticky summer weather, drawers had a hard life. Good drawer slides incorporating plastic or metal rollers have eliminated much of that stress, making drawer construction less of an issue than it used to be. Even so, a drawer made of undersize material and running on cheap slides will be a never-ending source of irritation.

Solid hardwood traditionally has been the material of choice for good-quality drawer boxes. One big advantage is that the material does not dictate the joint that will be used to join the corners of the box. Solid wood can be dovetailed, doweled, biscuited or dadoed, and a raw edge will never show. Many drawers also are made from engineered wood: veneered plywood, particleboard, melamine or medium-density fiberboard. These drawers, common in frameless cabinetry, are often glued and doweled together. Raw edges must be banded. Plywood or melamine drawers certainly can be durable, but the material should be at least ½ in. thick. Avoid drawers made from thin, vinyl-covered particleboard and nailed at the corners. They feel flimsy, and they are more likely to come apart over time.

A standard drawer slide is an epoxy-coated, three-quarter extension unit rated at 75 lb. But full-extension slides, rated to 100 lb. and allowing access to even the back of the drawer, may be available as an upgrade. Undermount slides stay out of sight and, like other hardware, come in various levels of quality. The best are made from heavy-duty materials and quiet, smoothly operating rollers or ball bearings, such as the Tandem slide by Blum, used on Rutt cabinets.

Drawers made from wood parts are by far the most common, but metal drawers also are available. One variety found in some frameless cabinetry has epoxy-coated metal sides attached to a standard melamine drawer front The drawer side incorporates part of the slide mechanism.

Doweled hardwood drawer box. Light and strong, this ⅝-in. box of yellow poplar is joined with dowels at the corners and comes with a ½-in. plywood drawer bottom. That may be overkill in a narrow drawer, but a bottom this thick won't sag. Self-closing Blum undermount drawer slides are hidden, and they perform flawlessly.

Dovetailed hardwood. Always the darling of the cabinet trade, a dovetail drawer should last a long time. This one has sides of ¾-in. hardwood and a 3/16-in. plywood bottom (a heavier drawer bottom would be better in a wider drawer intended for heavy objects). Undermount slides are out of the way, but they do not operate as smoothly or seem as sturdy as those made by Blum.

Marginal materials and construction. Drawers such as these are unlikely to give you a lifetime of dependable service. Faced with a drawer front of red oak, the drawer box is ⅜-in. medium-density fiberboard faced in wood-grain vinyl and joined with nails and glue. The 3/16-in. drawer bottom flexes under pressure.

Doweled melamine. Typical for a frameless cabinet, this drawer box is made of ⅝-in. melamine, doweled at the corners, with a ¼-in. bottom. The three-quarter extension epoxy-coated slide (this one by Blum) operates smoothly. The gap between the applied drawer front and the front of this box shouldn't be there.

Where to buy a kitchen

Manufacturers sell their cabinets through a retail network that includes building-supply stores, lumberyards and stores specializing in kitchen and bathroom cabinetry. Larger cabinet retailers offer more variety, and those located near big home-improvement centers such as Home Depot may offer everyone the prices that once were reserved for builders. If you have a particular cabinet brand in mind, the company can provide the name of a nearby retailer.

Driving from store to store is a time-honored way to shop, but doing some homework on the Internet first can help. Many manufacturers maintain their own Web sites where you can browse product offerings, learn more about how their cabinets are built and find out where to buy them. One place to start is with a search engine such as www.dogpile.com or www.askjeeves.com (or whatever your favorite might be), where a search for "kitchen cabinets" will turn up companies all over the country. Content can range from specific information on construction techniques and materials to collections of glossy photos. Some cabinet-manufacturing companies offer interactive sites that will help you to design a kitchen layout and to choose various accessories.

For lists of manufacturers, try www.buildingonline.com or www.kitchen-bath.com. Lists are organized so that you can search for a smaller company in your region. Another good resource is www.nkba.org, the home page of the National Kitchen and Bath Association, an industry trade group. You'll find design tips, budgeting information and industry links for cabinets and other products. The Kitchen Cabinet Manufacturers Association's site (www.kcma.org) details the association's certification process for kitchen cabinets, valuable information for anyone in the market for a new kitchen.

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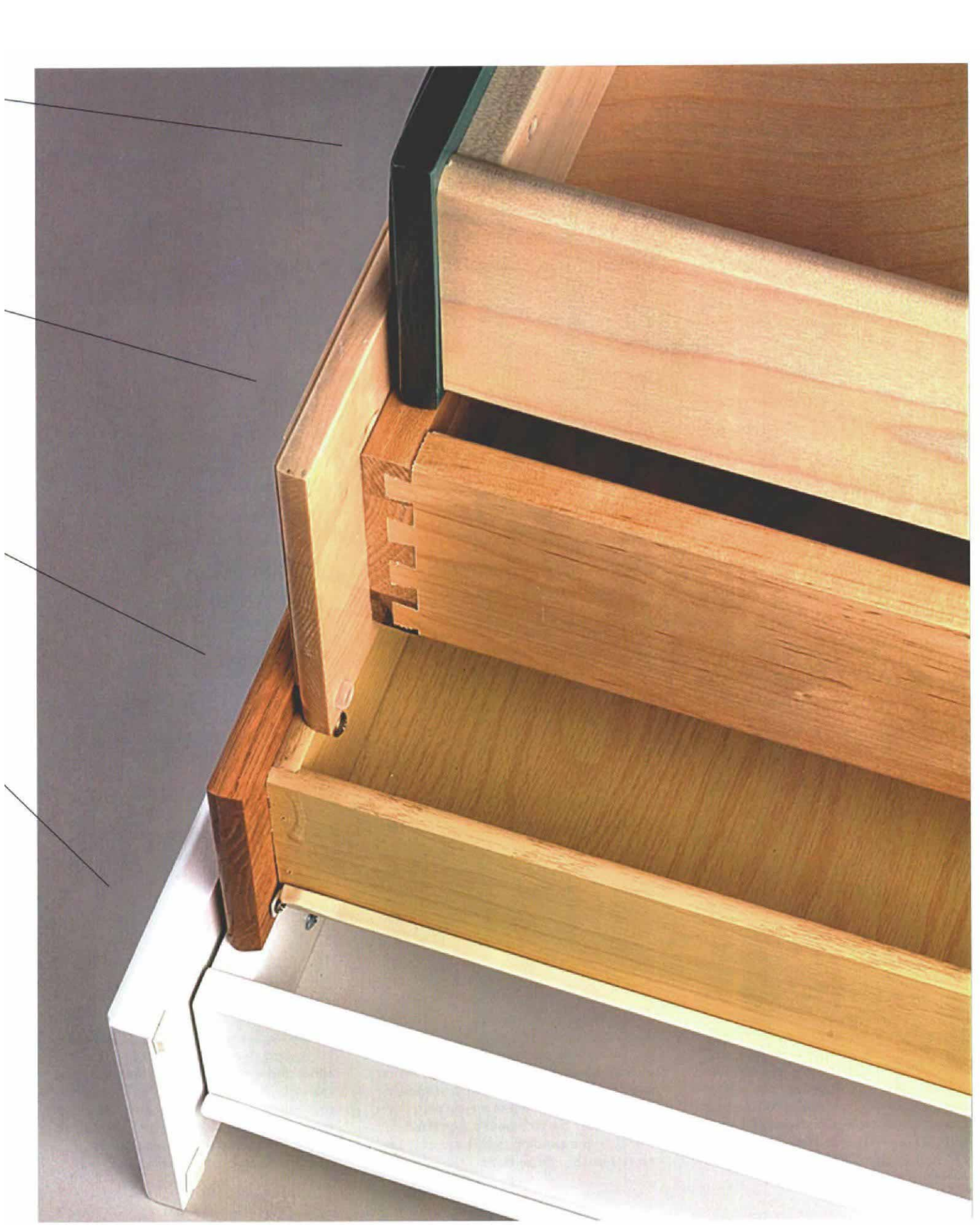


CABINET DOORS ARE A VISUAL FOCAL POINT

Manufacturers devote a lot of attention to the doors on their cabinets for good reason: Along with drawer fronts, these parts are dominant visual elements in any kitchen. A single company may offer dozens of door styles. Many cabinet manufacturers do not build their own doors, buying them instead from vendors such as Conestoga Wood Specialties Inc. in East Earl, Pennsylvania, which makes some 5.5 million doors a year.

On frame-and-panel doors, virtually everyone now uses what's called a cope-and-stick joint in which the interlocking edges of the frame parts form the glue joint. Although this joint might horrify traditionalists, it is by now time-tested and strong enough. Be wary of any door showing gaps in the joinery. Raised door panels may be either solid wood with a profile milled into the outside edge (photos bottom right, facing page) or engineered wood faced in a thin wood veneer (photo bottom center). Profiles will be crisper, and panels more durable, when of solid wood. Thermofoil doors (photo bottom left) mimic frame-and-panel styles but are made of engineered wood covered in plastic.

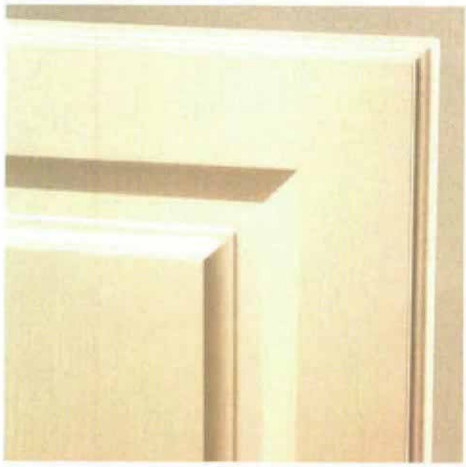
Some doors have mitered corners, like a picture frame, which are doweled or splined together. Seasonal wood movement makes this type of joint more likely to open up than other designs, just like mitered door and window casings.

Most kitchen cabinets have overlay doors, meaning the doors overlap the door opening. A full overlay door, such as the one on the melamine cabinet on p. 42, covers the front of the cabinet completely. Because the doors are slightly bigger than their openings, overlay doors don't require any fitting. Less common are inset doors, which are housed in the door opening. When closed, inset doors are flush with the face of the cabinet, making the cabinet look more like a piece of furniture.

Overlay doors are usually hung with cup hinges, which are hidden when the door is closed. Cup hinges allow the door to be adjusted in several directions, making alignment easy for manufacturer and buyer alike. Better hinges have more adjusting points, and some allow the door to be popped off the cabinet without using tools (photo top left, facing page).

Door hinges can be a trouble spot for cabinets. According to the Kitchen Cabinet Manufacturers Association, failing hinges are one of the most common reasons that cabinets flunk certification tests. So it pays to check them carefully when looking for cabinets. Avoid hinges that have too much play or feel flimsy. □

Scott Gibson is a senior editor at *Fine Homebuilding*. Photos by Scott Phillips, except where noted.



Thermofoil doors have a core of engineered wood. A traditional frame-and-panel look-alike, this door is actually a vinyl-like plastic formed around a core of medium-density fiberboard milled by a computer-controlled router. Unlike other kinds of laminated doors, this one has only a single seam. MDF is heavy and stable.

A stock frame-and-panel door. A solid red-oak frame surrounds a veneered panel. Frame pieces are joined at the corners in a cope-and-stick pattern, a standard door joint. The panel is a very thin wood veneer over particleboard, not solid wood. Some sanding marks are evident on the inside of the door.

A step up in a wood design. This maple KraftMaid door has a solid-wood raised panel and a smoother, less brassy finish than the door on a budget cabinet. The cope-and-stick joinery is essentially the same. The color and figure of the maple pieces used in both the panel and the frame are not perfectly matched.

Easy on and off. This cup hinge allows a door to be popped off without tools.

No adjustments. This economy hinge offers no door adjustments, and it flexes under a load.

Adjustable cup hinge. This style of cup hinge allows the door to be adjusted in two directions.

Traditional butt hinge. A furniturelike hinge on this door is set into a mortise in the frame.

Old-style detailing in a painted door. This pine door uses more traditional joinery. Its sand-through finish relies on layers of color and paint, plus sanding, to mimic the effects of years or hard use.