TOOL TEST!

The Ultimate Planer Shootout!

WORKBENCH™

WOODWORKING TO IMPROVE YOUR HOME

No-Hassle! Bathroom Makeover

More Inside:

Quick Desktop Picture Frames

Easy-to-Build Utility Bench

Contents

16
Bathroom Makeover ... Part 1

Here's a no-hassle "facelift" for your bathroom that features two in-wall cabinets, a partition wall with a pantry-style pullout drawer, and beadboard wainscoting. The best part is that everything can be installed in about one weekend.

26
Utility Workbench

Rock-solid construction, a durable worksurface, and lots of storage. You couldn't ask for much more in this easy-to-build utility bench.

32
Handy Storage

Removeable totes and bins keep everything in its place and let you take your tools with you where needed.

WORKBENCH™

34
Benchtop Planer Review

Today's portable benchtop planers are lightweight and affordable. And best of all, they're better than ever thanks to some innovative features. We tested seven popular models — all less than $500.

Details Make a Difference

Get the plain truth about what really counts when shopping for a portable planer.

40
Desktop Picture Frames

Different combinations of unique materials really set these picture frames apart. Simple lap and butt joints make them easy to build.

DEPARTMENTS

5 Questions & Answers

8 Tips & Techniques

11 New Products

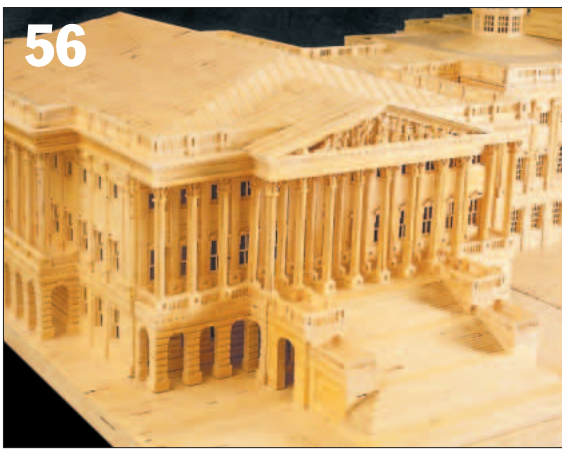
14 Workbench Interactive.com

49 In The Shop

52 Around The House

54 Sources & Resources

56 Craftsmanship



EDITOR'S NOTES

Sometimes tackling a large home improvement project is like knocking over a row of dominoes. One part of the project leads to another, then another, and then . . .

BATHROOM MAKEOVER. The bathroom makeover featured in this issue is a good example. It started out as a simple idea — to replace an outdated vanity with a pedestal sink.

The new sink looked great, and it made the bathroom seem bigger. There was just one problem — storage. With the vanity removed, there wasn't any place to put things.

Our solution was to build three storage projects: a mirrored medicine cabinet, a partition with a pantry-style, pull-out drawer, and an in-wall towel storage rack. Then to tie things together, we installed wainscoting on the walls around the sink.

All in all, I couldn't be more pleased with the results. But don't take my word for it. Turn to the article beginning on page 16 to see how these simple woodworking projects completely transformed the appearance of what was a very ordinary looking bathroom.

A LITTLE HELP. While you're at it, I could use your help. Since the bathroom facelift is a fairly involved project, we're featuring Part 1 only of the article in this issue (the partition, wainscoting, and trim). Part 2 (the medicine cabinet and towel rack) will appear in the next issue of *Workbench*.

To see what you think about this two-part approach, we've set up a short survey at WorkbenchMagazine.com Please visit us to answer a few questions, or send a self-addressed stamped envelope to the address below.

PAYDAY FOR CHARITY

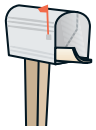
All of us at *Workbench* offer our thoughts and prayers to those who lost loved ones and friends in the September 11th attack on our nation.

As we tried to turn our attention back to our jobs, we began thinking of ways we could help those in need. To extend a helping hand, August Home Publishing is making a contribution to charities in the amount equal to our payroll for September 11, 2001. In addition, members of the *Workbench* staff and the rest of the company are voluntarily contributing all or part of that day's pay.

It's our sincere hope that this contribution helps those who have suffered so much, and aids in the vital work of rebuilding our hopes and dreams for the future.

Donald B. Peschke, President

Editorial Questions:
Workbench Magazine
2200 Grand Ave.
Des Moines, IA 50312
email: editor@workbenchmag.com



Subscriber Services:
Workbench Customer Service
P.O. Box 842
Des Moines, IA 50304-9961
Phone: (800) 311-3991
Fax: (515) 283-0447
Online: www.WorkbenchMagazine.com

WORKBENCH

VOLUME 57 NUMBER 6

EDITOR Tim Robertson
SENIOR DESIGN EDITOR Jim Downing
ASSOCIATE EDITORS Bill Link, Kevin Shoesmith
Erich Lage
ASSISTANT EDITOR Mike Donovan
TOOL TEST EDITOR Ellis Walentine
ART DIRECTOR Robert L. Foss
SR. ILLUSTRATOR/SPECIAL PROJECTS Kim Downing
SENIOR ILLUSTRATORS Susan R. Jessen
Mark S. Graves
ILLUSTRATOR Robert McCammon

CREATIVE DIRECTOR Ted Kralicek
SENIOR PHOTOGRAPHER Crayola England
WEB DESIGNER Kara Blessing
PROJECT DEVELOPER Ken Munkel
PROJECT DESIGNERS Chris Fitch & Craig Iseke
SHOP CRAFTSMEN Steve Curtis & Steve Johnson
ELEC. PUB. DIRECTOR Douglas M. Lidster
PRE-PRESS IMAGE SPECS. Troy Clark
Minniette Johnson

PRESIDENT & PUBLISHER Donald B. Peschke

GROUP DIRECTOR - MARKETING AND SALES
Fritz Craiger (515) 875-7300
ADVERTISING SALES MANAGERS
Mary K. Day (515) 875-7200
George A. Clark (515) 875-7100
ADVERTISING COORDINATOR
Nicolle Carter (515) 875-7135

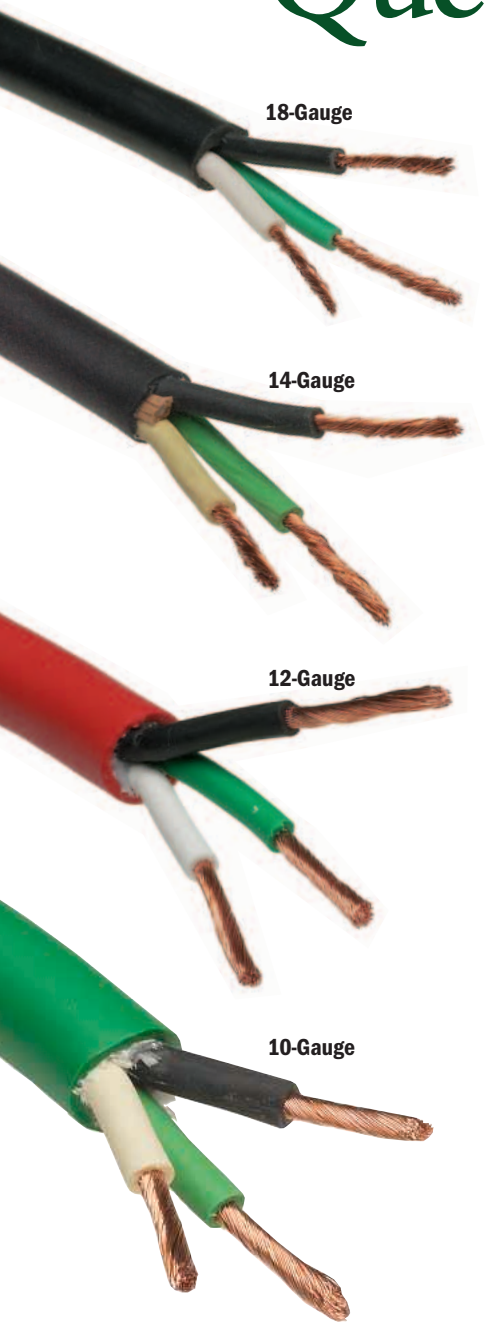
MPA MAGAZINE PUBLISHERS OF AMERICA

WORKBENCH (ISSN 0043-8057) is published bimonthly (Jan., Mar., May, July, Sept., Nov.) by August Home Publishing Company, 2200 Grand Ave., Des Moines, IA 50312.
Workbench is a trademark of August Home Publishing. Copyright©2001 August Home Publishing Company.
All rights reserved.
Subscription rates: Single copy, $3.95. One-year subscription (6 issues), $22; two-year sub., $33; three-year sub., $44. Canadian/Intl., add $10.00 per year. Periodicals postage paid at Des Moines, Iowa, and at additional offices.
"USPS/Perry-Judd's Heartland Division automatable poly."
Postmaster: Send address changes to *Workbench*, PO Box 37272, Boone, IA 50037-0272.
Printed in U.S.A.

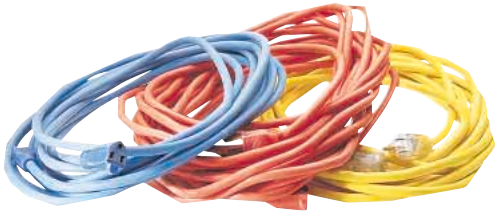
AUGUST HOME PUBLISHING COMPANY

Corporate Services: *Corporate Vice Presidents:* Douglas L. Hicks, Mary R. Scheve, *Controller:* Robin Hutchinson, *Senior Accountant:* Laura Thomas, *Accounts Payable:* Mary Schultz, *Accounts Receivable:* Margo Petrus, *Production Director:* George Chmielarz, *Network Administrator:* Cris Schwanebeck, *New Media Manager:* Gordon C. Gaippe, *Web Site Art Director:* Eugene Pedersen, *Web Server Administrator:* Carol Schoeppler, *Web Site Content Managers:* David Briggs, Sue M. Moe, *Professional Development Director:* Michal Sigel, *Human Resources Assistant:* Kirsten Koele, *Office Manager:* Noelle M. Carroll, *Receptionist:* Jeanne Johnson, *Mail/Delivery Clerk:* Lou Webber • **Circulation:** *Subscriber Services Director:* Sandy Baum, *New Business Director:* Wayde Klingbeil, *Multi-Media Promotions Manager:* Rick Junkins, *Renewal Manager:* Paige Rogers, *Billing & Collections Manager:* Rebecca Cunningham, *Circulation Marketing Analyst:* Kris Schlemmer, *Associate Circulation Marketing Analyst:* Paula M. DeMatteis, *Promotions Analyst:* Patrick A. Walsh • **Creative Resources:** *Associate Editor:* Craig Ruegsegger, *Assistant Editors:* Joseph E. Irwin, Joel Hess, *Art Director:* Douglas A. Flint, *Senior Graphic Designers:* Chris Glowacki, Mark Hayes, Robin Friend, *Graphic Designer:* Vu Nguyen • **Products Group:** *Operations Director:* Bob Baker, *Customer Service Manager:* Jennie Enos, *Warehouse Supervisor:* Nancy Johnson, *Buyer:* Linda Jones, *Administrative Assistant:* Nancy Downey, *Technical Service Representative:* Johnny Audette, *Customer Service Team Leader:* Tammy Truckenbrod, *Senior Customer Service Representatives:* Anna Cox, April Revell, *Customer Service Representatives:* Deborah Rich, Valerie Jo Riley, Eddie Arthur, *Warehouse Staff:* Sylvia Carey, Sheryl Knox, Albert Voigt, • **Woodsmith Store:** *Manager:* Dave Larson, *Assistant Manager:* Tim Thelen, *Sales Staff:* Wendell Stone, Jim Barnett, Harold Cashman, Mark Johnson, *Shipping and Recieving:* Larry Morrison, *Office Manager:* Vicki Edwards

Questions & Answers



Choosing the Right Extension Cord for the Job



Q *How can I tell which extension cord is the correct one for the tool I'm using?*

Jerry Blomberger
Clovis, CA

A Before connecting any power tool to an extension cord, it's a good idea to ask yourself two important questions:

1. What is the amperage rating (or amps) required for that particular tool?
2. How far is the nearest electrical outlet from where you'll be working?

Here's why those two questions matter when it comes to choosing the right extension cord.

AMPS. Power tools and appliances all require a different amount of amperage (current) to operate properly. You can find this information on the plate mounted on the motor housing. Or consult your owner's manual. (We've listed typical amperages for common tools in the chart below on the left.)

Once you know the amperage, the key is to use an extension cord that can safely "carry" that amount of current. There are two things that determine this: the *gauge* and *length* of the cord.

GAUGE. The gauge refers to the size of wire in the cord. The size is based on the American Wire Gauge (AWG) System. In this system, the *larger* the diameter of the wire, the *smaller* the AWG number (see photos at left). So an extension cord with 12-gauge wires can power higher amp tools than a 14-gauge cord.

If the wire is too small, the current can't flow easily. This can cause the extension cord to overheat or worse, start a fire.

Keep in mind that if you're going to use an extension cord with two or more tools, you'll need to add together the amperage rating for everything that is plugged into the cord. The total of those amperage ratings will help you determine which gauge cord you need.

LENGTH. The length of the cord also plays a key role in how well a tool runs. As the length *increases*, the voltage *decreases*. (Voltage is what pushes the current through the cord.)

So what happens if you use an extension cord that's too long? The actual voltage may be so low that the tool is "starved" of the power it needs to run efficiently. This can cause the tool to overheat or even burn out.

To make sure your tools have enough power to run efficiently, match the gauge and the length of the cord to the amperage required by the tool. The chart below (on the right) will help you do this.

POWER TOOL AMPERAGES

PORTABLE TOOL	TOOL AMPERAGE
Circular Saw	13-15 Amps
2 HP Router	10-15 Amps
1 HP Router	5-10 Amps
½" Drill	6-8 Amps
Sabre Saw	5-6 Amps
Palm Sander	1.5-2 Amps

WIRE GAUGE AND LENGTH

WIRE GAUGE	50 FT. CORD	100 FT. CORD
10-Ga.	25 Amps	20 Amps
12-Ga.	20 Amps	15 Amps
14-Ga.	15 Amps	13 Amps
16-Ga.	13 Amps	10 Amps
18-Ga.	8 Amps	6 Amps

NOTE: Never use a cord that's cut or damaged.

Painting Pressure-Treated Lumber

▲ **Powder concentrate brighteners restore pressure-treated wood to its original color. Primers seal wood and make painting easier.**

Q I have some treated lumber that I've allowed to weather naturally for several months. Now I want to paint it. Is this possible? If so, what kind of surface preparation should I do?

David Rattigan
via the Internet

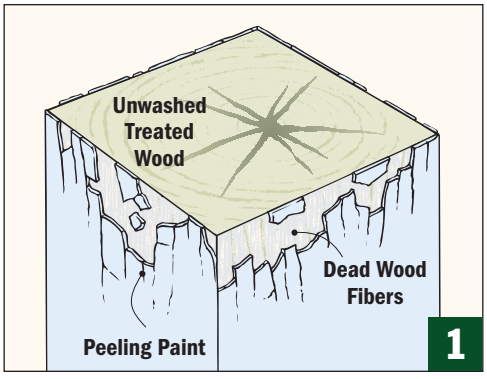
A In as little as a month of weathering, exterior wood will form a layer of dead wood fibers on the surface. If you try to paint or finish over this layer of dead wood, the finish won't penetrate into or adhere to the wood properly. This can result in an uneven finish, poor surface protection, and premature fading and peeling (see *Fig. 1*).

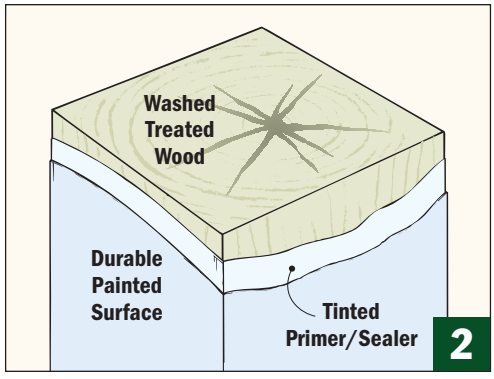
SURFACE PREP. To avoid these problems, the first thing you should do is pressure wash the surface using a commercial cleaner such as Wolman Deck and Fence Brightener (see photo at left). The powder concentrate formula is designed to remove the weathered gray surface fibers from pressure-treated wood. It also removes mildew stains and ground-in dirt.

Another benefit of this brightener is that it won't soften and dissolve the wood "lignin," or "glue" that holds the wood fibers together.

PRIME & PAINT. After allowing the surface to dry thoroughly (up to a week or more depending on weather conditions), follow up with a coat of primer such as Bulls Eye 1-2-3 (shown at left). This will seal the wood and provide a durable, even paint job (see *Fig. 2*).

Once the primer has dried, you can finish up with a high-quality latex paint. Here's a tip: To save both paint and time, tint the primer with whatever finish coat you're using. Then you should be able to get by with a single coating of the topcoat.





Every day, experts at The Home Depot are asked hundreds of home improvement questions about everything from cabinetry and flooring to lighting and lawn-care products. In this issue, they answer a commonly asked question about saving energy.

Question: *Are there any simple things I can do this winter to save on my heating and electrical bills that won't cost a bunch of money?*

Answer: There are several things you can do in a weekend or less to cut your bills this winter. Here are five quick ways to save.

1. Lower the thermostat during the winter. You can save 3-5% on your heating costs for each degree.

2. Switch to compact fluorescent bulbs. A 17-watt fluorescent bulb uses about 72% less energy than a 60-watt incandescent.

3. Clean or replace furnace filters monthly. You should also clean warm air registers, baseboard heaters, and radiators regularly.

4. Add a water heater blanket. Save 4-9% on your water bill by installing an insulation blanket to the water heater.

5. Wash clothes in cold water. Use cold-water detergents and wash in cold water whenever possible. Another easy way to save on electricity or gas is to wash and dry full loads.

For more Energy-Saving Tips, log on to www.HomeDepot.com

Truth About Teak Oil

Q I recently built some teak patio tables and chairs, then I applied a teak oil finish. But the teak finish never really seemed to "cure," and it left an oily residue on the surface. Why is this?

Dan VanMeter
Columbia, MO

A Woods that have a lot of natural oil in them such as teak (also ebony, rosewood, and cocobolo for example) can be difficult to finish because the wood's natural oil actually blocks the finish from establishing a good bond with the wood. The way around this problem is to temporarily remove the oil from the wood's surface.

One way to do this is by first wiping the wood down with a fast-evaporating solvent such as naptha or lacquer thinner. Then, as soon as the solvent dries, apply a coat of finish.

The reason this works is because the solvent removes the natural oils long enough to allow the finish enough time to bond with the wood and cure before these natural oils bleed back to the surface again. Wiping down the wood gives you enough time to create a smooth, even finish.

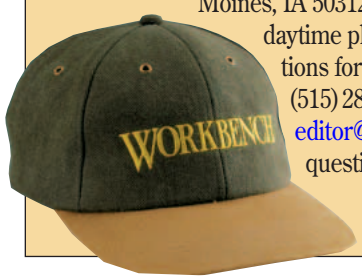
A word of caution: If you're going to use teak oil finishes for any projects in the future, be sure to check the contents of the products carefully. Most teak finishes sold commercially actually contain very little — if any — teak oil.

Many of them are either mineral oil or a combination of wax and mineral oil. A third type made by Watco contains a linseed oil, resin and varnish blend (see the photo below). Of the three types, it's the only one that actually cures in wood. And if you apply several coats (usually four or more), you can create a strong, protective coating.

▲ To create an even finish, use a teak oil that will cure in the wood.

SHARE YOUR QUESTIONS!

If you have a question about woodworking or home improvement, write it down and mail it to WORKBENCH Q&A, 2200 Grand Ave., Des Moines, IA 50312. Please include your name, address and daytime phone number in case we have any questions for you. You can also reach us via Fax at (515) 283-2003 or by email message at editor@workbenchmag.com. If we publish your question, we'll send you one of our handsome and fashionable *Workbench* caps.



Tips & Techniques

FEATURED TIP

Sawhorse Flip Stops

It's one of the cardinal rules of using a circular saw — clamp the board before making a cut. But to be honest, I don't always follow it. So instead of concentrating on the cut, I'm trying to keep the board from sliding across the sawhorse.

To solve this dilemma, I installed two flip stops on each sawhorse. The stops hold the board when making a cut — without having to fiddle with clamps.

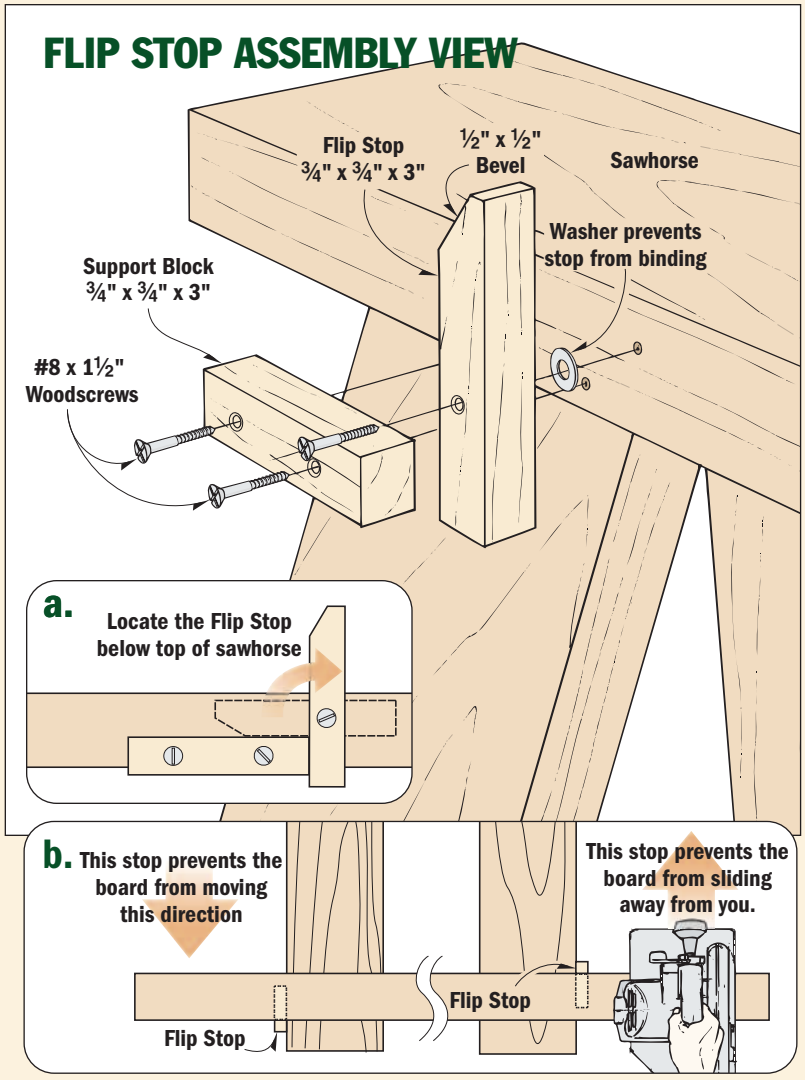
Each flip stop consists of two hardwood blocks *(Assembly View, above)*. The flip stop itself can be pivoted up when you want to use it *(detail a)*. And a support block mounted underneath holds the stop in the upright position.

Before attaching the two blocks, it's a good idea to bevel the end of the flip stop. This will make for a handy finger recess.

There are a couple of things to keep in mind when locating the flip stop. First, when it's in the down position, it must be *below* the top of the sawhorse *(detail a)*. This way, it won't be in the way when you're *not* using it. Also, check to make sure it will pivot without binding against the support block.

Both blocks are screwed to the sawhorse, as shown above. Notice that the flip stop pivots on a single screw. Also, to hold the opposite end of a board, install another flip stop as shown in *detail b*.

Cynthia McGaha
Russell Springs, KY



This Featured Tip was submitted by Cynthia McGaha of Russell Springs, KY. She earns $250 worth of tools from THE STANLEY WORKS

STANLEY®

Send *Workbench* tips. You could be the next Winner!

Radial Arm Saw Dust Deflector

My radial arm saw produces piles of sawdust — right behind the saw where it's a pain to clean up.

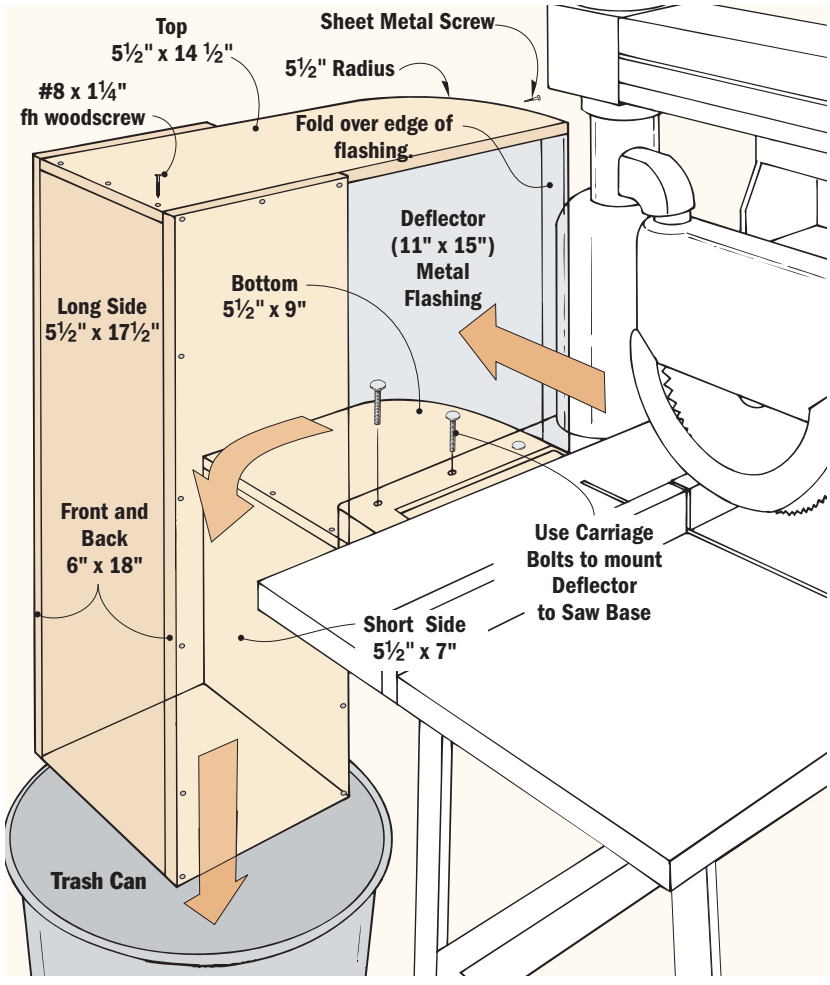
To prevent dust from accumulating on the floor, I made a deflector that mounts to the back of the saw base *(drawing at right)*. It's an L-shaped, plywood box with a curved metal side that acts as the deflector. When making a cut, dust enters an opening in the box where it's directed around the deflector, down a chute, and into a trash can.

To create a form for the deflector, there's a large curve cut in the top and bottom of the box. After cutting two sides (one long, one short) and a front and back piece, the pieces are screwed together to form the dust chute.

The deflector itself is made of wide, metal flashing. After cutting the flashing to size, fold the front edge (to prevent accidental cuts on the sharp edge). Then bend it around the back of the box and secure it with screws.

To mount the deflector, position it to the side of the column and bolt it to the metal saw base.

Bruce Finney
Camillus, NY



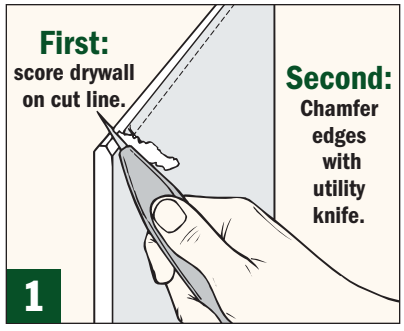
Handy Drywall Tip

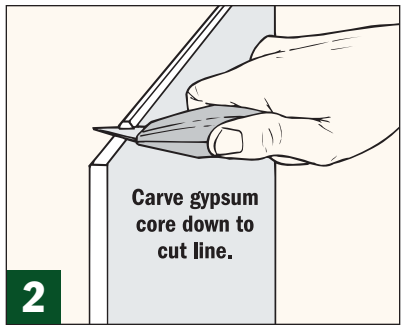
When hanging drywall, sometimes you have to trim a small amount off the edge to get a piece to fit. But it's nearly impossible to make a clean break when removing a narrow strip. And if you carve the drywall with a knife, it tears the paper skin.

The solution is to first score the paper on both sides at the desired cut line. Then cut a chamfer that starts at the cutline and removes some of the gypsum core *(Fig. 1)*. Now you can make a crisp, clean cut without tearing the paper *(Fig. 2)*.

Not only does this process make it easy to fit a piece of drywall, it uses the *center* of the blade (not the point). As a result, you get more life out of your blades.

Dirk VerSteeg
Runnells, IA





SHARE YOUR TIPS, JIGS, AND IDEAS

Do you have a unique way of doing something? Just write down your tip and mail it to:
Workbench Tips & Techniques
2200 Grand Ave.
Des Moines, IA 50312.

Please include your name, address, and daytime phone number.
If you prefer, e-mail us at:
Editor@Workbenchmag.com

You'll receive $75-$200 and a *Workbench* hat if we publish your tip.

For a free woodworking tip every week via e-mail, go to WoodworkingTips.com.

Use Geometry for the Straightest Route

After completing a new fence around my home recently, I decided to build a walkway leading up to the gate opening. I wanted the walkway to be perpendicular to the fence and centered on the width of the gate. To lay out the walkway this way, I used some simple geometry.

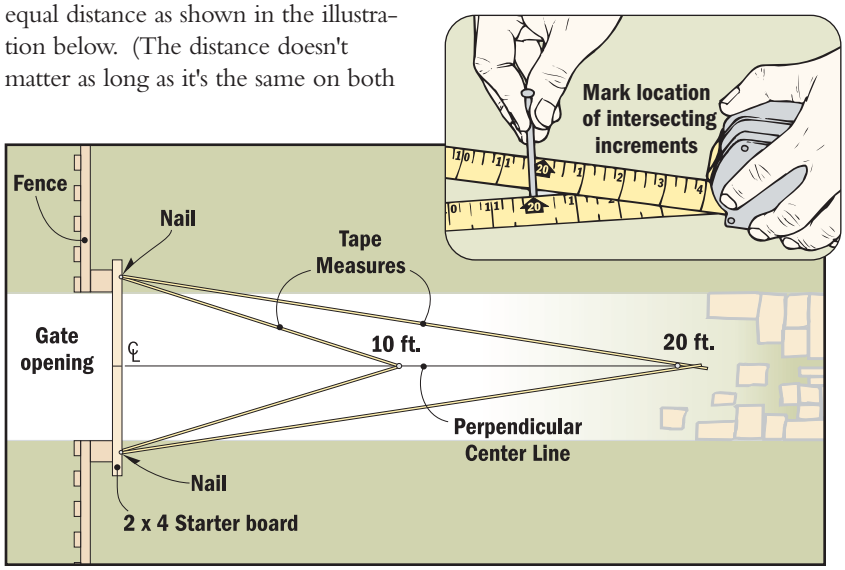
I started by nailing a 2x4 across the gate opening and then marked the center of the gate on the board. Then I made a mark at each end of the board exactly the same distance from the center point. Next I drove a nail at both end marks.

Using two 25-ft. tape measures, I hooked the end of one tape on each nail. Then I ran the tapes out an equal distance as shown in the illustration below. (The distance doesn't matter as long as it's the same on both tapes; I started with 10 ft.) With the tapes crossed, I pressed a nail into the ground at the point where they intersected (at their 10 ft. marks). That's the first point on the perpendicular line.

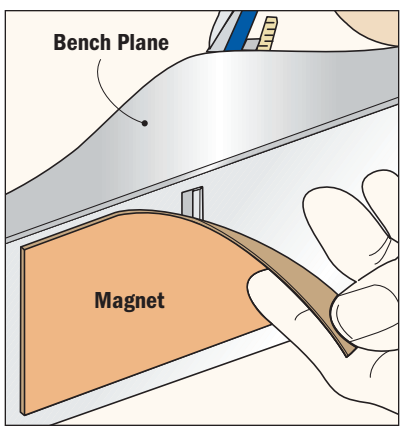
To find the second point, I did exactly the same thing, only this time at 20 ft. (Again, the specific measurement doesn't matter, but the greater distance between the two nails, the more accurate the layout will be.)

The two nails represented a line down the center of my future walkway, so I just had to measure out from there to find the edges.

Hank derKinderen
Plymouth, MA



Refrigerator Magnet Protects Plane Edge



Setting the depth on my hand plane is a trial and error process, and once it's set, I like to leave it there. But putting the plane away with the blade exposed is a good way to nick it.

To protect the cutting edge, I use a flexible refrigerator magnet. About the size of a business card, these magnets fit a No. 5 bench plane perfectly. For smaller planes, I trim the magnets with scissors.

Adrian Albrecht
Wittenberg, WI

New Products & Tools

WORKBENCH APPROVED

Here at *Workbench*, we have lots of opportunities to try out all sorts of new products and tools. Some of them make woodworking and home improvement projects easier, quicker, or safer. Others are just handy to have around the house. To help you make informed decisions when buying new products, all of these items have been carefully selected, tested, and approved by the *Workbench* staff.

▲ **A combination finger guard and hold-down — that's the idea of this Panel-Loc manufactured by Bench Dog.**

Panel-Loc — Two Accessories in One

Anything that improves safety is a winner in my book. If it improves safety *and* the quality of cut, so much the better.

The Panel-Loc, manufactured by Bench Dog, does both. It's a combination finger guard and hold-down that can be used on either a router table or table saw.

As you can see, the Panel-Loc is an L-shaped, aluminum extrusion that extends over the router bit (or saw blade). This keeps your hands from getting too close to the bit when making a cut.

It also applies downward pressure on the workpiece at a short distance away from the fence. As a result, the workpiece stays flat against the table, so you get a smooth, stable cut.

To allow the panel to slide smoothly underneath, there's a strip of ultra-high, molecular weight plastic (UHMW for short) underneath. This is a type of slick plastic that reduces friction between the workpiece and the hold-down.

Panel-Loc fits all Bench Dog Pro Fences. It can also be retrofitted to existing fences by using the included T-Loc T-Track.

Source: McFeely's (800) 443-7937. Or visit www.benchdog.com to find a retailer in your area.

Suggested Retail Price: $59.99

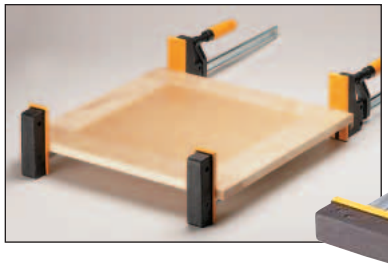
Your Knees Need These

If you've ever spent an afternoon working on your knees, you know the pain it causes. Most knee pads help, but only a little, and I wouldn't exactly call them comfortable. Fortunately, a company called Nailers has come up with a line of amazingly comfortable knee pads. The secret is a gel-lined inner cushion. A single strap in back wicks away moisture and makes the kneepads comfortable to wear all day long.

Sources: True-Value/ Menards

Suggested Retail: $29

▼ **At last — a pair of comfortable knee pads. The key is a gel-lined cushion.**



▲ **The parallel jaws on these clamps ensure flat, square assemblies when gluing up a project.**

Parallel Clamps . . . for Perfect Glue-Ups

These clamps, manufactured by Gross Stabil, eliminate many problems that crop up when gluing up a project. That's because the jaws of the clamps are parallel, and they *stay* parallel when pressure is applied.

This prevents a glued-up project (like a frame and panel door or a cabinet) from twisting out of alignment. As a result, you end up with a perfectly flat panel or square cabinet.

Another thing I like about these clamps is their heavy-duty construction. With their beefy, galvanized steel rails, durable plastic clamp pads, and solid wood handles, these clamps are built to last.

Source: Gross Stabil, 800-671-0838

Price Range: $36.75 (for a 12" clamp) up to $49.95 (48" clamp).

Simple Sharpening System

The Shop Strop from Pacific Rack and Machine offers a quick, easy way to sharpen chisels and knives.

It has a leather-covered, MDF disk with a hex shaft that's chucked into a drill press. A set of aluminum disks with self-adhesive sanding cloth fit on top of the leather.

To sharpen a chisel, start with coarse sanding cloth (120-grit) and work your way up to 600-grit. This produces a serviceable edge, but you can polish it to a mirror finish using the leather disk and honing compound.

One benefit of this system is it allows you to see — and control — the entire sharpening process. There are no blind spots like on a vertical grinding wheel.

Also, by running the drill press at its lowest speed, there's less chance of the tool overheating and losing its temper.

Source: Call 541-830-0340, or visit www.bigleg.com.
Price: $29.95

▼ **The leather disk on the Shop Strop makes it easy to get a razor-sharp edge.**

▲ **Socketstik features a ratcheting handle with onboard storage.**

Stick with This Socket Wrench

The name says it all — Socketstik. Manufactured by the Wilton Tool Company, this is a complete socket set *and* a ratchet, all in a single tool.

The unique thing about this wrench is the sockets are stored *in* the handle, so there's no need to carry extra tools around. The Socketstik is available in standard and metric sizes (seven sockets each) for $24.99. **Source:** Home centers and hardware stores.

DIABLO Blades Deliver High Performance, Low Cost

If you were to write up a "wish list" to include all the things you want in a saw blade, it would probably read something like this: sharpness, versatility, durability, thin kerf, reasonably priced.

Of course, a blade that delivers on the first four "wishes" could easily cost $100 or more.

Which is precisely why Freud's new Diablo line of saw blades is truly a wish come true for cost-conscious DIY'ers. Simply put, these blades perform as well as blades that cost twice as much.

The list of features on these blades is impressive. First of all, they're laser cut, not stamped like many other blades. In addition to allowing the use of harder, flatter steel, this helps reduce vibration and noise.It also keeps the blade running cool and reduces the risk of warping. Finally, the blades have a special coating that protects them from heat and resin build-up.

Well, a list of features is one thing. But how do the blades perform?

The best testimonial I can give is for the 12", 72-tooth crosscut blade. We've used this blade on the miter saw in the *Workbench* shop for over a month now, making hundreds of cuts in all types of material. To this day, the blade cuts as cleanly and effortlessly as the day it came out of the box — impressive for a blade that only costs $70.

We've also been using the 7¼" circular saw blades. These blades have a "super thin" kerf (1.5 mm). In part, that explains why the 24-tooth framing blade slices easily through pressure-treated lumber (even afer we accidentally cut through an embedded nail). As for the 40-tooth blade, it passed the acid test — making smooth, chip-free crosscuts in oak plywood.

▲ Diablo blades are available in three standard contractor sizes: 7¼" (24- and 40-tooth versions), 10", and 12".

Sources: Most home centers

Suggested Retail Prices:

- D0724 7¼", 24-tooth $9.99
- D0740 7¼", 40-tooth . . . $19.99
- D1040 10", 40-tooth $34.99
- D1244 12", 40-tooth. $39.99
- D1272 12", 72 tooth. $69.99

WORKBENCHinteractive.com

Tool Companies Begin "Powering Up" Their Web Sites

Sites from the major tool companies are nothing new to the Web. But until recently, most of the sites focused exclusively on hyping their latest tool or rehashing someone else's glowing review of their product.

In the past few weeks, though, I've heard from several tool companies about major renovations to their sites to include more "how-to" content in addition to the sales pitch. So, out of curiosity, I spent a few days clicking through a bunch of tool sites.

Some of the sites really have come a long way from their online catalog days, others offer one or two interesting features, and yet others are sticking with the online brochure approach.

Here's a list of all the sites I looked at with a few comments about each.

THE HOW-TO HEAVY HITTERS: These sites lead the pack in terms of quantity and quality of content.

www.Skil.com: Skil has recently added a library of project articles that most DIY'ers will find very helpful in preparing for projects.

Each article is available in HTML format (which you scroll through on the screen) or as an "animation-enhanced" version.

The way I found myself using these options was to first watch the animated version and then print the HTML for later reference.

The site also features downloadable owner's manuals for Skil tools.

www.Craftsman.com: The highlight of this site is the *Projects and Tips* section. In here, you'll find six categories of articles covering a wide variety of topics and skill levels.

In particular, I like *Bob Vila's Tips* — a large collection of tips on various topics and in various formats.

In the *Hot Products* section you can watch videos of some of Craftsman's innovative new tools in action.

There is also a *Member's Only* area that requires registration at a Sears store or via a toll-free phone number.

www.BlackandDecker.com: What makes this site unique is that the articles in the *Project Plans* section are written to help DIY'ers understand their house as a collection of systems that work together. The site does this by explaining the construction principles behind a project rather than one-size-fits-all designs.

Also be sure to visit:
Tool School for help selecting, using, and maintaining tools.
Project Pride to see real DIY'ers improving their homes.

SOMETHING EXTRA: Contests, games, product information, and more.

www.DeWalt.com: Ten articles and a tool giveaway that ends December 31, 2001.

www.StanleyWorks.com: The *Hobbies and Fun* section has five downloadable project plans and a game.

www.RyobiTools.com: A small collection of full-color project plans.

www.Senco.com: Links to building code sites in the *Contractor/Remodeler* section.

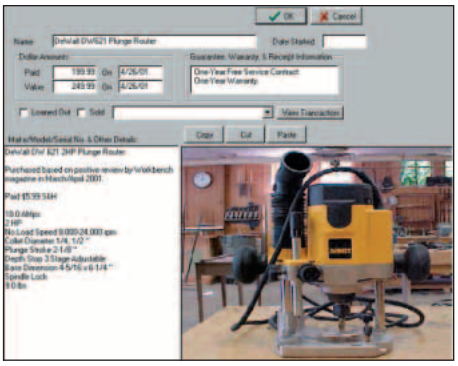
www.BoschTools.com: This site has links to content on other sites.

www.Porter-Cable.com: Product info and a chance to win a very cool truck (ends 12/31/2001).

ONLINE CATALOGS:

These sites offer product information only.

www.Hitachi.com/hpt/
www.DeltaWoodworking.com
www.MakitaOPE.com
www.FeinUS.com
www.RidgidWoodworking.com
www.JetTools.com



Software To Track Your Tool Inventory

Chances are, if I name a tool you can probably tell me whether you own one or not. But can you tell me when and where you bought it? How much you paid for it? What it's worth today?

Probably not. And that's too bad, because those are the questions an insurance adjuster would ask if something were to happen to your tools.

Which is exactly why *Equipment Management Software* (EMS) from Corporate Edge Software is a must have for anyone who owns more than a few tools. EMS makes inventorying tools, or anything else you want to keep track of, quick and simple.

It's designed to let you categorize your tools however you like. Since I downloaded the software, I've created categories for my power tools, hand tools, photography equipment, and computer equipment. I also plan to make categories for my lawn and garden equipment.

Once the categories are all set up, you enter information about each individual tool. The standard form that the software provides asks for the name of the tool, purchase price and date, actual value of the tool, warranty information, and serial number. There is also a place on the form to paste a picture of the tool.

EMS also allows you to:

- Keep detailed maintenance records on every tool you own.
- Manage inventory of supplies and accessories for each tool.
- Record transactions related to each tool (such as who you loaned it to and when).
- Save internet links related to each tool in your inventory.
- Print a variety of reports about your tool inventory.

The software is downloadable at www.CorporateEdgeSoftware.com and costs $17.95. (That price was listed as being for a "limited time," but I couldn't find the regular price anywhere on the site.)

After downloading the software and starting it up, click on the "Help" button on the top of the opening screen. Now select "Online User Guide" from the pulldown menu. This will direct you to a list of guides. Select *Equipment Management Software* from the list and then print the PDF user's guide that will download to your computer in a few minutes. Follow the step-by-step guide and you'll be inventorying tools in no time.

No-hassle... Bathroom Makeover

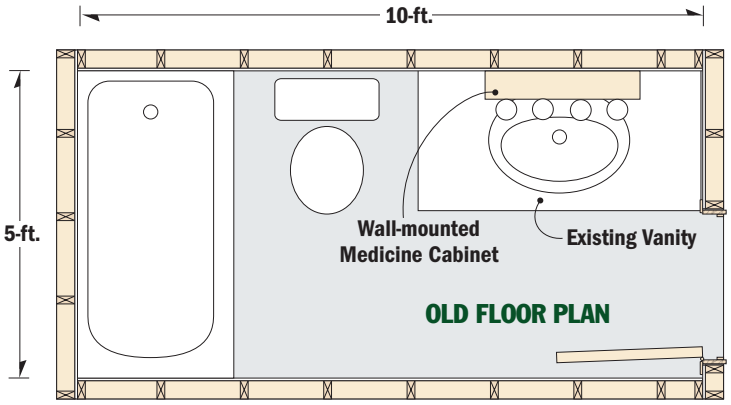
This "facelift" features two in-wall cabinets and a partition with a pantry-style drawer, all of which you can install in about a weekend.

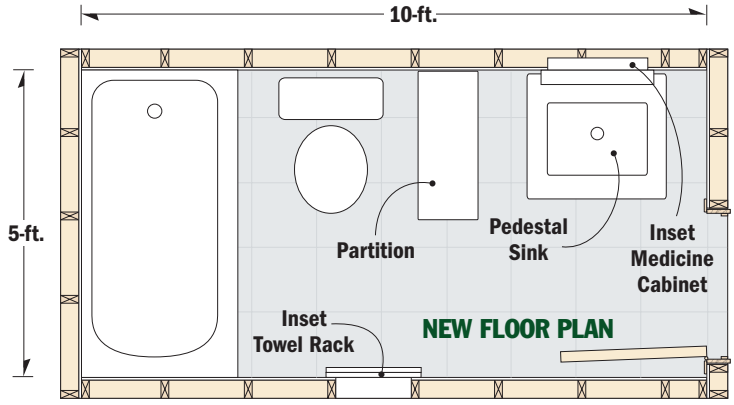
The biggest challenge with any bathroom renovation is how to get by while the bathroom is under construction and out of commission. Of course, I didn't think that would be a big issue with my recent remodel. After all, I was just planning to replace an outdated vanity (see the before photo) with a stylish new pedestal sink — nothing to it. Mark those as famous last words.

As often happens, this simple changeout job snowballed into an all-out renovation, which included a partition with a pantry-style drawer, beadboard wainscoting with all new molding, an in-wall towel rack, a mirrored medicine cabinet, and ... oh yeah, a new sink. Which brings me back to my original point: How do you survive when the only bathroom in the house is under construction?

Well, there's always the corner service station. Maybe you could negotiate for a key of your own for the duration of the project.

A more practical solution, though, is to keep bathroom downtime to a minimum by doing as much of the work as possible in the





shop. In this case, that meant building the partition, medicine chest, and towel rack ahead of time and then painting them before installing them.

All of the shop-made molding was machined and painted ahead of time, as well. And once I had a final measurement for the wainscoting, I cut that to length and painted it before installing it on the walls and partition.

Another important part of keeping the disruption short is to focus on working within the existing floorplan rather than tearing all the fixtures out and starting over. You can see in the old and new floor plan drawings above that the size and shape of the bathroom didn't change at all. Nonetheless, the difference between the old and the new is dramatic.

PART 1

In this phase of the project, we'll cover building and installing the partition, the wainscoting and all of the molding (see the photo above).

Then, in the January/February issue, we'll show you how to build and install the medicine chest and towel rack, pictured at right.

MAKEOVER PART 2: SNEAK PEAK

In the January/February issue of *Workbench*, we'll show you how to build and install the medicine cabinet shown above and the towel rack at right.

Both are recessed into the wall for added storage depth.

▲ **A pantry-style, slideout drawer provides enough space in the partition to more than make up for the storage lost with the removal of the vanity.**

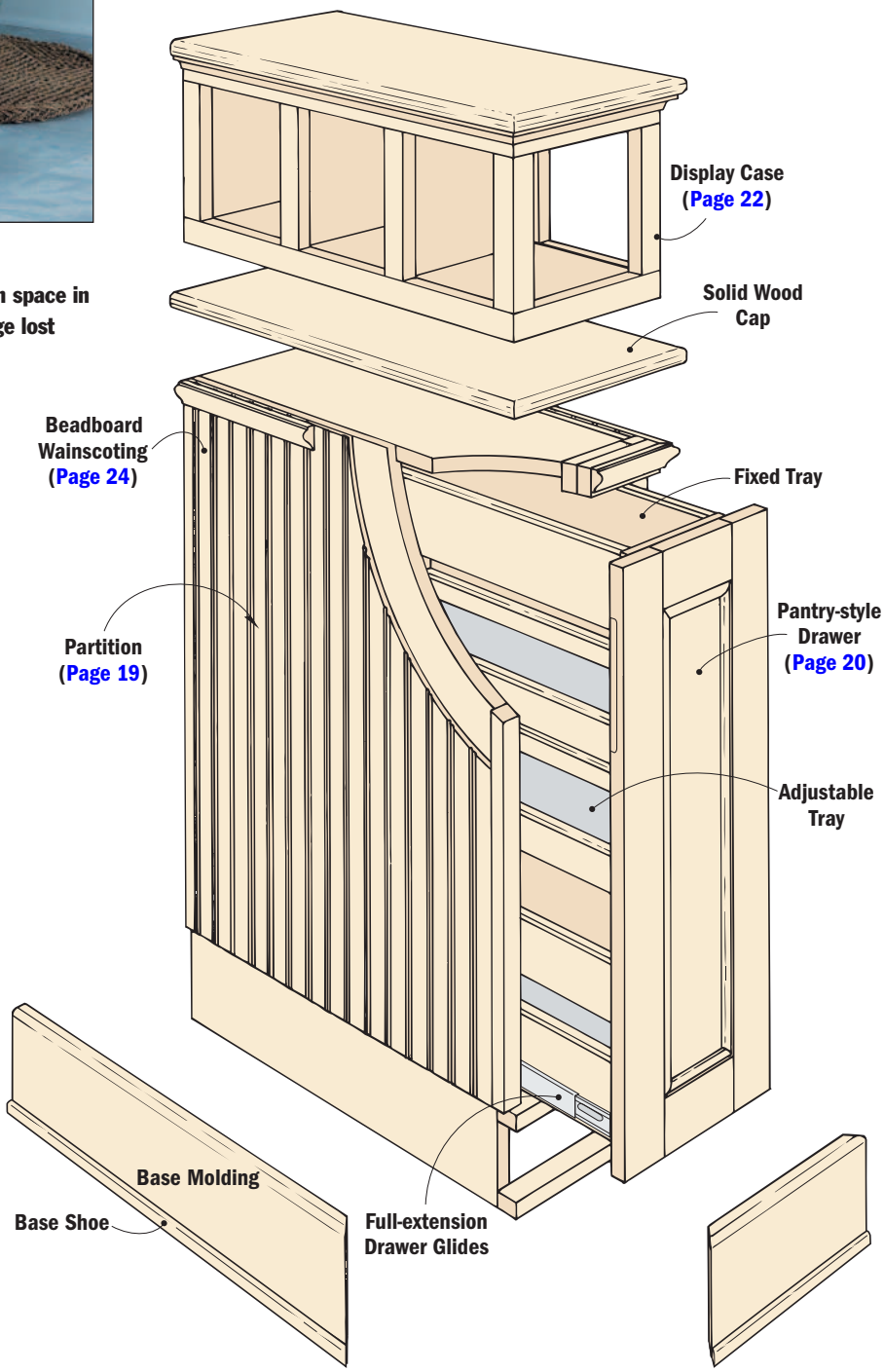
A BATHROOM DIVIDED

At the heart of this bathroom makeover is a partition that divides the room. The partition does double-duty by acting as a privacy screen and also providing storage space that was lost by removing the vanity.

Once it's installed, the partition will look like a single cabinet (See the photo, left). But it's actually built in two parts: a base cabinet with a pull-out, pantry-style drawer, and a top case that serves as a display area.

The drawing below shows the partition with the wainscoting and trim molding already applied. A lot of those details go on after the partition gets installed. They're shown here to give you an idea of what the completed partition will look like.

PARTITION CONSTRUCTION VIEW



MATERIALS LIST

BASE CABINET

A (2)	Carcase Sides (ply)	3/4" x 21 1/4" x 32"
B (2)	Carcase Top/Bttm. (ply)	3/4" x 8" x 21 1/4"
C (2)	Mounting Blocks (ply)	3/4" x 4" x 7 1/2"
D (2)	Spacers (poplar)	3/4" x 1 3/16" x 9 9/16"
E (2)	Stiles (poplar)	3/4" x 1" x 27 7/16"
F (1)	Rail (poplar)	3/4" x 1 3/8" x 7 1/2"
G (1)	Trim Block (poplar)	3/4" x 1 3/8" x 9 9/16"
H (1)	Partition Cap (poplar)	3/4" x 11 3/8" x 23 5/8"

DRAWER

I (2)	Drawer Ends (ply)	3/4" x 6 1/2" x 25 1/2"
J (2)	Fixed Tray Btms. (melamine)	1/2" x 5 1/2" x 19"
K (4)	Fixed Tray Sides (poplar)	3/4" x 3 1/2" x 18 1/2"
L (2)	Adj. Tray Btms. (melamine)	1/2" x 5 1/2" x 18 3/8"
M (4)	Adj. Tray Sides (poplar)	3/4" x 1 3/4" x 18 3/8"
N (2)	Face Frame Rails (poplar)	3/4" x 2 1/2" x 4 5/8"
O (2)	Face Frame Stiles (poplar)	3/4" x 2 1/2" x 25 7/8"
P	Quarter Round (pine)	1/2" x 1/2" x 51"

TOP CASE

Q (2)	Case Top/Btm. (poplar)	3/4" x 8 1/8" x 22"
R (3)	Case Dividers (ply)	3/4" x 8 1/8" x 7 3/4"
S (2)	Case Side Rails (poplar)	3/4" x 1 1/4" x 22 3/4"
T (4)	Case Side Stiles (poplar)	3/4" x 1 1/4" x 6 3/4"
U (4)	Case End Rails (poplar)	3/4" x 1 1/4" x 9 5/8"
V (4)	Case Crnr. Stiles (poplar)	3/4" x 1 1/4" x 6 3/4"
W (1)	Case Cap (poplar)	3/4" x 11 3/8" x 23 5/8"
X	Cove Molding (pine)	1/2" x 1/2" x 11 lin. ft.*
Y	Door Casing (poplar)	5/8" x 3" x 16 lin. ft.*
Z	Corner Molding (pine)	3/4" x 3/4" x 16 lin. ft.*

BASE, CASING, WAINSCOTING & TRIM

AA	Base (poplar)	3/4" x 4 1/2" x 11 lin. ft.*
BB	Base Shoe (pine)	1/2" x 3/4" x 11 lin. ft.*
CC	Beadboard (pine)	5/16" x 3 1/2" x 44 sq. ft.*
DD	Ledge (poplar)	3/4" x 1 7/8" x 6 lin. ft.*
EE	Partition Trim (pine)	5/8" x 1 1/8 x 5 lin. ft.

*The amount of material will vary based on the size of your room.

BEGIN WITH THE BASE

The first step in building the partition is to assemble the base as shown in the *Carcase Construction* drawing. The carcase is built entirely with $^3/_4$"-thick plywood and consists of two sides (A), a top and bottom (B), and two mounting blocks (C).

The sides have a dado to hold the carcase bottom and a rabbet to hold the top *(Fig. 1* and *Fig. 2)*.

The top and bottom pieces are glued and screwed into the rabbets and dadoes.

Now cut the mounting blocks to fit between the sides and glue and screw them in place, as well. The blocks add rigidity to the carcase now, and when it's time to install the partition, they'll make it easy to fasten it to the wall.

"BUILD-OUT" THE CARCASE

With the carcase assembled, the next step is to "build-out" its front edges. This is done with several $^3/_4$"-thick hardwood pieces: two spacers (D), a couple stiles (E), a rail (F), and a trim block (G). There are two reasons for these "build-outs."

First, the spacers and the trim block make the partition stick out a bit further at the top and bottom. This is so the trim and molding that's applied later will be even with the drawer front.

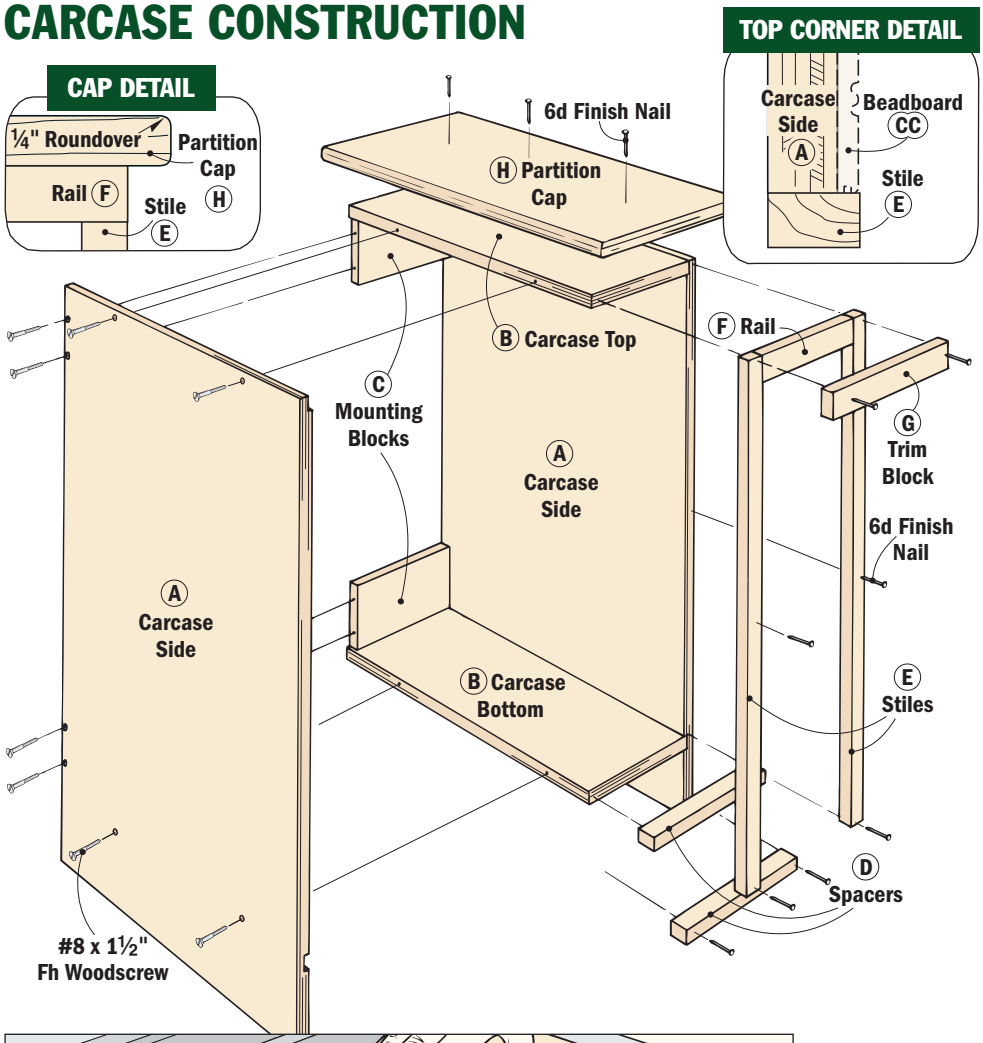
Secondly, the stiles serve as the stopping point for the beadboard. They do this by overhanging the carcase sides for the beadboard to butt into *(Top Corner Detail)*.

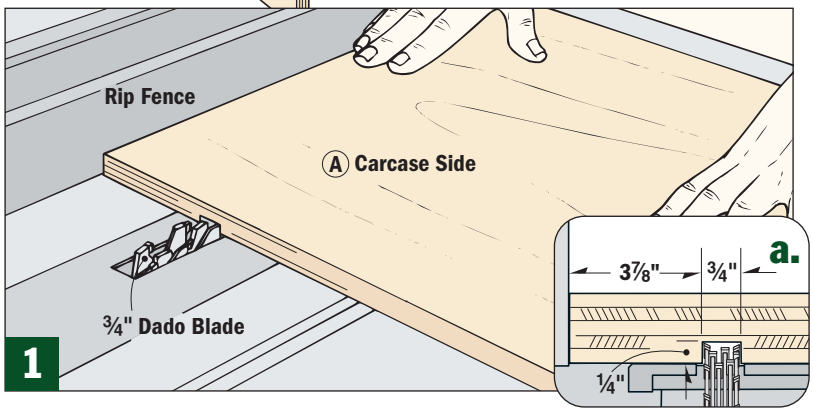
All of these pieces are attached with glue and nails, starting at the bottom and working up. First are the spacers. Then add the stiles and fit the rail between them. Finally, add the trim block at the very top.

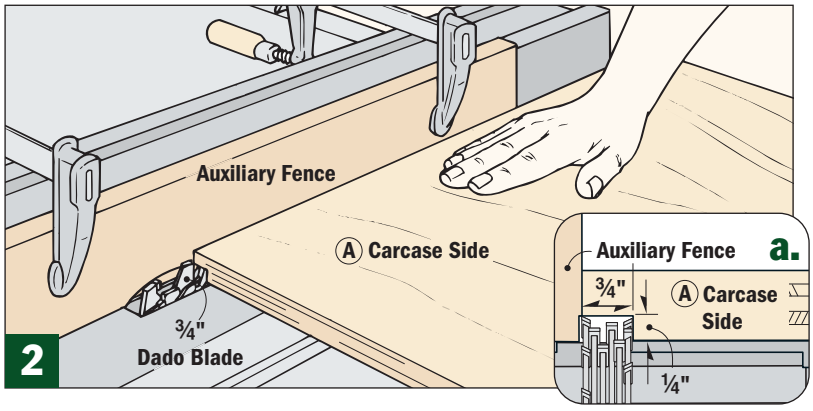
PARTITION CAP

The final step is to glue up a solid wood panel for the partition cap (H). Cut it to size, and round over all but the *back* edges. Position the cap flush with the back of the carcase and to overhang the sides and front an equal amount. Then simply nail it to the partition *(Cap Detail)*.

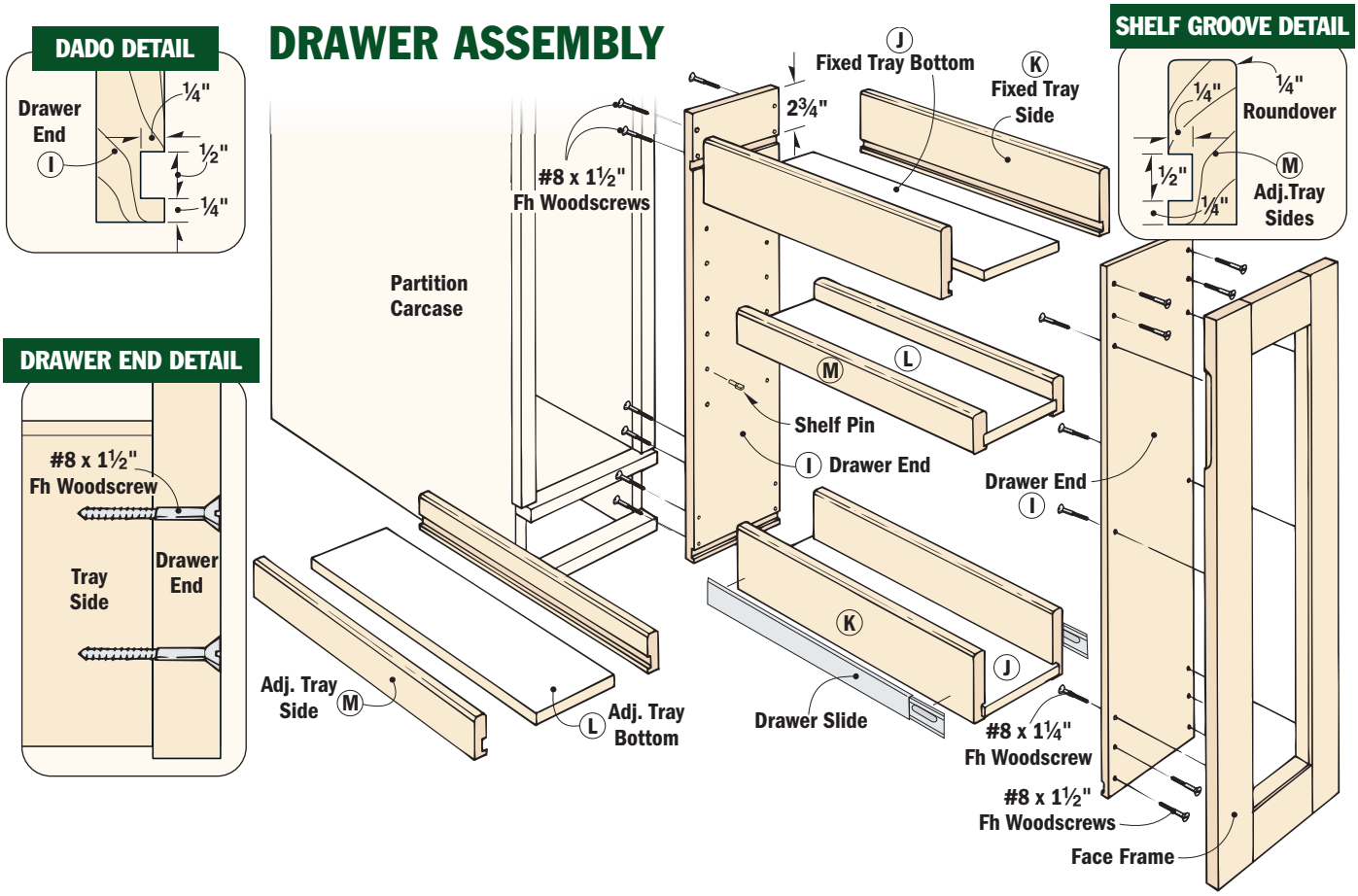
CARCASE CONSTRUCTION







DRAWER ASSEMBLY



DRAWER CONSTRUCTION

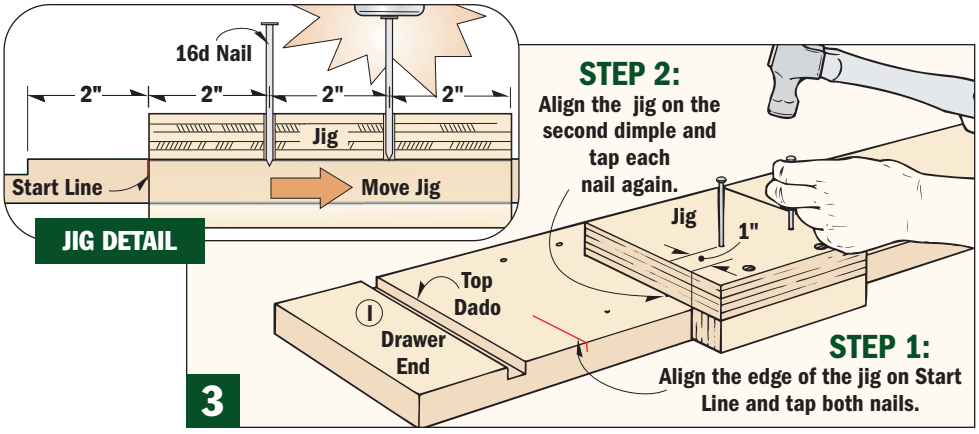
Now that the carcase for the partition is complete, you're ready to build the drawer that fits inside it. As you can see in the drawing above, the drawer is a tall, open-sided unit with four storage trays.

The top and bottom trays are fixed in dadoes cut in the plywood drawer ends (I). The center trays are adjustable and rest on shelf pins.

To begin the drawer, cut the end pieces to size and then dado them for the fixed trays (*Dado Detail,* above).

Next, I laid out the location of the shelf pin holes with a jig like the one shown in *Figure 3*. Making this jig takes a few minutes, but it's worth it. If the shelf pin holes aren't perfectly aligned, the trays will tend to rock on the uneven pins. This jig indexes first from a start line you make on the drawer end, and then from the "dimples" made by the nails *(Jig Detail)*.

With all the pin hole locations marked, drill ¼"-diameter holes ⅜"- deep at each mark, using a stop collar to control the depth.



ASSEMBLING THE TRAYS

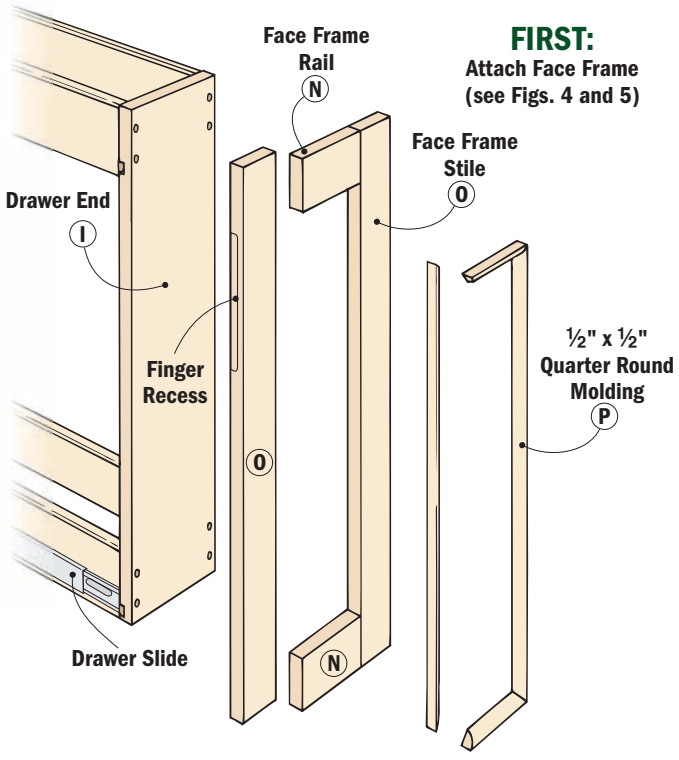
The four storage trays are constructed essentially the same, though there are a couple important differences. The top and bottom shelves have taller sides, and they're fixed in the drawer. This is accomplished by gluing them into dadoes in the drawer ends. For that reason, the melamine bottoms (J) of these fixed trays are ½" longer than the hardwood sides (K) so they fit into the dadoes.

On the adjustable trays, the bottoms (L) and the sides (M) are the same length.

One note about working with melamine — it chips easily, so you need to guard against that. The right blade helps quite a bit. You may want to consider one of the new Freud blades shown on page 13. Of course, the most economical approach is to run masking tape along the cut lines.

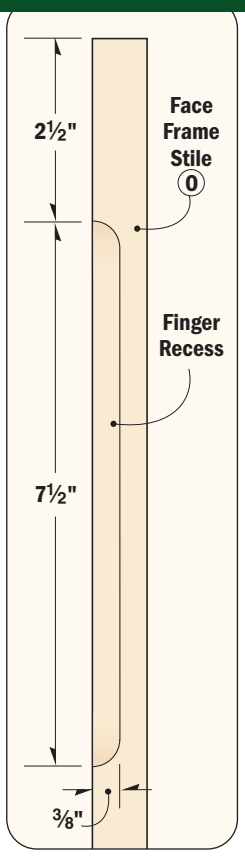
Whichever method you choose, cut the melamine bottoms first, then cut the sides. Next, cut ½"-wide grooves in the sides to hold the bottoms *(Shelf Groove Detail)*. Then glue and clamp the bottoms into the sides.

DRAWER FACE ASSEMBLY

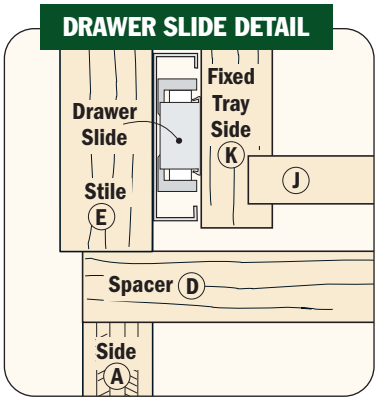


SECOND: Miter Quarter Round to fit inside Face Frame.

FINGER RECESS DETAIL



DRAWER SLIDE DETAIL



▲ Use a piece of scrap to position both slides at the same height in the cabinet.

Now glue and clamp the fixed trays to the drawer ends and drive screws as shown in the *Drawer End Detail*, at left.

INSTALL THE SLIDES

Before going any further with the drawer assembly, install the drawer in the base now. This will make it easy to position the face frame later.

The drawer rides on two-piece, full-extension slides. *(Sources and Resources,* page 54). So begin by mounting the cabinet member of the drawer slides inside the carcase (see the photo, above right).

Next, attach the moving slide member to the drawer and mount the drawer inside the partition.

BUILDING THE FACE FRAME

With the drawer built and mounted on the slides, the final step is to dress up the drawer end with a face frame.

This is done by attaching hardwood rails and stiles directly to the drawer end. Which is a bit more involved than it sounds. But before I get into that, I want to point out the recessed pulls on the stiles *(Finger recess Detail)*. These recesses make the drawer easy to open without advertising the fact that it's a drawer the way a face-mounted pull would.

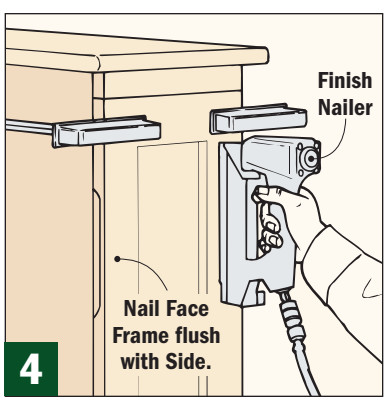
The recesses are simple to make. First, cut the rails (N) and stiles (O) to size, then set your router table up with a ¾" cove bit. Use stop blocks to position the stiles for the beginning and the end of the cut.

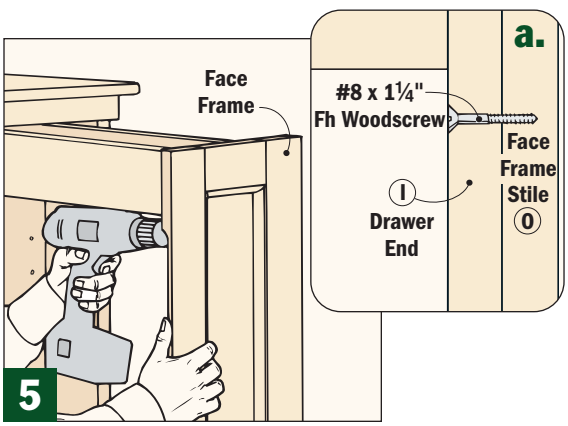
Now you're ready to attach the rails and stiles to the drawer end. With the drawer installed in the partition, clamp the face frame pieces to the partition as shown in *Figure 4*. Be sure to position the stiles so their oustside edges are flush with the edges of the carcase before finish nailing them on.

Next, open the drawer and drive screws through the drawer end and into the rails and stiles (*Figs. 5* and *5a)*.

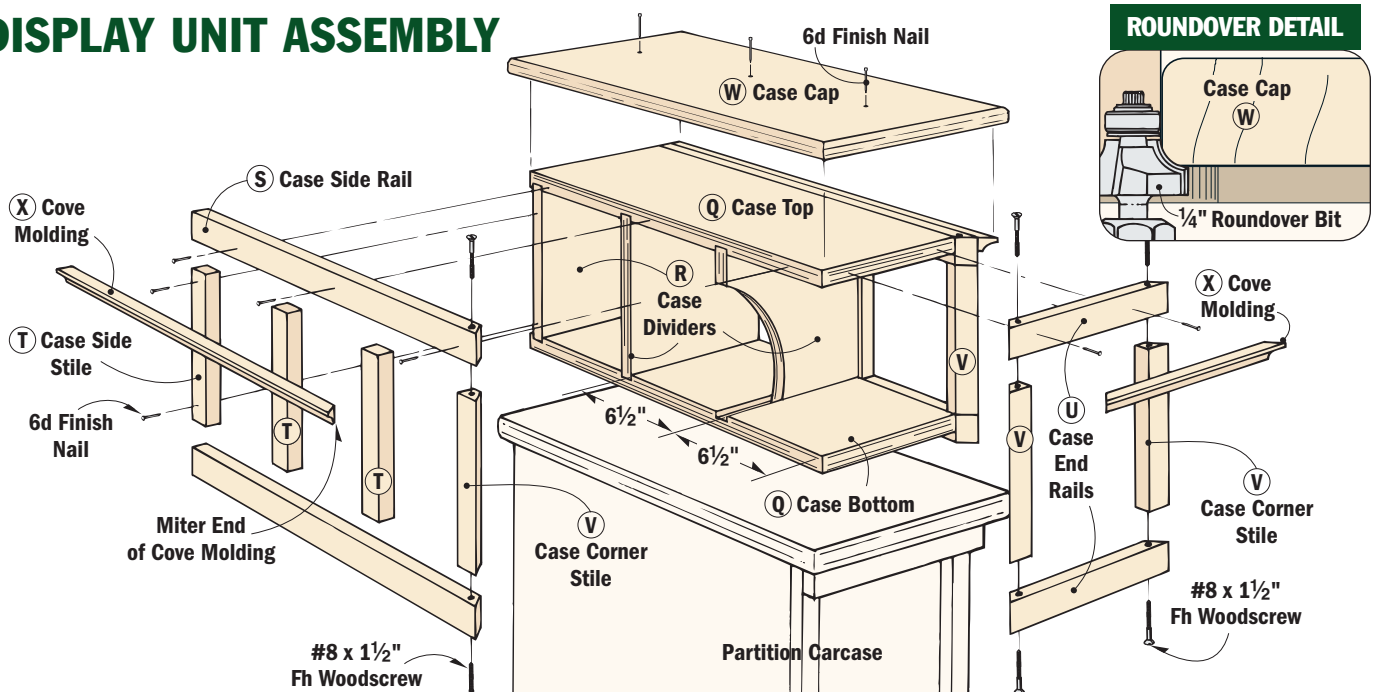
Finally, miter the quarter round moldings (P) and attach it inside the frame with glue and finish nails.

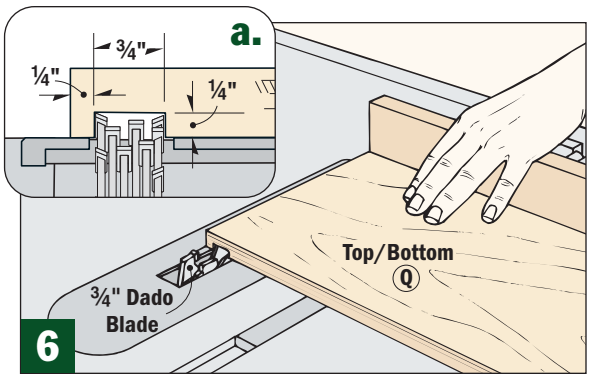
At this point, you may notice that the face frame is slightly out of alignment with the partition sides. That should be easy to fix by adusting the slides according to the instructions.

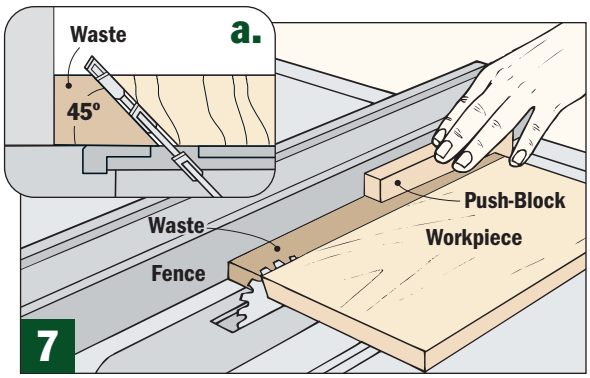


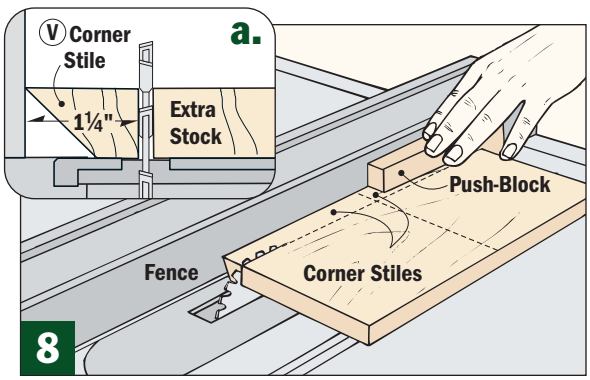


DISPLAY UNIT ASSEMBLY









DISPLAY CASE ANATOMY

The display case (shown in the drawing above and in the photo on the next page) rests on top of the base cabinet. The case adds height to the finished partition. But what's more, the case has three nooks that you can personalize with whatever you like. Adding decorative touches to the top case helps make the partition seem less like a wall and more like a decorative piece of furniture.

The display case is a divided plywood box that's wrapped with hardwood face frames on three sides. The face frames on the side of the case consist of four stiles sandwiched between two rails. On the end of the case, there are two stiles and a pair of rails. Notice here that the corner stiles are bevel ripped. That way there won't be any edge grain showing where these stiles meet.

Finally, the entire display case is capped off with a solid wood panel.

CONSTRUCTING THE CASE

To build the case, begin by cutting the top and bottom (Q) to size from ¾"-thick plywood. Next, you'll need to cut dadoes in the top and bottom to accept the dividers *(Fig. 6* and *Fig. 6a)*.

Now cut the three dividers (R), also from ¾"-thick plywood. Then glue and nail the dividers between the case top and bottom.

APPLYING THE FACE FRAME

With the case constructed, you're ready to apply the face frame to cover the exposed plywood edges.

Begin with the rails. Rip these to width and cut them to length by mitering the front ends of the side rails (S) and both ends of the case end rails (U).

At this point, you can go ahead and attach the rails to the case. They're positioned flush with the top and bottom of the case and then glued and nailed in place.

By attaching the rails before cutting the stiles, you can now measure between the rails to find the exact length of the stiles. But before you begin cutting stiles, there are a couple things you need to be aware of.

First, as I mentioned before, the corner stiles (V) are bevel ripped to hide their edge grain. The side stiles (U) are *not* beveled. So these you can go ahead and cut to size.

The technique I used to bevel rip the side stiles is shown in *Figure 7* and *Fig. 7a*. I began by cutting a 45° bevel on the edge of an oversized piece of stock. Then I set the table saw blade for a square cut and ripped the stiles to width *(Fig. 8* and *Fig. 8a)*.

This technique takes a little time, but it's a safe and accurate way to make these tricky cuts. One way to shorten the process a bit is to use a piece of stock that is long enough that you can get two or more stiles out of each beveled edge.

Attach the side stiles first, postioning them so they are centered on the thickness of the plywood dividers — which means they'll extend past both faces of the dividers. Glue and finish nail the stiles to the divider edges *(Fig. 9)*.

When you get to the corner stiles, these will need a bit more hardware to hold them firm since they aren't backed up by the plywood dividers the way the side stiles are. One woodscrew into the end of each corner stile is plenty.

DISPLAY CASE CAP

The display case cap (W) is a glued-up hardwood panel just like the partition cap. It also has roundovers on its long sides and front end *(Roundover Detail)*. The back end is left square to butt against the wall.

When the cap is complete, attach it to the case with finish nails *(Fig. 10* and *Fig. 10a)*. Since there isn't enough room inside the case to nail from the underside of the cap, you'll have to drive nails through the top of the cap and then fill the holes with wood filler.

COVE MOLDING

Cove molding (X) (the $^1/_2$" × $^1/_2$" variety found at any home center) is applied to soften the transition between the cap and the face frame.

Apply the molding beginning on one side of the case. Start the cove flush with the back of the case and miter it at the front corners of the case. Glue and nail the molding to the face frame *(Fig. 11* and *Fig 11a)*.

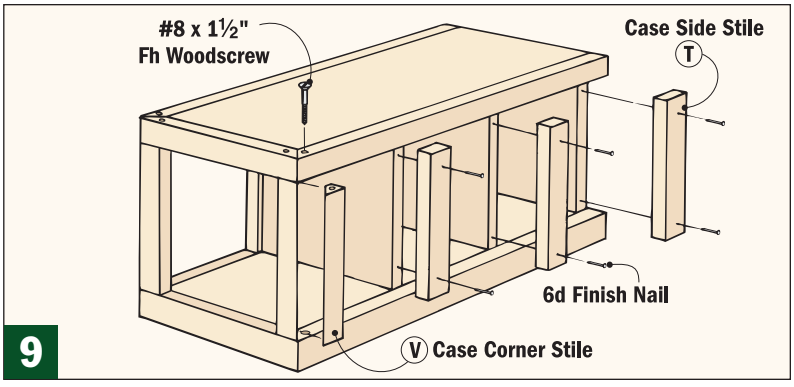
FILL, SAND, PRIME, AND PAINT

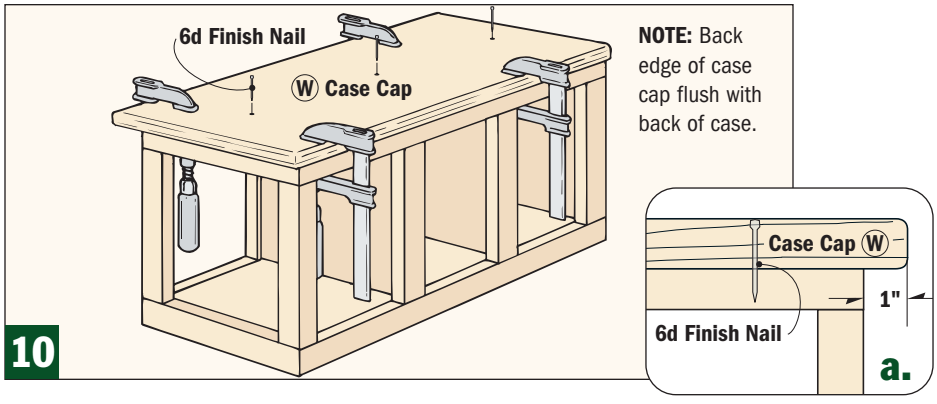
With the bulk of the partition assembled, the next step is to fill the nail holes and any gaps in the mitered corners with paintable wood filler. I used a water-based filler from Famowood that hardens ready for sanding and painting in about fifteen minutes.

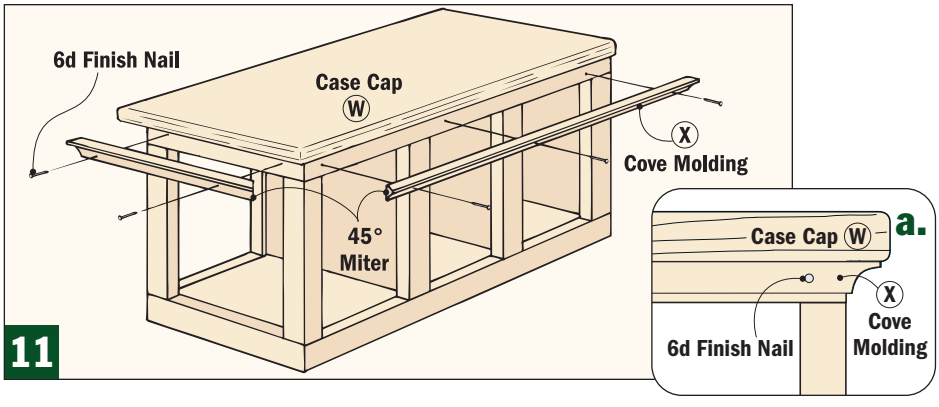
Speaking of sanding, every piece of the project needs a light sanding with 120-grit sandpaper before priming and painting. This is just enough to even out any rough spots and give the wood some "tooth" to hold the painted finish.

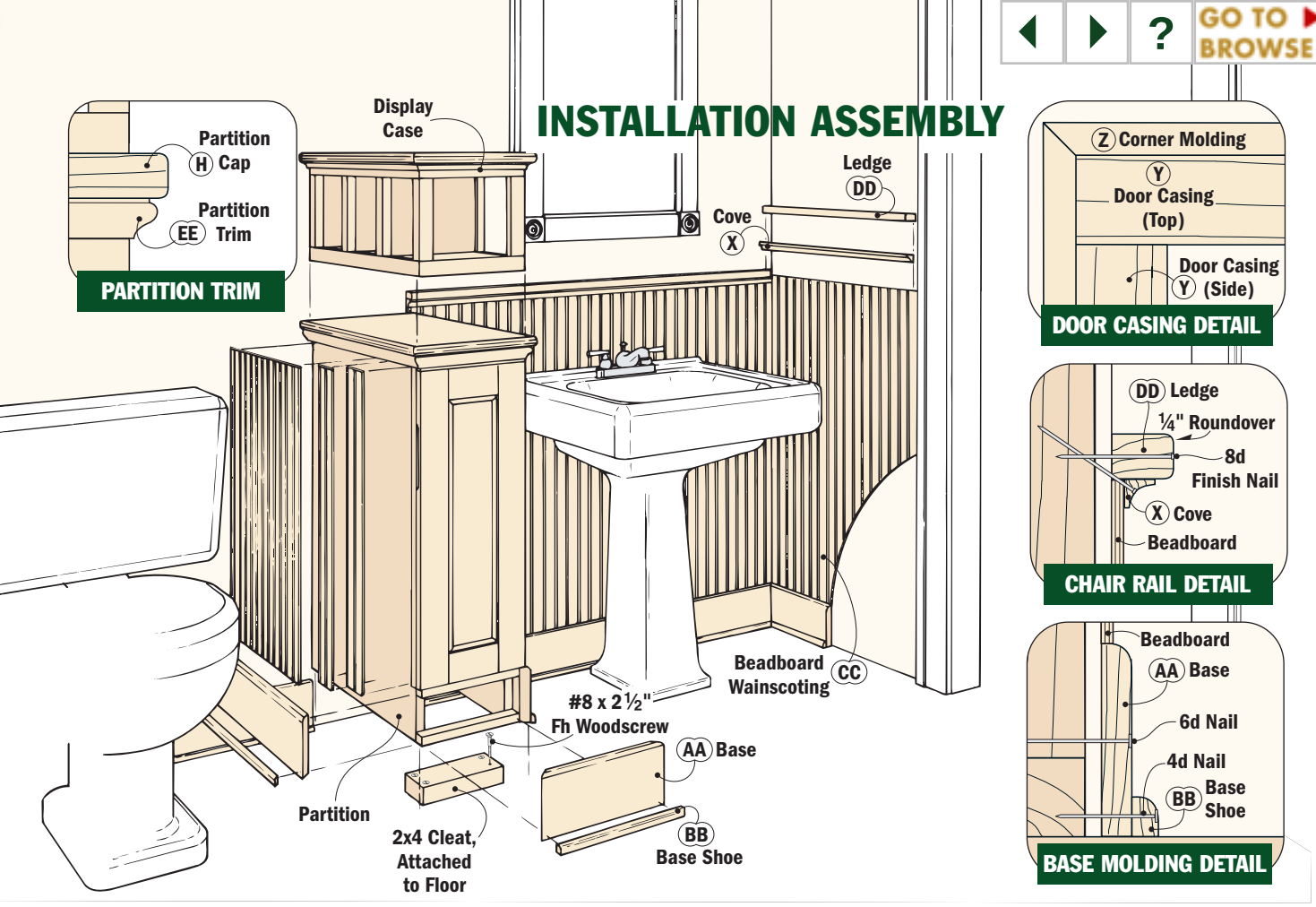
After sanding, apply a stain-blocking, water-based primer followed by two coats of latex paint. If you have a spray finishing system, it'll definitely pay off with this project. Otherwise, you may want to consider renting one — the time you save over brushing will be well worth it.

The display case adds height and decoration to the partition. A piece of tempered glass protects the case cap from scratches and dents.









▲ **5/16" x 3½" tongue-and-groove beadboard makes attractive wainscoting panels. Beadboard is available at most home centers.**

PARTITION POSITION

There's no hard-and-fast rule about where to locate the partition in your bathroom. Centered between the sink and the toilet seems natural, but you may decide you want more space on one side or the other.

One other quick note, if you're replacing the flooring in the bathroom, that should be done before installing the partition.

FASTENING THE PARTITION

When you've found just the right spot for the partition, square it to the wall and level it as shown in *Figure 12*. Next, attach a 2x4 cleat to the floor and screw the cabinet to the cleat *(Fig. 13)*.

Now fasten the display case to the partition with woodscrews driven from inside the cabinet *(Fig. 14)*. Then fasten the cabinet to the wall. If you're lucky enough to have a wall stud that falls within the width of the partition, a couple of woodscrews through each backer block into the stud will do the job nicely. Otherwise, you'll need to use a toggle bolt in each block.

CASING AND BASE

With the partition set in place, you need to turn your attention to the molding throughout the room. If your renovation includes changing the door casing as mine did, now is the time to remove the old stuff and install the new *(Door Casing Detail)*.

Next comes the base molding and shoe *(Base Molding Detail)*. Start in any corner of the room and work your way around, mitering at each outside corner and coping the molding at the inside corners, nailing it in place as you go.

Attach the base with 6d finish nails and the base shoe with 4d finish nails. Be sure to predrill pilot holes in the base shoe to avoid splitting it.

WAINSCOTING

Now it's time to install the wainscoting. I used beadboard strips (see photo at left) to make my "panels."

This is when you need to take a minute to think about how all those individual pieces of beadboard will form the final panels. The goal is to center the material on the wall (or the partition side, as the case may be) to wind up with equal-width pieces at each end of the "panel."

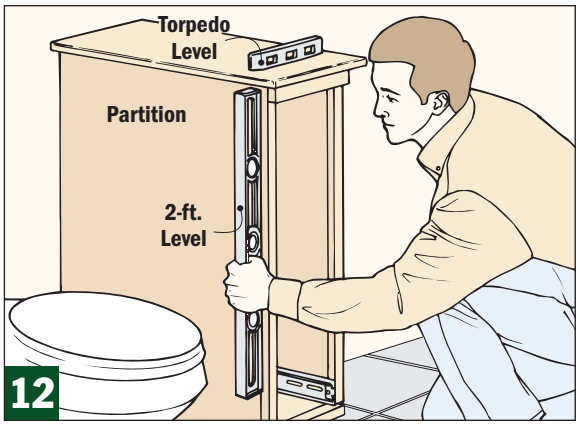
I suppose this could be done with some fancy math, but I prefer the no-nonsense method of laying things out to see how they'll look.

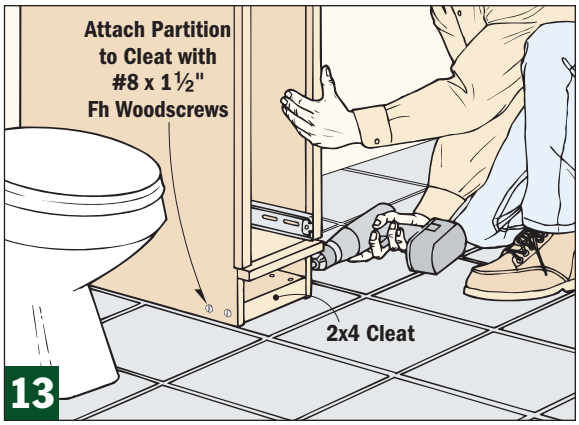
To do this, cut several pieces of beadboard to length and arrange them into a "panel" on a flat workspace, such as a floor or workbench. The panel needs to be slightly wider than the space it's intended for.

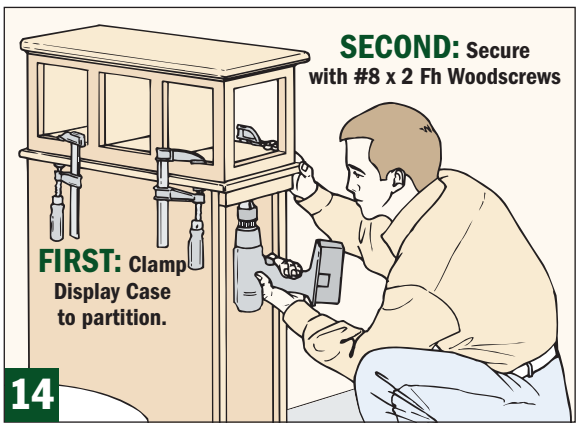
Now lay out the size of the finished panel on this oversized panel so you can see exactly how it will look once it's actually installed.

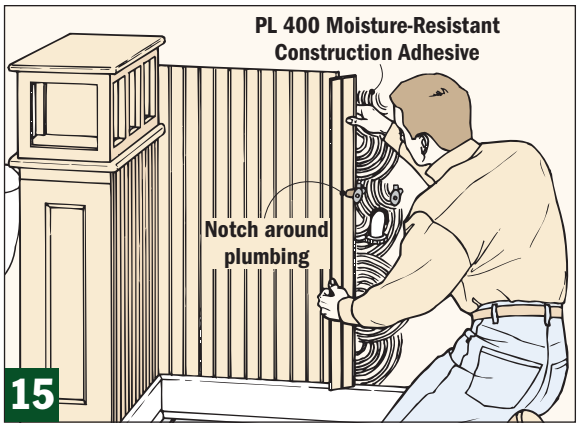
Next, rip the beadboard pieces that fall at each end of the panel so they're the same width.

Follow the same procedure to lay out beadboard panels to cover the bathroom walls. Be sure to keep the beadboard panels stacked separately so they don't get mixed up during installation.









INSTALLING THE BEADBOARD

Although you've laid the beadboard out as panels, each piece needs to be installed individually. And rather than having to fill countless nail holes, your best bet is to use construction adhesive to install the beadboard.

Apply the adhesive over an area of about four to six square feet at a time using a notched trowel. Set the beadboard in place one piece at a time, giving each one a slight wiggle to seat it into the adhesive.

As you apply the beadboard around plumbing you'll have to cut or drill the pieces to go around the pipes *(Fig. 15)*.

TRIM AND CHAIR RAIL

Trimming the top of the wainscoting is the last construction step in this phase of the bathroom renovation. There are a few different types of molding used for this.

First is an ogee-like molding that's applied at the top of the wainscoting on the partition *(Partition Trim Detail)*. This stuff is sold as $^{5}/_{8}$" × $1^{1}/_{8}$" base cap. Installed with the thick part up, it creates a decorative transition under the partition cap and the beadboard.

For the chair rail, I combined standard $^{1}/_{2}$" cove molding and a shop-made ledge (DD) molding to add some dimension to the top of the wall covering *(Chair Rail Detail)*.

Install the ledge first. Drill pilot holes through the width of the molding and attach it to the wall studs with 8d finish nails.

Now attach the cove molding by angle nailing through the cove and into the ledge molding. Finally, fill the nail holes and any small gaps at the joints or in the corners with latex caulk or wood filler. Touch up the paint as necessary using a small detail brush.

FINAL THOUGHTS

The bathroom is back in business, and if all has gone well, there should still be some daylight left in the weekend. Not enough time to start the next phase of the bathroom makeover — building and installing the towel rack and medicine chest. Those are for another weekend, and the next issue of *Workbench*.

The styling of the wainscoting, partition, and medicine cabinet lends itself well to decorative accents.

Utility Workbench

Rock-solid construction, a durable worksurface, and lots of storage. Plus it's easy to build. What more could you ask for in a utility bench?

A solid bench with a flat, durable worksurface — that's definitely one of the *first* projects I'd recommend for a home shop or garage.

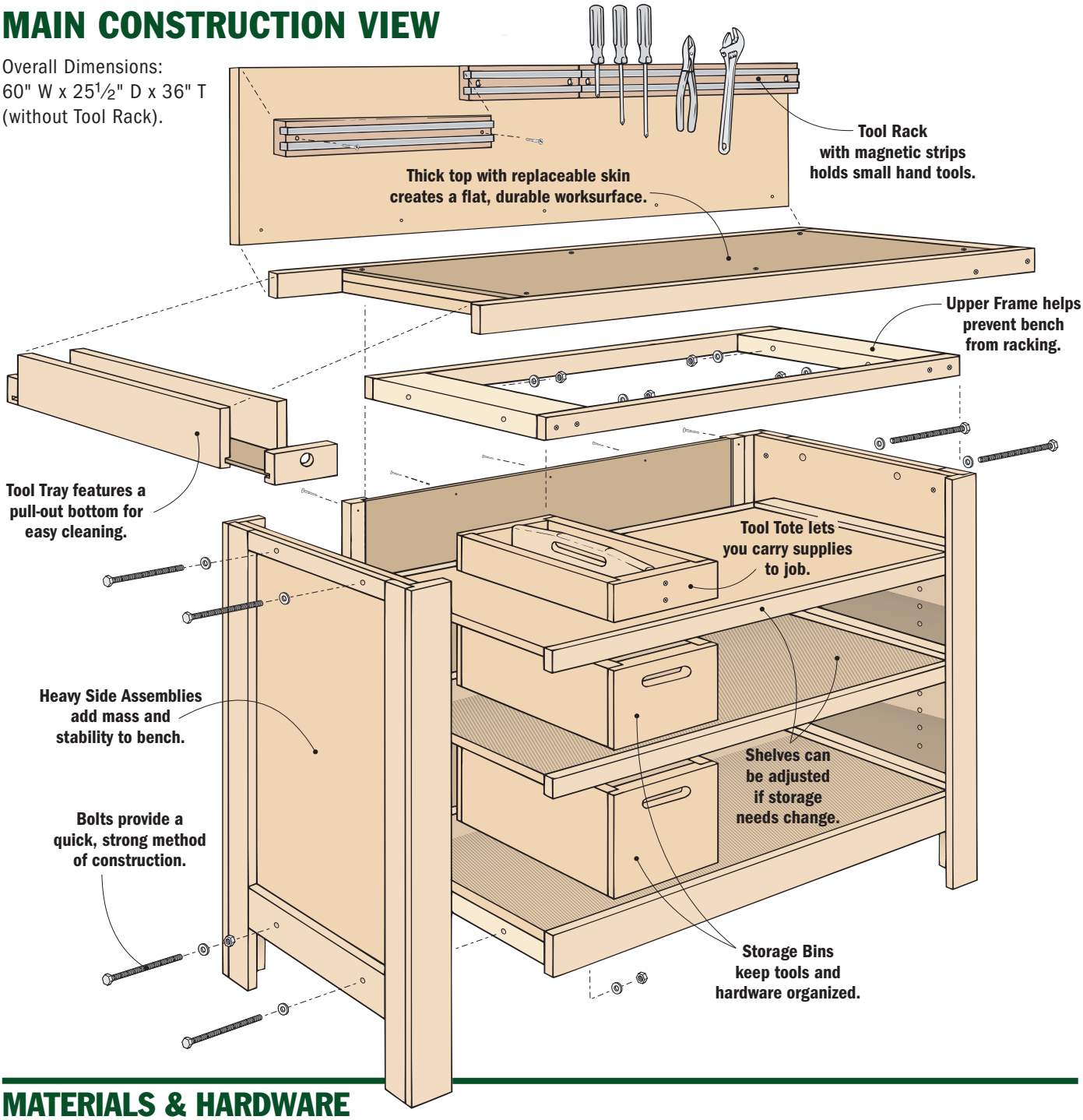
And it doesn't have to be a fancy workbench with lots of complicated joinery, or one that takes a lot of time and money to build.

One solution is to build a utility workbench like the one shown above. This bench is designed to bolt together, so it simplifies the construction considerably. In fact, you'll probably find that you can build the bench in a couple of weekends. As for its cost, plan on spending around $150 for the entire project.

There are several other things I think you'll appreciate about this bench. To name a few, there's lots of storage, a top that can be replaced if it gets dirty or beat up, and a tool tray that keeps clutter off the worksurface. In short, this utility bench is an indispensable "tool" that should serve you well for years to come.

MAIN CONSTRUCTION VIEW

Overall Dimensions:
60" W x 25½" D x 36" T
(without Tool Rack).



MATERIALS & HARDWARE

BASE

A	(4)	Front/Back Legs (Maple)	3/4" x 3" x 34 1/4"
B	(4)	Side Legs (Maple)	3/4" x 2 1/2" x 34 1/4"
C	(2)	Sides (MDF)	3/4" x 20 1/2" x 29 3/4"
D	(2)	Upper Filler Blocks (Maple)	3/4" x 1 1/2" x 16"
E	(2)	Lower Filler Blocks (Maple)	3/4" x 3" x 16"
F	(2)	Upper Fr. Rails (Maple)	3/4" x 1 1/2" x 43"
G	(4)	Mounting Cleats (Fir)	1 1/2" x 3 1/2" x 19"
H	(2)	Adj. Shelves (MDF)	3/4" x 19" x 42 3/4"
I	(4)	Adj. Shelf Rails (Maple)	3/4" x 1 1/2" x 42 3/4"
J	(4)	Guides (MDF)	3/4" x 1 1/2" x 19"
K	(1)	Lower Shelf (MDF)	3/4" x 19" x 43"
L	(2)	Lower Shelf Rails (Maple)	3/4" x 3" x 43"
M	(1)	Back Panel (Hardboard)	1/4" x 29 3/4" x 37 3/4"
N	(2)	Keeper Strips (Maple)	3/4" x 1 1/2" x 29 3/4"

BENCH TOP

O	(2)	Core Pieces (MDF)	3/4" x 24" x 53 1/4"
P	(1)	Cover (Hardboard)	1/4" x 24" x 53 1/4"
Q	(1)	Side Edging Strip (Maple)	3/4" x 1 3/4" x 24"
R	(2)	Fr./Bk. Edging (Maple)	3/4" x 1 3/4" x 60"
S	(2)	Tool Tray Sides (Maple)	3/4" x 3 1/2" x 24"
T	(2)	Tray Front/Back (Maple)	3/4" x 1 3/4" x 6"
U	(1)	Tray Bottom (Hardboard)	1/4" x 5 1/4" x 24 3/4"

TOOL TOTE & STORAGE BINS*

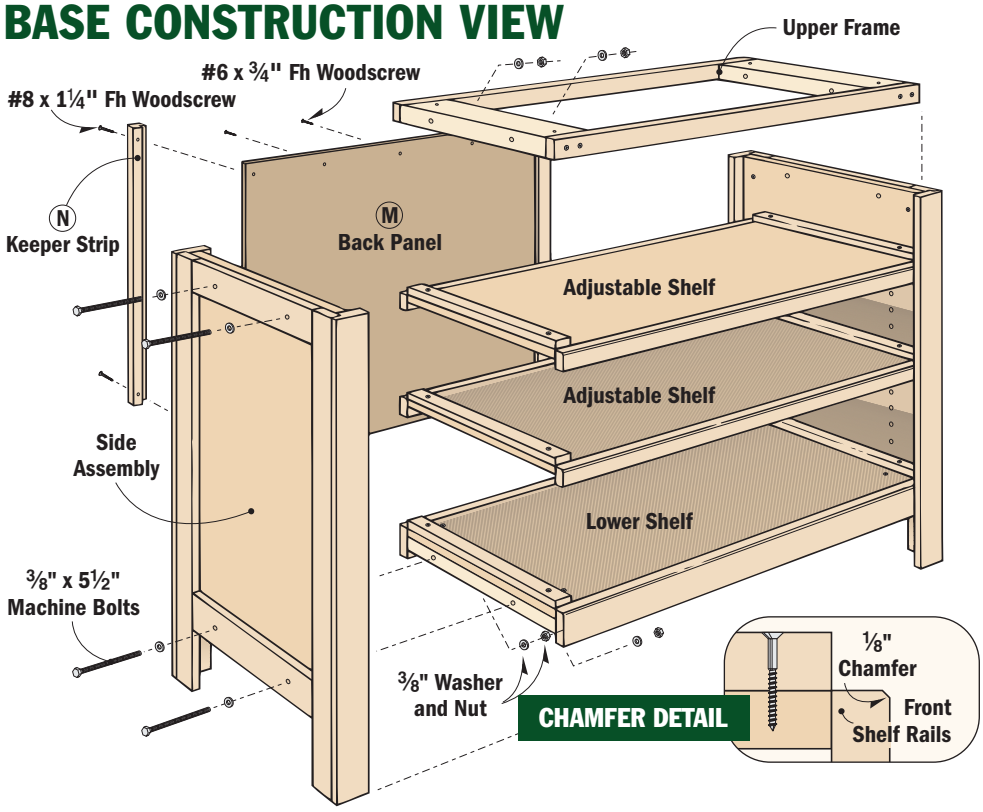
V	(2)	Fr./Back, Tote (MDF)	3/4" x 3" x 9 7/8"
W	(2)	Fr./Back, 6"-Tall Bin (MDF)	3/4" x 6" x 9 7/8"
X	(2)	Fr./Back, 9"-Tall Bin (MDF)	3/4" x 9" x 9 7/8"
Y	(2)	Sides, Tote (MDF)	3/4" x 3" x 19 3/4"
Z	(2)	Sides, 6"-Tall Bin (MDF)	3/4" x 6" x 19 3/4"
AA	(2)	Sides, 9"-Tall Bin (MDF)	3/4" x 9" x 19 3/4"
BB	(1)	Bottom (Hardboard)	1/4" x 9 1/8" x 19 1/2"
CC	(1)	Tote Handle (Maple)	3/4" x 3" x 18 3/4"
DD	(1)	Backboard (MDF)	3/4" x 12" x 60"

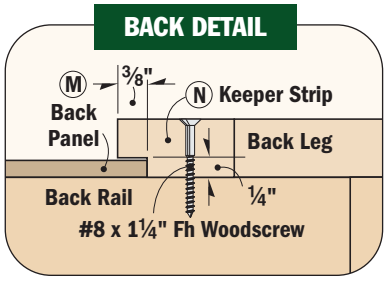
*Number of parts needed for one Tote, one 6", and one 9" Bin

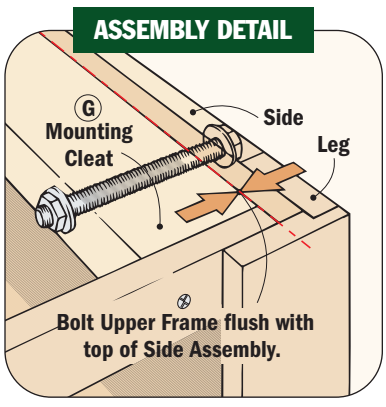
HARDWARE

- (39) #8 x 1 1/4" Fh Woodscrews
- (22) #8 x 1 3/4" Fh Woodscrews
- (6) #8 x 2 1/2" Fh Woodscrews
- (12) #6 x 3/4" Fh Woodscrews
- (8) 3/8" x 5 1/2" Machine Bolts
- (16) 3/8" Washers
- (8) 3/8" Hex Nuts

BASE CONSTRUCTION VIEW







A STRONG, STURDY BASE

This utility bench has a sturdy base that provides solid support for the top, as well as storage underneath.

SIDE ASSEMBLIES

The first step is to build two side assemblies *(Base Construction View)*. Each of these assemblies consists of two legs and a side panel *(Fig. 1)*.

LEGS. As you can see in *Fig. 1a*, each leg is an L-shaped post made up of two pieces of ¾"-thick hardwood. (I used maple.) To make it easy to align the leg pieces, they're assembled with a rabbet joint.

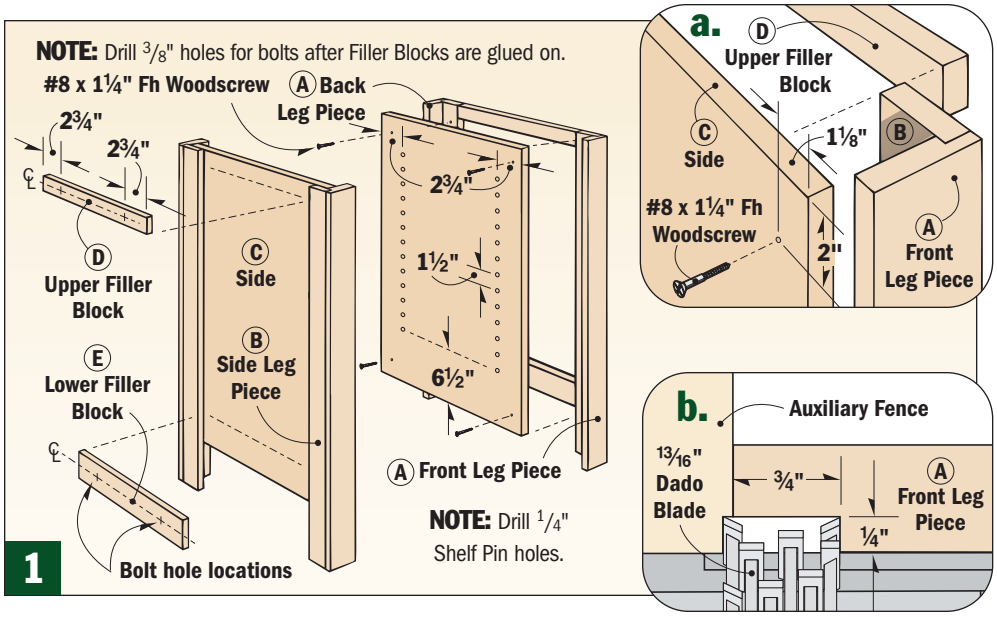
But first, the legs have to be cut to size. One thing to note is the *width* of the leg pieces. To allow for the rabbet, the front/back leg pieces (A) are ½" *wider* than the side leg pieces (B). So once the rabbet is cut *(Fig. 1b)* and the pieces are glued together, the two faces on each leg will be the same width.

SIDES. Now you can turn your attention to the sides (C). Each side is cut from ¾" medium-density fiberboard (MDF). After positioning it flush with the top of the legs, it's glued and screwed in place *(Fig. 1a)*.

FILLER BLOCKS. To thicken the top and bottom of each side, I added an upper (D) and lower filler block (E) made of ¾"-thick hardwood. These blocks are cut to fit between the legs and then glued flush with the top and bottom of the sides.

Once the glue dries, it's a good time to lay out and drill the holes for the bolts that will be used to assemble the base *(Fig. 1)*.

SHELF PINS. All that's left to complete each side assembly is to drill holes for the pins. The jig shown on page 50 will make it easy to keep these holes aligned.



UPPER FRAME & SHELVES

At this point, you can turn your attention to the *upper frame* and *lower shelf*. The two *adjustable shelves* are quite similar, so it's a good time to build them, as well.

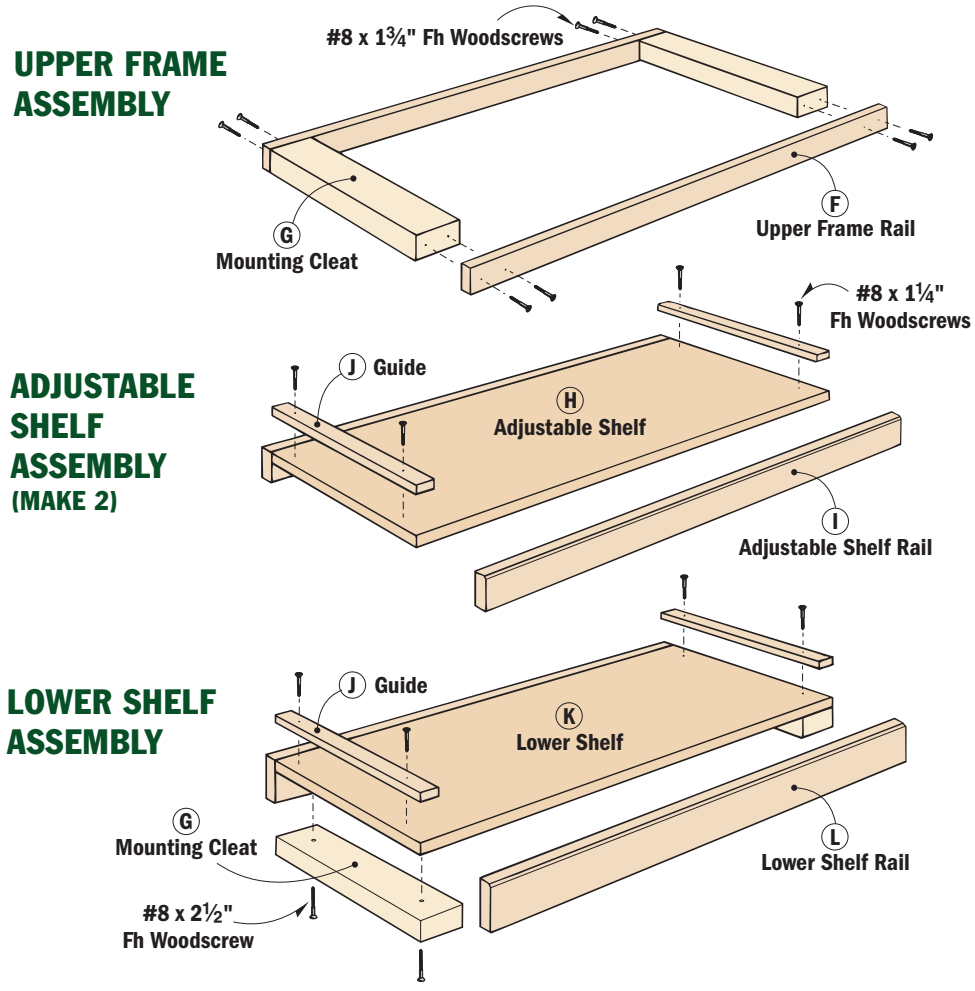
UPPER FRAME. The *upper frame* is the main support for the benchtop.

It consists of two hardwood rails (F) that are screwed to a 2x4 mounting cleat (G) at each end *(Upper Frame Assembly)*. When it's time to assemble the bench, these cleats (along with identical cleats on the lower shelf) will be bolted to the side assemblies. So for added strength, I used straight-grained Douglas fir for the cleats.

ADJUSTABLE SHELVES. The next step is to build the two adjustable shelves (H), as shown in the middle drawing at right. Each shelf is made from $^3/_4$" MDF. To prevent it from sagging under the weight of the bins, I glued a hardwood rail (I) to the front and back edges. I also added a strip of MDF at each end to help guide the bins in and out. These guides (J) are just glued and screwed to the shelf.

LOWER SHELF. The lower shelf (K) is similar *(Lower Shelf Assembly)*. Only this shelf is $^1/_4$" *longer* so it will fit tightly against the side assemblies. I also made the rails (L) wider. This helps conceal another pair of mounting cleats (G) that are identical to those on the upper frame. These cleats are cut to fit between the rails and then glued and screwed underneath the shelf. Here again, I added two guides (J) on the top.

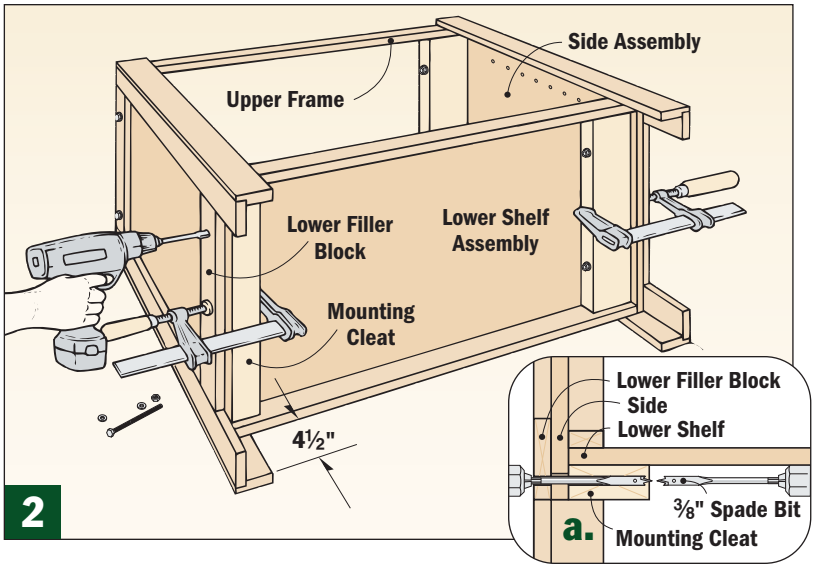
Before assembling the base, rout an $^1/_8$" chamfer on the top edge of the shelf rails *(Chamfer Detail)*. This keeps them from getting chipped when sliding bins in and out.



ASSEMBLE BASE

At this point, you're ready to assemble the base. The first step is to bolt the upper frame and the lower shelf to the side assemblies.

Start by clamping the upper frame flush with the tops of the side assemblies (*Assembly Detail*, page 28). Then clamp the lower shelf in place, as in *Fig. 2*. Next, using the pre-drilled holes in the filler blocks as a guide *(Fig. 1, pg. 28)*, drill the holes through the mounting cleats until the tip of the bit pokes through *(Fig. 2a)*. Then drill from the opposite side to complete each hole.



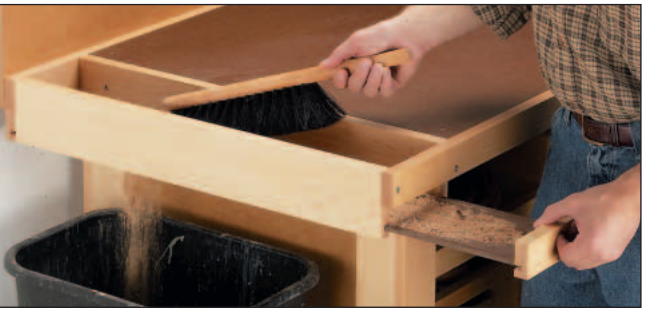
ADD THE BACK

To enclose the back of the base (and to add extra rigidity), I added a back *(Base Construction View)*.

Start by cutting a $^1/_4$" hardboard back panel (M). The back panel is held in place by two hardwood keeper strips (N). These pieces are rabbeted to fit over the back panel *(Back Detail)*.

After cutting the rabbets, clamp the back panel and keeper strips in place. (The strips should butt up against the legs.) Then screw the keeper strips and the panel itself to the upper frame and lower shelf.

▲ A shallow tool tray mounted to the end of the bench holds small hand tools and keeps the worksurface free of clutter.



▲ To make it easy to clean the tool tray, just pull out the bottom and sweep dust and dirt into a trash can.

BUILD A BETTER BENCHTOP

The top of this bench provides a flat, solid worksurface. But there's more to it than that. To prevent tools from cluttering the worksurface, there's a shallow tray mounted to the end of the benchtop. (See photos at left.) Also, this benchtop has a hardboard cover that can be replaced if it gets damaged or dirty.

START WITH A SOLID SLAB

To create a solid, durable worksurface, the top is a thick slab that's built up from three layers of material: two MDF core pieces and a hardboard cover *(Bench Top Assembly)*.

CORE PIECES. The first step is to make the two core pieces (O). These pieces will end up identical in size. But it's best to start out by cutting the upper core piece $^1/_2$" larger in length and width. This will make it easy to trim the edges flush.

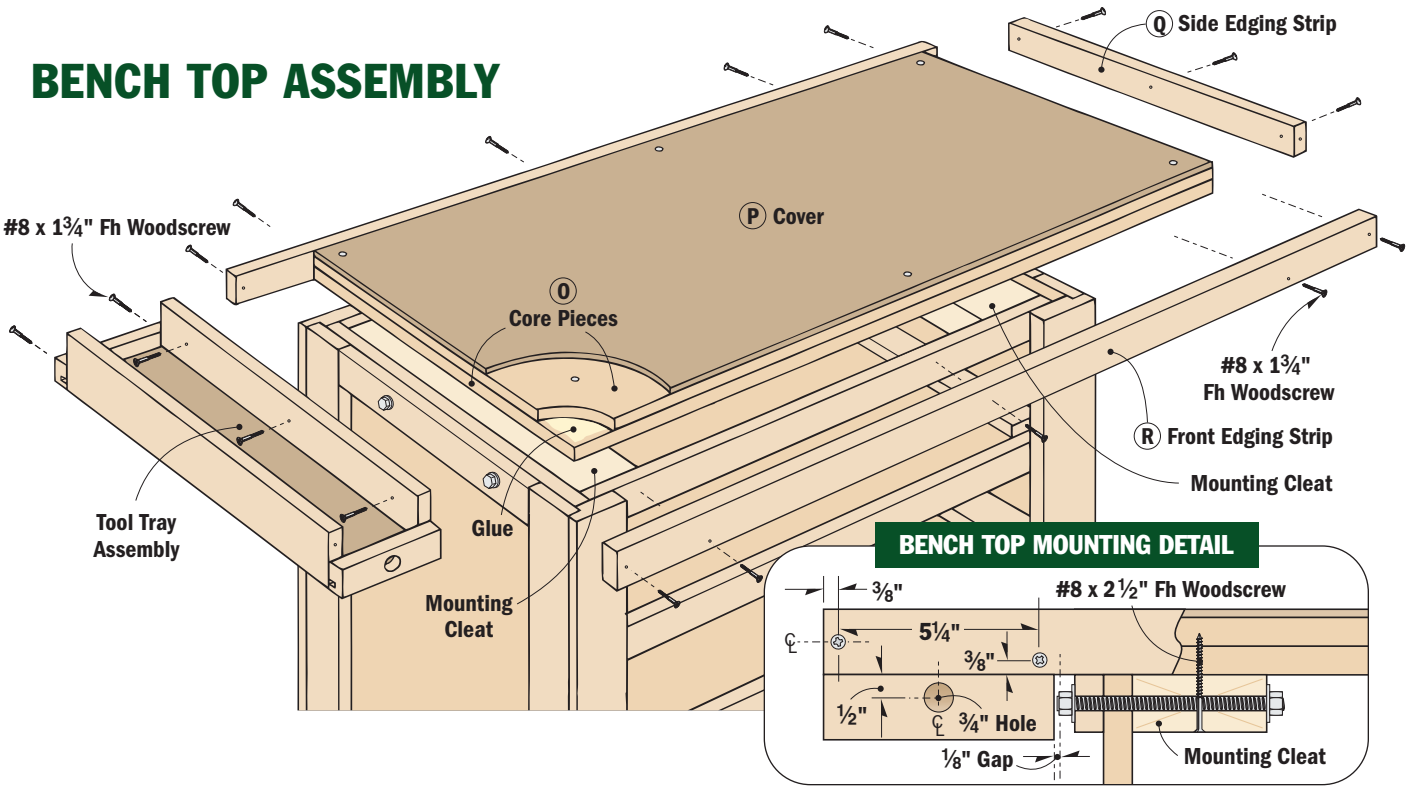
To do that, clamp both pieces together so there's $^1/_4$" overhang all the way around and temporarily screw them together. Be sure to use the screw locations shown in *Figure 3*. This way, they won't interfere with the screws that will be used to secure the cover.

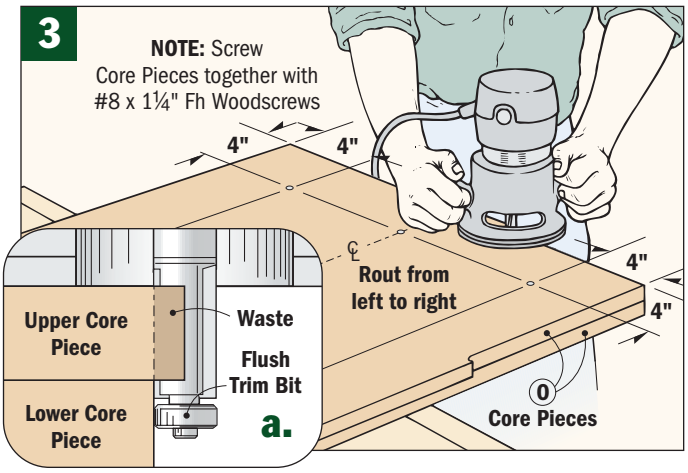
GLUE-UP. Now you're ready to glue up the core pieces. To do this, remove the screws, spread on the glue, and then reinstall the screws to "clamp" the pieces together.

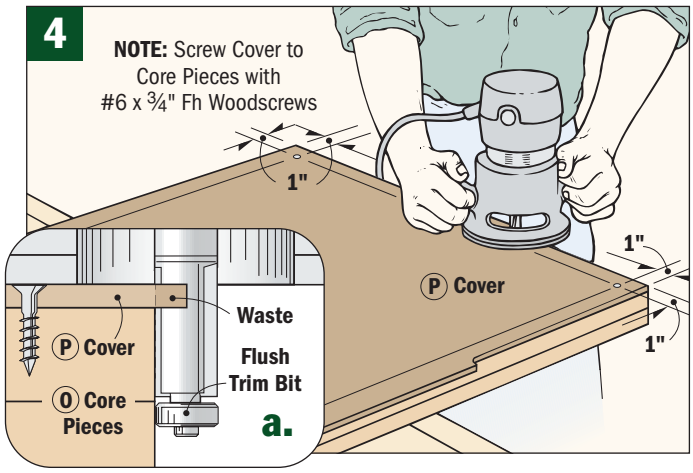
TRIM WASTE. When the glue dries, the next step is to trim the waste off the upper core piece. A hand-held router and flush trim bit makes quick work of this *(Fig. 3)*. Set the depth of cut so the bearing on the bit rides against the lower core piece *(Fig. 3a)*. Then as you rout from left to right, the cutting edge removes the waste and trims the upper core piece perfectly flush.

ADD THE COVER. All that's left to complete the slab is to add the replaceable hardboard cover (P). Here again, the goal is to end up with a cover that's flush with the core pieces. So I used a similar procedure to accomplish that.

As before, start by cutting an oversize piece, and then screw it in place so there's $^1/_4$" overhang all around. To avoid hitting the screws in the core pieces, I located them 1" in from each edge. This time, since the cover is removeable, there's no need to apply any glue. So all that's needed is to use a hand-held router and flush trim bit to remove the overhanging waste, as shown in Figs. 4 and 4a.







SOLID WOOD EDGING

To cover the exposed edges of the top and to protect them from damage, I "wrapped" three sides of the benchtop with solid wood edging *(Bench Top Assembly)*.

The edging is made from ¾"-thick hardwood (maple). It's a good idea to rip it a hair wider (1/32") than the thickness of the slab. This way, it can be installed a bit proud then planed or sanded flush with the top. As for length, cut the side edging strip (Q) to match the width of the benchtop (24" in my case). Then fasten it to the core pieces with screws (no glue).

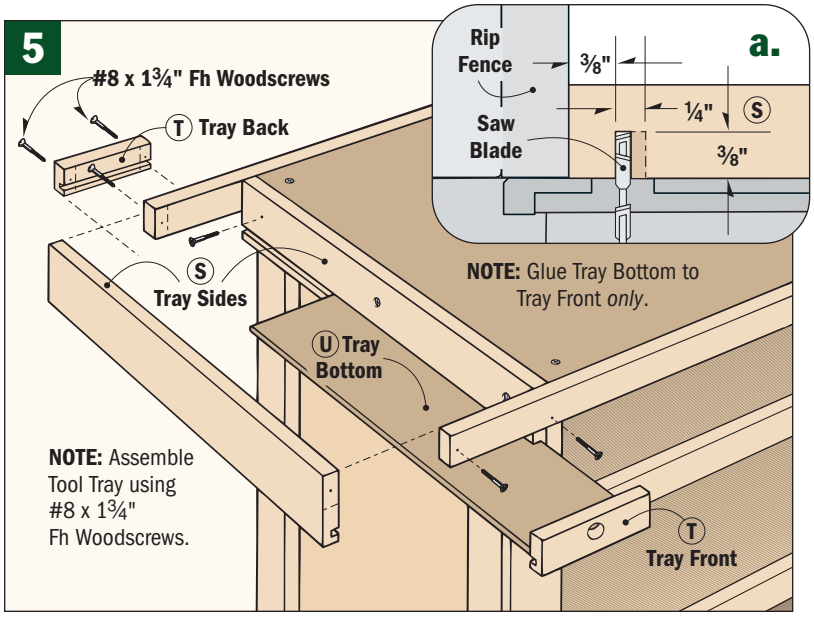
Next, add the front and back edging strips (R). They're cut to length to fit flush with the side edging strip. But notice how they extend past the opposite end of the benchtop *(Bench Top Assembly View)*. The parts of the edging strips that stick out will actually form part of the tool tray.

TOOL TRAY

After mounting the front and back edging strips, you can turn your attention to the tool tray. As you can see in the *Fig. 5*, it's just a shallow box with a pull-out tray bottom.

The sides (S) and the front and back (T) of the tool tray are made from ¾"-thick hardwood. It's easiest to pre-drill mounting holes in one of the side pieces now. Also, to accept a ¼" hardboard tray bottom (U), you'll need to cut a groove in each piece. The goal is to end up with a groove that allows for a smooth, sliding fit.

An easy way to accomplish that is to use the setup on the table saw shown in Fig. 5a and make a single pass in each tray piece *and* in a test piece. Then bump the fence away from the blade and make another pass in the test piece only. Once you're satisfied with the fit of the hardboard bottom in the test piece, go ahead and complete the grooves in the tray pieces.



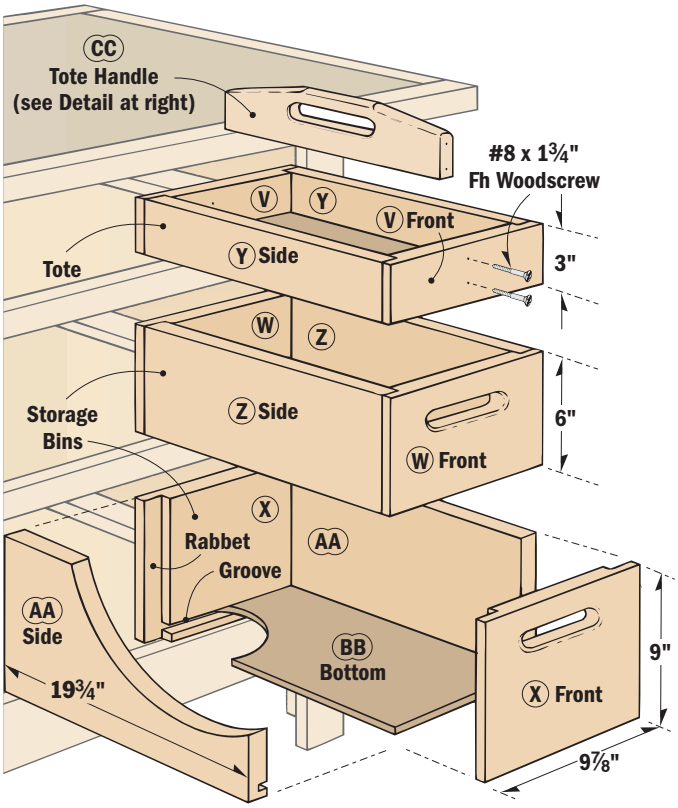
FINGER PULL. Before assembling the tray, there's one more thing to do. That's to drill a hole in the front piece to use as a finger pull *(Detail, page 30)*. To provide a comfortable grip, it's a good idea to soften the rim of the hole with sandpaper.

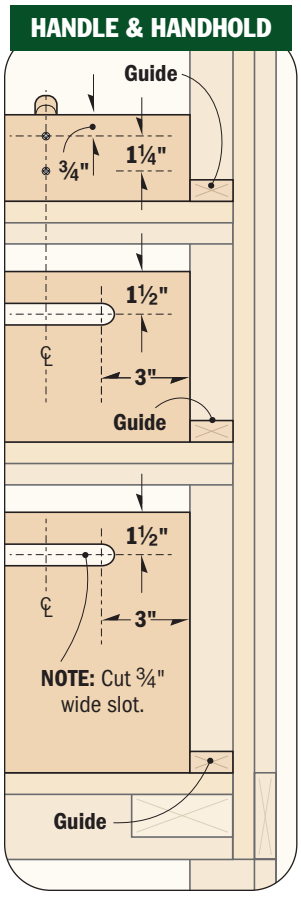
ASSEMBLE TRAY. At this point, it's just a matter of assembling the tray. Start by gluing the bottom into the groove in the front piece. Then after fitting the bottom into the sides and back, clamp the tray to the bench. To ensure that the tray bottom slides smoothly, make any minor adjustments that are needed. Then secure the pieces with screws as shown in Fig. 5.

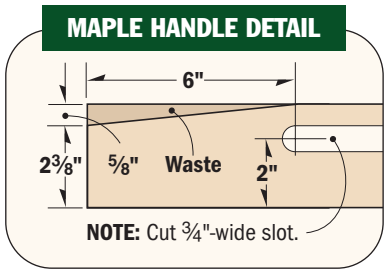
MOUNT THE TOP. Once the tray is completed, all that's left is to secure the top to the base of the bench. To do this, position the top flush with the back of the base. Then, after moving it from side to side until it's located as shown in the *Benchtop Mounting Detail*, fasten it to the base with screws.

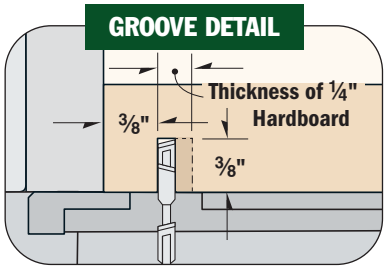
Just a final note here. The benchtop is *not* centered from side to side. The overhang on the end of the bench opposite the tool tray is larger. This will provide plenty of clearance to mount a woodworking vise if you want. (For more on this, see page 33.)

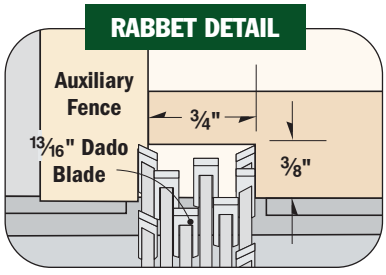
BIN CONSTRUCTION VIEW











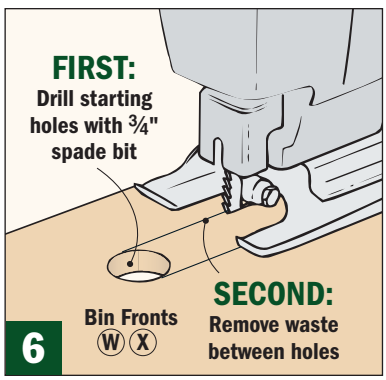
TOOL TOTE & STORAGE BINS

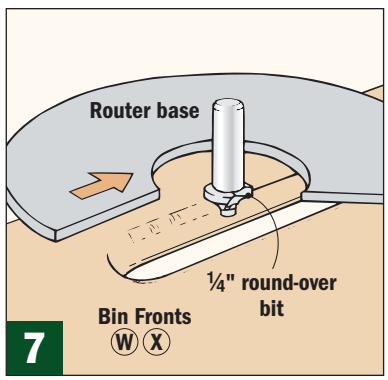
As soon as the workbench was complete, I built my first few projects on it — a tote and some storage bins to organize my tools and project supplies (*Bin Construction View*, above.)

To provide a variety of storage options, the tote and bins are three different sizes. Actually, their width and length is identical. It's their *height* that's different. I made 3", 6", and 9"-tall units. Depending on where you position the shelves, you'll want to size them accordingly.

Regardless of their size, the construction is the same. (The tote has a wood handle instead of a handhold, but I'll get to that later.) The point is they're all assembled with simple rabbet joints, so you can build a number of them quickly and easily.

After deciding on the number (and sizes) of units you want, the first step is to cut front and back (V, W, and X) pieces and two sides (Y, Z, AA) for each one. I used ¾" MDF for all these pieces, but plywood would also work well.



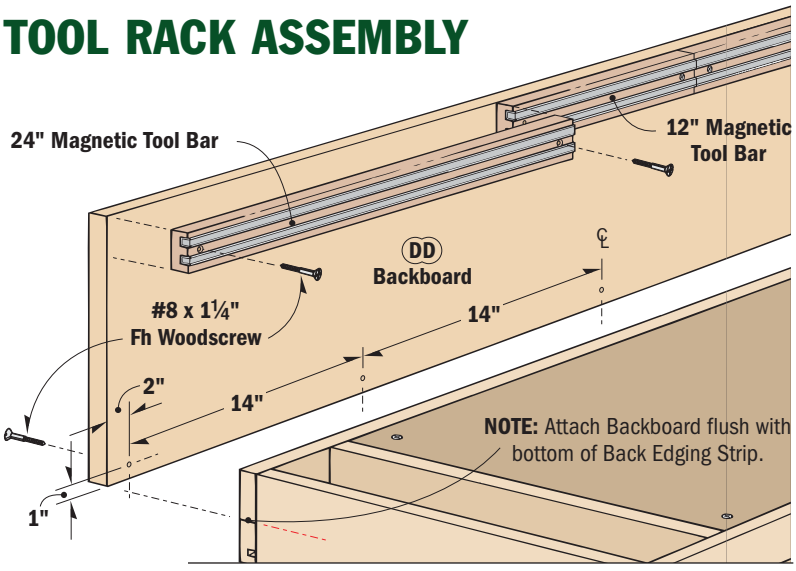


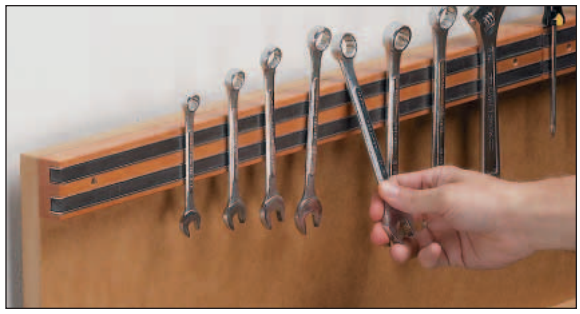
CUT RABBETS. To hold the sides, you'll need to cut a rabbet in both ends of each front and back piece. A dado blade mounted in the table saw makes quick work of this. If you set up a 13/16" dado blade and "bury" part of it an auxiliary fence, you can plough each rabbet in a single pass (*Rabbet Detail*, above).

GROOVES. In addition to the rabbets, you'll also need to cut a groove in each piece to hold a ¼" hardboard bottom (BB). To do this, I mounted a combination blade in the table saw and used a two-pass method to "sneak up" on the perfect fit.

Start by locking the rip fence ⅜" away from the saw blade *(Groove detail)*. Then make a single pass in a test piece *and* in each workpiece. Next, nudge the fence away from the blade and make a second pass in the test piece only. Check the fit of the drawer bottom, and if needed, repeat the process. Once you're satisfied with the fit, complete the grooves by making a second pass for each piece.

TOOL RACK ASSEMBLY





▲ To keep tools off the bench, just "stick" them to the magnetic bars on the tool rack. These manufactured tool bars are available from the sources listed on page 55.

HANDHOLDS. Next, to make it easy to carry the bins, I cut a slot in each front and back piece to use as a handhold (*Handle & Handhold Detail*, page 32). To do this, drill holes to define the ends of each slot and then remove the waste with a jig saw *(Fig. 6)*. Then after filing and sanding the edges smooth, rout a roundover on both sides to ease the sharp edges *(Fig. 7)*.

ASSEMBLY. Now it's time for some assembly work. The bins and totes are glued and clamped together. Don't forget to check that each unit is squared up as you work.

HANDLE. For the tote, it's a good idea to add a hardwood handle (CC). It fits down into the tote between the front and back. Here again, a long slot acts as a handhold *(Handle Detail)*. Also, to create a low profile, the top edges taper toward the ends of the handle. After cutting the handle to shape and sanding the edges smooth, it's screwed in place.

TOOL RACK

Finally, I added a tool rack with magnetic bars. This tool rack keeps my hand tools in easy reach *and* off the bench (*Tool Rack Assembly*).

The rack consists of a backboard (DD) made of ¾" MDF and the magnetic tool bars shown in the photo above. To span the length of the backboard, I used two sizes of tool bars: one 12"-long bar and two 24"-long bars. They come predrilled, so it's easy to screw the bars to the backboard.

FINISHING UP

After securing the tool rack to the bench, all that's left is to apply a finish. I used a wipe-on oil/varnish. Three coats of finish and this bench is ready for work.

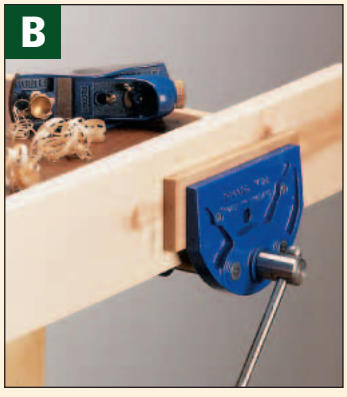
GETTING A GRIP: TWO VISE OPTIONS

Here are two options you may want to consider when selecting a vise for your utility bench.

QUICK-VISE. One of the most versatile vises I've seen is the new Quick-Vise. Made of durable plastic, it mounts easily to the bench top (Photo A). To clamp a workpiece, slide the jaws open (5" max.) and tighten the front knob.

WOODWORKING VISE. A second option is a traditional woodworking vise (photo B). The large overhang on the right side of the bench provides room to mount this type of vise underneath. (Sources for both vises are listed on page 55.)

▲ To mount the Quick-Vise, slide and lock it into a base screwed to the bench. If you buy an extra base, you can also mount the vise on another worksurface.



▲ This woodworking vise (made by Record) mounts under the bench top. Cast jaws and wood pads (to protect the board) identify this type of vise.

Portable Benchtop Planers

Twenty years ago, planers were too expensive for most home workshops. But as more homeowners began woodworking, manufacturers began producing benchtop planers that were lightweight, portable, and affordable enough for the home woodworker.

Since then, benchtop planers have incorporated a variety of new features designed to remove guesswork, minimize "snipe" at the ends of boards, and make the whole planing operation more user friendly.

For this article, we tested seven popular models, priced from $300 to $500. The maximum width capacities of these planers range from 12" to 13", and they can plane boards up to 6" or 6 1/2" thick, which covers most requirements for a small shop.

WHAT'S IMPORTANT?

The main job of a benchtop planer is to produce smooth, flat boards of consistent thickness. Flat, uniform stock is important for accurate joinery and for keeping the amount of final sanding to a minimum.

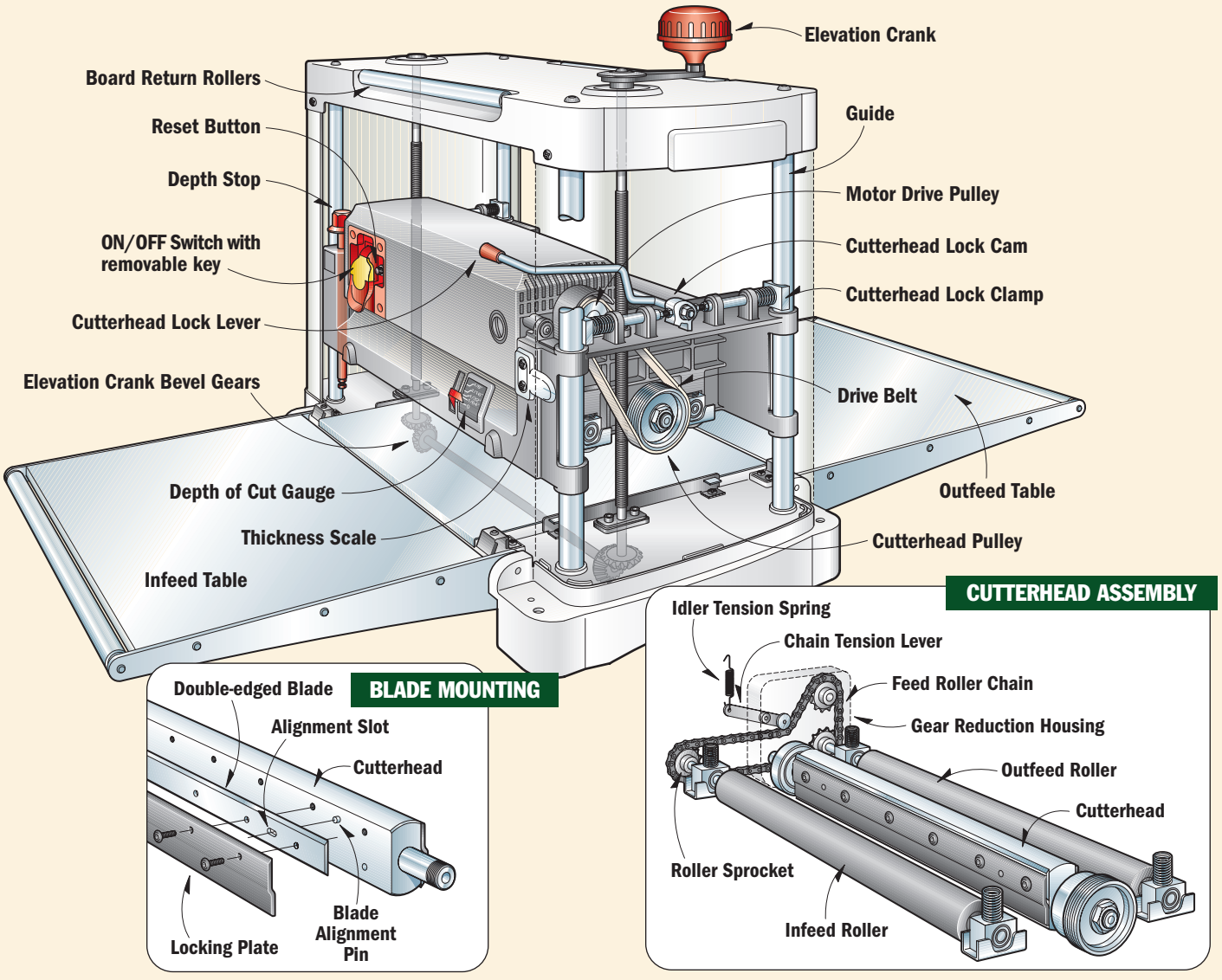
QUALITY OF CUT. One thing we looked for when testing these planers is the quality of cut. Planed boards had to have smooth surfaces, few mill marks, and minimal tearout.

We also checked for *snipe*, a deeper cut near the end of a board. Snipe can be caused by extension tables that are adjusted improperly. Or it may result from the deflection of the cutterhead when a feed roller engages or disengages from the end of a board while the blades are in contact with the wood.

Most of the planers featured locking mechanisms to stabilize the cutterhead on the final pass. Although none were 100 percent effective, several came close to eliminating snipe entirely. We rated snipe of less than .002" excellent. (You can scrape or sand it out easily.) Snipe over .004" makes a board difficult to salvage.

UNIFORM THICKNESS. The uniformity of thickness of a planed

ANATOMY OF A PLANER



board is another critical measure of performance. The planed faces must be parallel from side to side *and* from end to end.

To accomplish this, the cutterhead has to be parallel to the bed. If it's not, it's a simple matter of loosening and rotating a chain sprocket or bevel gear connecting the two lead screws. (We needed to do this on three of the planers — the Craftsman, the Delta 22-580, and the Makita — at the beginning of the test.)

BLADE CHANGING. Another consideration was how easy it is to change blades. Disposable blades are easier to change because they're self-aligning. And they could be lower in cost in the long run, depending on the cost of resharpening and how often you have to do it.

All of the disposable blades we tested (as well as the Jet's resharpenable blades) were double-edged, which provides twice the blade life.

DUST COLLECTION. Planers produce mounds of chips, and unevacuated chips can produce pock marks in the surface of a board, so a dust collection hook-up is a must. Dust ports are standard on the DeWalt and Ridgid planers and optional on the others.

THICKNESS SCALE. A thickness scale tells you how thick the board will be as it exits the planer. (Essentially, it's a ruler with a pointer or sight glass.) It should be readable and easy to see without stooping.

DEPTH OF CUT. These handy devices mounted on the front of the cutterhead assembly give you a direct readout of your depth of cut, so you can avoid making too light or too heavy a cut.

DEPTH STOPS. If you're planing several boards to the same thickness, you'll appreciate an adjustable depth stop. Some planers include multi-position depth stops that are preset for standard thicknesses such as $^1/_4$", $^1/_2$" and $^3/_4$". We preferred stops that are infinitely variable, so we could use them for any desired thickness.

DELTA 22-580

★★★★½

This new planer (Model 22-580) is Delta's most ambitious offering yet. Its outstanding performance, ease of use, and unique features earned it our *Editor's Choice* award.

Without a doubt, this planer's most revolutionary innovation is its two-speed drive, which allows you to switch from the "dimensioning" speed of 60 cuts per inch to a "finishing" speed of 90 cuts per inch. The result is an incredibly smooth, virtually polished surface.

▲ An easy-to read thickness scale is just one of this planer's highlights.

Like its predecessor (the 22-560), this new model has a side-mounted cutterhead lock that minimizes snipe to less than .0015" on the final pass.

This planer also features an infinitely variable depth stop, which allows you to repeat any thickness setting across the entire height range.

Another new feature, the "blade zero" indicator, is a spring-loaded tab that lets you set the cutterhead to the exact initial thickness of the board you're planing. Then, you gauge your depth of cut by using the scale on the crank handle or by counting revolutions of the crank.

The thickness scale on this planer is conveniently located at the top of the machine. It's the easiest to read of the group, although it did require some initial calibration. Changing the double-edged, disposable blades is easy enough, but it's awkward to turn the end screws because the wrench handle can't turn 360° in those close quarters.

At a Glance:

Price: $450
Capacity: 13" x 6½"
Feed Speeds: 27.5 and 18.5 ft./min.
Cuts Per Inch: 60, 90
Inches/Crank Rev.: 1/16"
Weight: 84 lbs.

Virtues: Two speeds; depth stop; blade zero indicator; large extension tables.
Vices: At 84 lbs., heavy for a benchtop machine.
Verdict: Superior planing performance in an innovative and ergonomically friendly package.

Delta . . . 800-321-9443
www.deltawoodworking.com

DEWALT DW733

★★★★½

▼ With the cutterhead locked, this planer delivers a snipe-free, superior cut.

The DeWalt DW733 is an excellent all-around planer that tied for top honors in our snipe tests (with the cutterhead locked). Surface quality is excellent and very uniform.

We also liked the excellent depth-of-cut indicator, comfortable crank, and easy-to-read thickness scale on this planer.

On the con side, the three-position depth stop, though easy to use and accurate for the common thicknesses of 1/4", 1/2" and 3/4", isn't adjustable for other thicknesses.

We also found the cutterhead lock to be very tightly sprung, which could be a potential knuckle buster at thickness settings over 2".

Another problem is the infeed and outfeed tables can't be adjusted flush with the planer bed. This resulted in a .040" step that catches the leading edge of a board.

The DW733's heavy, single-edged blades, tipped with hard tool steel, are not reversible or disposable, so you have to send them out for sharpening. Changing them isn't too time consuming, but we found it difficult to set the blade edges exactly parallel to the cutterhead using the magnetic blade-setting blocks. Replacement blades cost $55 a pair. Of course, you'll probably want to keep a set of spare blades around to avoid sharpening downtime.

At a Glance:

Price: $380
Capacity: 12½" x 6⅛"
Feed Speed: 26 ft./min.
Cuts Per Inch: 64
Inches/Crank Rev.: 1/16"
Weight: 77 lbs.

Virtues: Excellent quality of cut; nearly snipe-free when locked; good depth-of-cut indicator.
Vices: Loud; infeed table not level with bed; cutterhead lock springs back hard.
Verdict: A proven performer that is easy to use and produces excellent results.

DeWalt . . . 800-433-9258
www.dewalt.com

★★★★½ RIDGID TP1300

The Ridgid TP1300 now comes with a floor stand as standard equipment. Already the heaviest planer in our test, the floor stand makes it essentially a stationary machine.

This 13" planer performed admirably in our tests, producing minimal snipe with the cutterhead locked. Even with it unlocked, the average snipe was only about .004".

The Ridgid has the largest depth of cut capacity (over 1/8") of any of our test models. But we don't suggest routinely removing that much material, especially when planing highly-figured woods that may chip out.

For accurate blade alignment, it has reversible, disposable blades that are notched on the ends so they register on mating flats on the cutterhead. Each blade is held in place by a gib with seven nuts that you loosen with an open-end wrench to remove the blade. We found this to be faster and easier than expected.

The Ridgid has eight preset depth stops (1/8" to 1 3/4") that you select with a sliding knob located under a side-mounted, cutterhead crank. The presets are accurate, but they can't be adjusted for custom thicknesses.

One novel feature of this planer is a double-ended dust chute, with ports for both 4" and 2 1/2" hose and a reversible cap for the unused end.

At a Glance:

Price: $400
Capacity: 13" x 6 1/8"
Feed Speed: 26 ft./min.
Cuts Per Inch: 61
Inches/Crank Rev.: 1/16"
Weight: 104 lbs. w/stand

Virtues: Side-mounted crank and cutterhead lock; easy blade changing.
Vices: Heavy; can't be easily stowed, especially with stand.
Verdict: A top contender, with excellent surface quality and capacity, and a great list of standard features.

Ridgid . . . 800-474-3443
www.ridgidwoodworking.com

▲ **The Rigid is a multi-featured planer with a side-mounted cutterhead crank, lock, and depth stops.**

★★★★★ DELTA 22-560

What Delta's 12 1/2" planer (Model 22-560) lacks in bells and whistles, it makes up for in performance, producing superior, virtually snipe-free surfaces, even with the cutterhead lock disengaged. This planer was also the least expensive planer tested, earning our *Top Value* award.

This planer doesn't have a depth-of-cut indicator, so you have to either measure the board's thickness and set the cutterhead to an appropriate height, or insert the leading edge of the board into the opening and crank the cutterhead down until it engages the front feed roller. Though not difficult to operate like this, it's not as convenient as other models with depth-of-cut indicators or blade-zeroing mechanisms.

Changing the reversible, disposable blades on this planer is fast and easy, using the long-handled Allen wrench and the magnetized blade- transfer tool provided.

Indexing pins in the cutterhead make alignment of the blades a foolproof process and prevent them from slipping out in use. Elongated slots in the blades allow for minor lateral adjustments in case you need to shift a nicked blade. The foam-covered stock-transfer roller at the top of the machine doubles as a handle, though it is a bit awkward. We preferred to pick up the machine by its base.

At a Glance:

Price: $310
Capacity: 12 1/2" x 6 1/8"
Feed Speed: 26.2 ft./min.
Cuts Per Inch: 51
Inches/Crank Rev.: 3/32"
Weight: 64 lbs.

Virtues: Virtually snipe-free performance; easy to align and change blades.
Vices: Lacks depth stop and depth-of-cut indicator.
Verdict: A compact, no-frills planer that delivers top-notch performance at a low price. Our Top Value winner.

Delta . . . 800-321-9443
www.deltawoodworking.com

▼ **A large, beefy lever engages the cutterhead lock on this planer.**

CRAFTSMAN 21713

★★★★★

▼ **This long, T-handled wrench is part of the reason blade changing is a snap on this planer.**

Craftsman's Model 21713 is a full-featured planer that does a fine job and is easy to use. It could have scored higher with more attention to quality issues.

To its credit, the Craftsman delivered a smooth, chip-free surface in all kinds of wood. We did find that the cutterhead was about .012" out of parallel with the planer bed, so our first test boards were thinner on one side. We corrected this problem easily by loosening and repositioning a drive gear under the bed.

The die-cast base was slightly warped, too. This meant we had to clamp the planer to the bench to avoid uneven snipe. Once we did that, its snipe results were good, although not as good as our top-rated models.

The Craftsman's reversible, disposable knives were the easiest to change of all our test models, using the T-handled Allen wrench provided.

Other nice features included a turret-style depth stop with six preset depths from $^1/_8$" to $1^1/_4$", a very easy-to-use cutterhead lock, and a simple and efficient depth-of-cut indicator. We found the thickness scale difficult to read through the sight glass without stooping.

The top-mounted crank that's used to raise and lower the cutterhead can be installed on either the left or right. This way, you can pick the location that best suits your shop setup and planing routine.

At a Glance:

Price: $390
Capacity: 13" x $6^5/_{16}$"
Feed Speed: 26 ft./min.
Cuts Per Inch: 51
Inches/Crank Rev.: $^1/_{16}$"
Weight: 76 lbs.

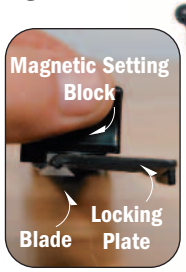
Virtues: Cutterhead lock; turret depth stop; fast, simple blade changing.
Vices: Test model needed adjustment to work properly.
Verdict: A very good planer with great features, minimal snipe and the easiest blade changing of our test models.

Craftsman . . . 800-349-4358
www.sears.com

MAKITA 2012NB

★★★★★

▼ **Magnetic setting blocks take all the guesswork out of changing blades.**



The Makita 2012NB is the only 12" planer in a field of $12^1/_2$" and 13"-models. Still, this planer delivered big performance, with one of the largest depth-of-cut capacities and very nice surface quality.

Although Makita touts their automatic Interna-Lok cutterhead locking system, we found that this planer sniped unacceptably on the infeed ends of our test boards. Curiously, snipe on the outfeed ends was negligible.

The Makita was noticeably (and measurably) quieter than the other planers (about 4 to 5 dB quieter when planing). Even so, you still need hearing protection.

Instead of a direct reading indicator for depth of cut, the Makita has a simple, flat-head pin in front that gives you a visual idea of the cutting depth. We found this a bit primitive and difficult to read without bending over. We did like the depth stop, though, which was continuously adjustable for $^1/_8$ " to 4" thicknesses.

The Makita's reversible, disposable blades are held in place by a stamped steel cap iron that's bolted to the cutterhead.

Blade changing was simple using the magnetic setting blocks supplied. But it took a few extra minutes to remove and replace all of the bolts. Finally, the dust chute on this planer has a 3"-dia. port, so you'll need an adapter if you want to use a 4" dust hose.

At a Glance:

Price: $490
Capacity: $12^1/_2$" x $6^1/_8$"
Feed Speed: 27.9 ft./min.
Cuts Per Inch: 51
Inches/Crank Rev.: $^5/_{64}$"
Weight: 60 lbs.

Virtues: Quietest model; lightweight and portable; variable depth stop.
Vices: Snipe on leading edges of boards; no scale on depth-of-cut indicator.
Verdict: A compact, smooth-cutting machine that was lightest and quietest in the test.

Makita . . . 800-462-5482
www.makitatools.com

★★★½★ JET JWP-12DX

Jet's JWP-12DX is a good basic planer without some of the fancier features of the other test models. However, if you're looking for a budget-minded tool, this one definitely deserves your attention.

At a Glance:

Price: $330
Capacity: 12½" x 6½"
Feed Speed: 26 ft./min.
Cuts Per Inch: 51
Inches/Crank Rev.: 5/64"
Weight: 69 lbs.

Virtues: Good performance for the price; double-edged, resharpenable blades.
Vices: No depth stop; inaccurate depth-of cut indicator.
Verdict: A smooth surfacing machine with good snipe control that gets the job done at a reasonable price.

Jet . . . 800-274-6848
www.jettools.com

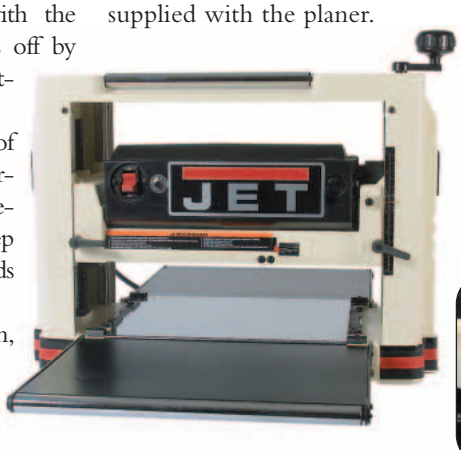
Overall, the Jet's planing quality was quite good, producing very smooth surfaces with minimal snipe. The twin cutterhead locking handles on the front of the machine are handy, but it's easy to forget whether they're engaged. Plus, the handles get in the way of folding up the infeed extension table.

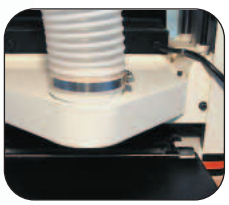
We weren't impressed with the depth-of-cut indicator. It was off by about 1/16" and defied adjustment.

The Jet planer was one of only two planers with a center-exit dust chute, which conveniently points straight up to keep the dust hose clear of boards exiting the planer.

The Jet, like the Craftsman, had steel bed rollers at the ends of the extension tables. But the infeed table itself was slightly lower than the bed, so boards catch on the edge of the bed as you feed them. The Jet's laminated resharpenable steel blades are double-edged for extra mileage and held in place by standard gibs and jack nuts instead of indexing pins and cap irons.

To allow for material lost during resharpening, the knives are spring-loaded. You set them to the correct height using the blade-setting jig supplied with the planer.





▼ A center-exit dust chute keeps the hose clear of boards exiting the planer.

Final Recommendations

Each of the planers we tested did an excellent job of producing smooth, uniformly thick boards. And there were few significant differences in power, capacity, blade-changing time or dust collection. So all in all, there were no big winners or losers.

The major differences were the amount of snipe produced and the ease of use. In terms of snipe, the two Delta planers and the DeWalt were clear standouts. As for ease of use, the Ridgid, Delta 22-580 and Craftsman earned our highest marks.

EDITOR'S CHOICE. Our *Editor's Choice* award goes to the Delta 22-580 because of its excellent planing performance, two-speed gearbox and unique features such as its full-range depth stop, and "blade zero" mechanism. Its snipe results, while not the best, still qualified as excellent with the cutterhead locked.

The DeWalt was a close runner-up, based on its superior quality of cut and snipe performance. It also had an excellent depth-of-cut indicator. In spite of that, we found several things that could be improved, including the step at the front edge of the planer bed, the tightly-sprung cutterhead lock, and the limited, three-position depth stop. We were also concerned about the accuracy of the plastic blade-setting blocks.

TOP VALUE. The Delta 22-560 earned our *Top Value* award because of its excellent performance and low price. Granted, it lacks some of the convenience features of the other models. But all in all, it's a lot of tool for the money.

All tools were rated as follows:
E = Excellent
G = Good
F = Fair
P = Poor

	Delta 22-580	DeWalt DW733	Ridgid TP1300	Delta 22-560	Makita 2012NB	Craftsman 21713	Jet JWP-12DX
Surface quality	E	E	E	E	E	E	E
Snipe w/o Lock	G	F	F	E	Not Available	G	G
Snipe w/Lock	E	E	G	E	F	G	E
Ease of Use	E	G	E	F	G	E	F
Features	E	G	E	F	F	E	F
Blade Changing	G	G	G	E	G	E	G
Dust Collection	E	E	E	E	E	E	E

A Trio of Desktop

Picture Frames

Unique accent materials on these fancy frames really catch your eye. What you don't see is the simple joinery that makes them easy to build.

Whenever I think about making desktop picture frames, two things come to mind. First, they must look good — something stylish yet a little different than the typical frame you find at craft stores. Second, they should also be easy to build. Well, it's hard to imagine picture frames that are as attractive and easy to make as the ones shown above.

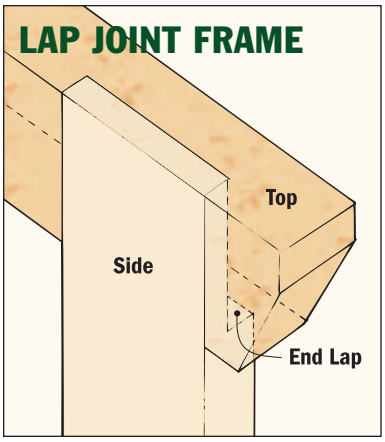
What really sets this trio of desktop frames apart are the accent materials that make each one unique.

For example, the *Arched-Top Frame* with the ceramic tile (on the far left) has a classic look. This frame's stone-like surface is easy to create using a textured spray paint. (To learn more about using this type of paint, see page 45).

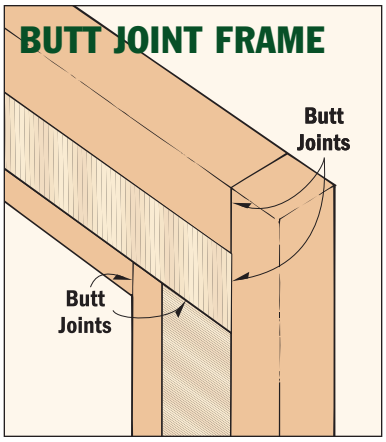
The all-wood *Accent-Strip Frame* in the middle looks complicated, but it isn't. And you don't have to learn an intricate wood inlay technique. It's really just three frames in one — a curly maple frame flanked by cherry strips on each side.

For a more contemporary look, strips of aluminum are applied to a bird's eye maple frame (far right). This gives you a stylish frame with very little fuss.

Of course, you may want to experiment with different types of



▲ **The contemporary frame (shown above) and the arched-top frame are both assembled with lap joints.**



▲ **Butt joints are a good way to assemble the accent-strip frame (shown above).**

▲ **The joinery used for the desktop frames is sturdy enough to make large hanging frames, too.**

materials altogether. That's part of the beauty of these frames — the possibilities are endless.

To get you started, we'll show you a couple of other options later on in this article.

JOINERY MAKES ASSEMBLY SIMPLE

Another thing I like about these picture frames is that the joinery used to assemble them couldn't get much easier.

Believe it or not, there isn't a single miter to cut and match up in the entire bunch. This means you can probably knock out all three frames — or several of each style — in a weekend or less.

LAP JOINTS. Both the *Arched-Top Frame* and the *Contemporary Frame* are assembled with lap joints (see *Lap Joint Frame* above). This joint is easy to cut, and it provides a large glue surface that produces a strong joint.

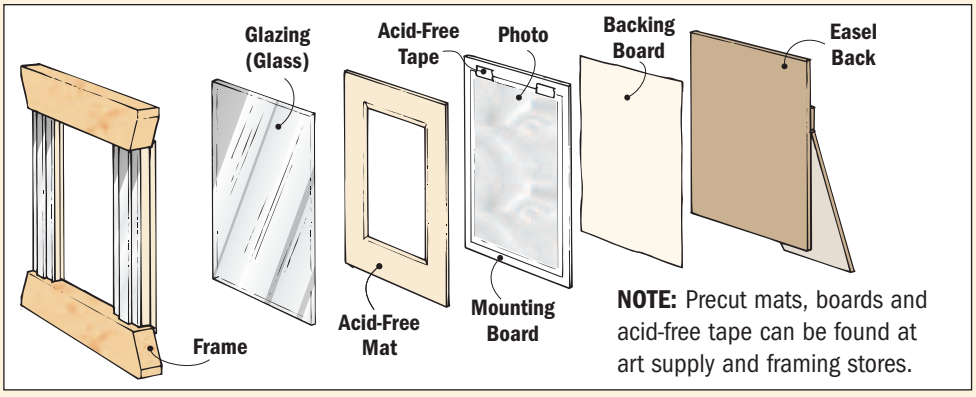
BUTT JOINTS. Unlike the other two frames, the *Accent-Strip Frame* doesn't use lap joints. Instead, it's assembled with several butt joints (see *Butt Joint Frame* above).

This is a simple, strong joint to use for just about any type of frame. It even works for larger hanging frames, as seen in the photo above.

EASEL BACK. There's one more thing any good desktop frame needs. That's a sturdy back to support it. I made my own easel backs from some hardboard and the back of a notebook writing tablet (see page 48 and lower photo on page 40).

SPECIAL TREATMENT. If you have a cherished photograph or piece of artwork to frame, the information in the sidebar box below will help. You'll probably want to use an acid-free mat and additional backing when framing it. The mat will keep the photo emulsion off of the glass.

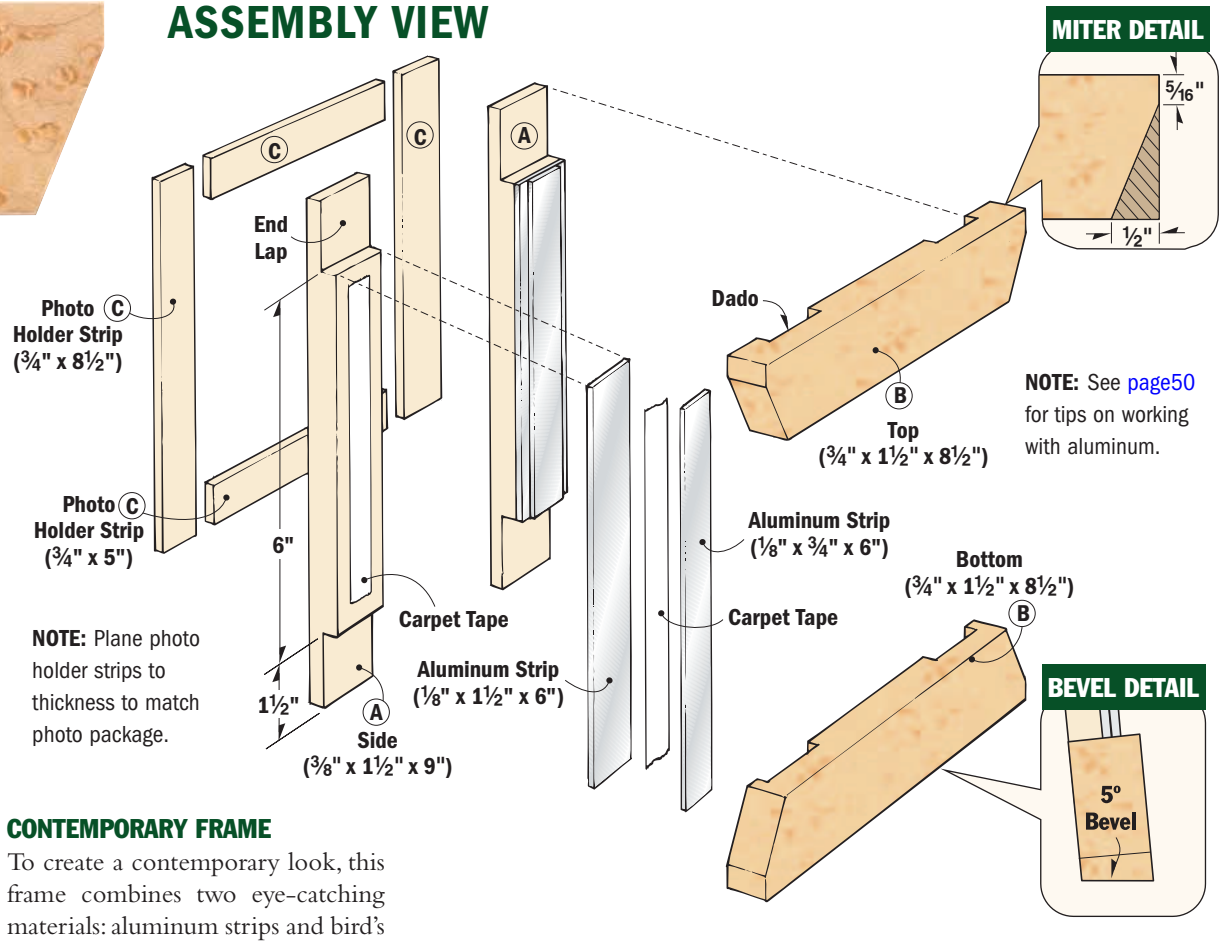
ASSEMBLING A PHOTO PACKAGE



NOTE: Precut mats, boards and acid-free tape can be found at art supply and framing stores.

A "photo package" for special photographs or artwork consists of glazing (glass or acrylic), acid-free mat (labeled "ph neutral"), the photo attached to acid-free mounting board, a backing board (cardboard or rigid foam-core), and a back for support.

ASSEMBLY VIEW



CONTEMPORARY FRAME

To create a contemporary look, this frame combines two eye-catching materials: aluminum strips and bird's eye maple.

Actually, the frame isn't really made entirely of bird's-eye maple. Since the sides are covered with aluminum strips, I used run-of-the-mill maple for them rescued from the scrap bin.

Of course, the top and bottom don't have to be made of bird's-eye maple either. To produce a nice contrast with the aluminum, the frame on page 43 is made of poplar and then spray painted black.

Regardless of the type of wood, the first step is to plane enough stock for the sides (A) to 3/8" thick. The top and bottom (B) are 3/4" thick.

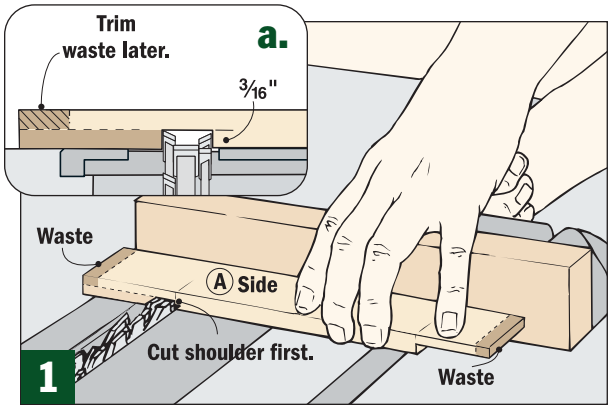
All of the frame pieces are identical in width (1 1/2"). As for length, cut the top and bottom to final length. But make the sides about 1/2" longer than needed. They're trimmed to final length later.

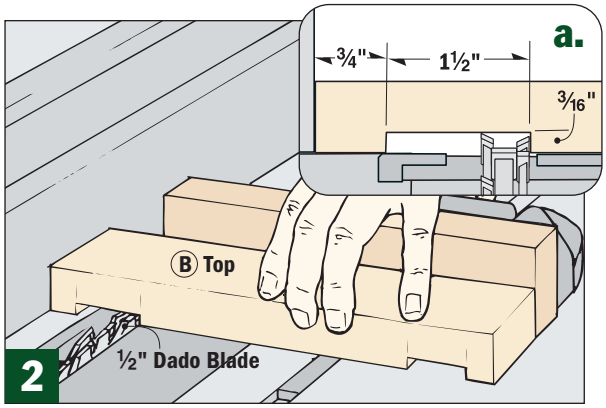
END LAPS & DADOES

Before going any further, look at the drawing above to see how the frame is assembled. End laps in the sides fit into dadoes in the top and bottom. This creates a large glue surface that produces an extremely strong joint.

END LAPS. The first step is to lay out and cut the end laps in the sides. I used a dado blade mounted in the table saw to do this *(Figs. 1* and *1a)*.

DADOES. Next, cut the dadoes in the top and bottom. There's no need to change the setup here. Just lay out the dadoes, make the shoulder cuts *(Figs. 2* and *2a)*, and clean out any remaining waste. Note: If



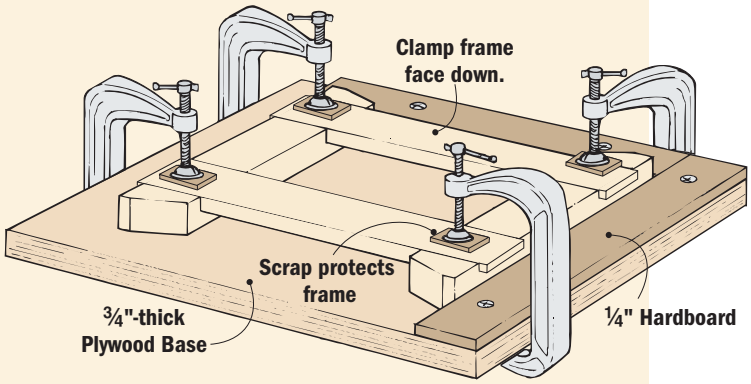


HANDY GLUE-UP JIG

To keep the assembled frame flat and square during glue-up, I made a simple clamping jig. It consists of two strips of 1/4" hardboard that are screwed to a 3/4"-thick plywood base to form a 90° angle in one corner.

To use the jig, first apply glue to each of the joints. Then butt the assembled frame into the 90° corner of the jig. The bottom of the frame should fit tightly against one of the strips of hardboard, while the ends of the frame top and bottom rest against the other hardboard strip.

Now tighten clamps at each of the joints to press the cheeks tightly together.



you're making a number of frames, the set-up jig on page 49 offers a fast way to cut dadoes without having to lay out each one.

MITERS. Part of what gives this frame its contemporary look are the mitered ends of the top and bottom. After laying out the angled lines *(Miter Detail)*, trim the ends using a miter gauge on the table saw.

GLUE-UP. Now you're ready to glue-up the frame. The jig shown above will keep it square.

BEVELED BOTTOM. Once the glue dries, the next step is to cut a 5° bevel on the bottom of the frame (*Bevel Detail*, page 42). This allows the frame to lean back at an angle. At the same time, it will remove the short "ears" on the bottom ends of the side pieces that are still sticking out.

Typically, I'd set the frame against an auxiliary fence on a miter gauge to make this beveled cut. But there's a bit of a wrinkle with this frame. The only parts of the frame that would rest against the fence are the *ends* of the top and bottom. Since these ends are fairly small, there's not enough support to keep the frame from shifting during a cut.

The solution is to attach a spacer block to the fence *(Fig. 3)*. By holding the top and bottom away from the fence, the block provides support for the side of the frame.

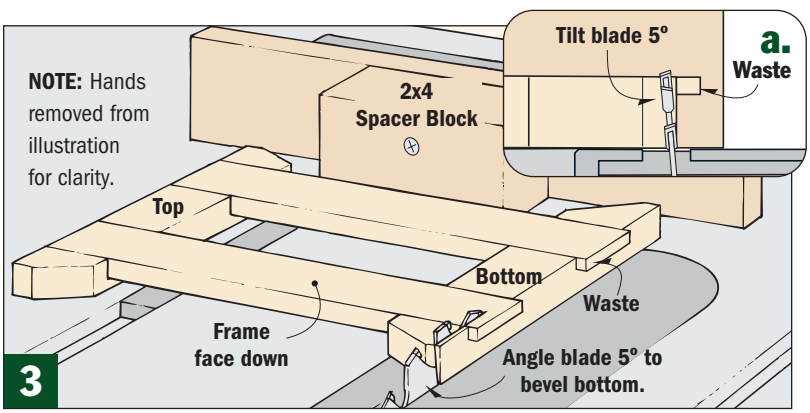
With the spacer block in place, tilt the blade to 5° *(Detail 3a)*, place the frame face down on the saw table, and cut the bevel on the bottom edge. Just be sure that the blade barely "grazes" the lower front edge of the frame (the face against the saw table.)

As I mentioned, making the bevel cut on the bottom edge of the frame also removes the protruding ears on the sides. But you'll also need to trim the ears on top. To do that, use the same procedure, only with the saw blade set square to the table.

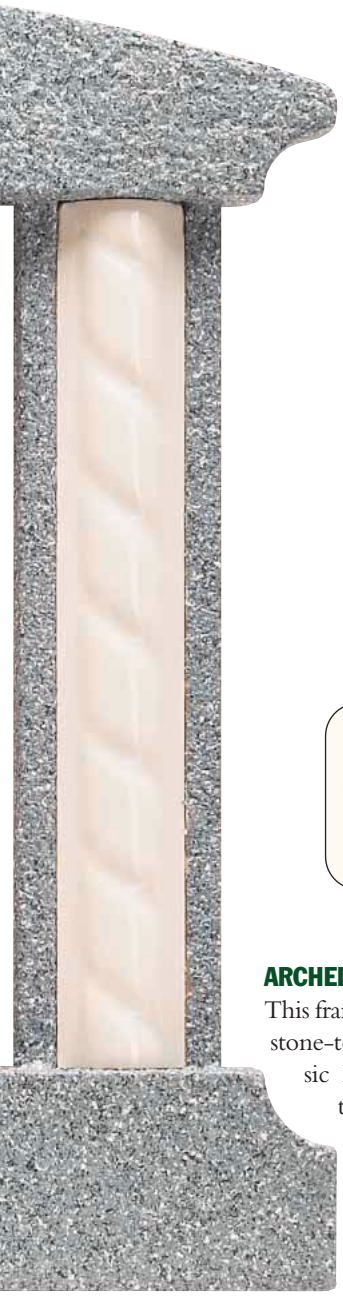
PHOTO HOLDER STRIPS. Next, I added four wood strips (C) to the back of the frame. These strips form a recess that holds the photo package. They're set in 1/4" from the edge of the frame opening and glued in place.

ALUMINUM STRIPS

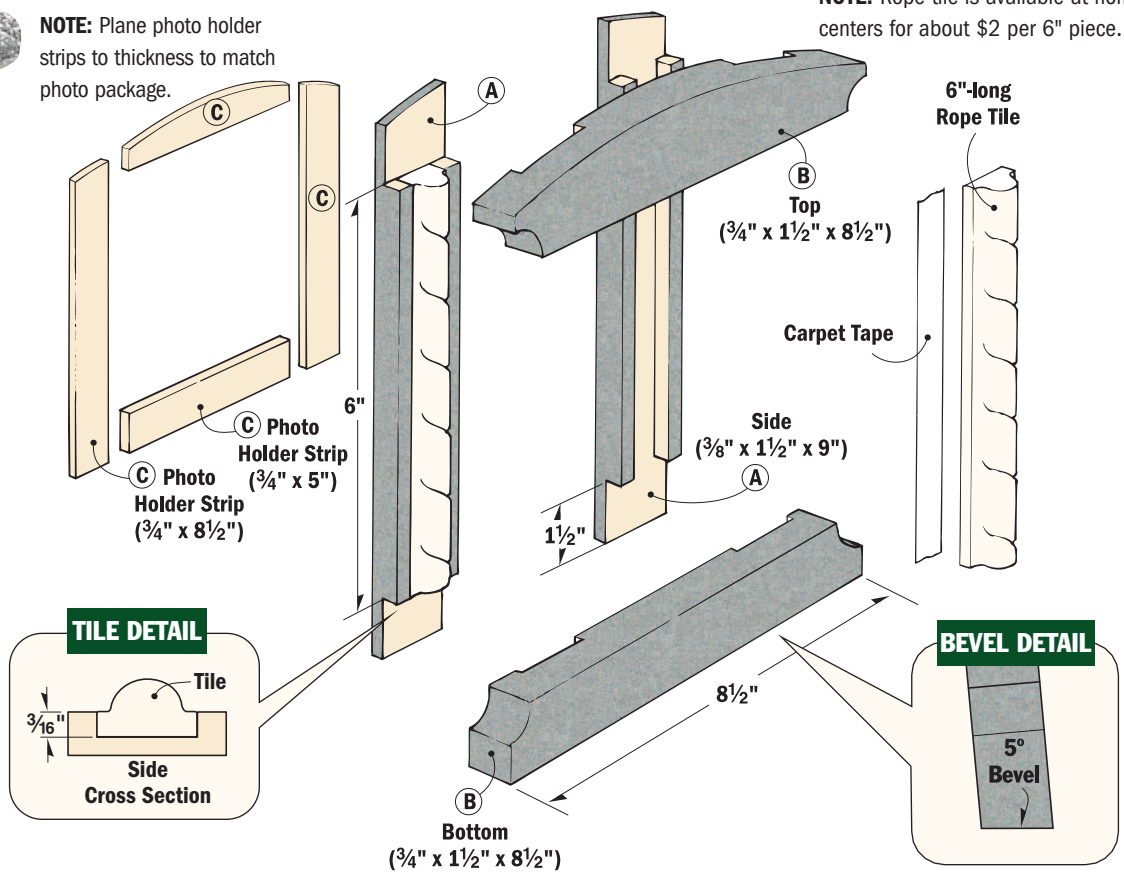
All that's left to complete the frame is to add the aluminum strips. To create a reveal on the front face of each side piece, I used two widths of strips (1 1/2" and 3/4"). They're cut to length and attached to the frame with carpet tape. We've included tips for working with aluminum on page 50. The strips are available at most home centers.



▼ **Painting the frame provides a nice contrast with the aluminum.**



ASSEMBLY VIEW



ARCHED-TOP FRAME

This frame uses pieces of rope tile and stone-textured paint to create a classic look. It's assembled just like the *Contemporary Frame*. But what's different is that each side also has a shallow groove that holds a piece of ceramic tile.

PREPARE THE TILES. Chances are you'll need to clean up any rough glazing on the edges and bottom of the tile pieces before you can use them. This is easy to do by simply knocking off the rough spots with some sandpaper.

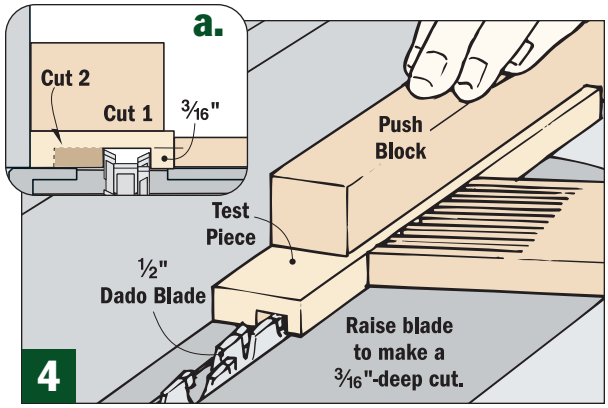
SIZE THE PIECES. Once the tiles are ready, it's time to begin work on the frame pieces. I started by planing my stock to thickness. Then I ripped the sides (A), top and bottom (B) to width and cut them to length (see dimensions above).

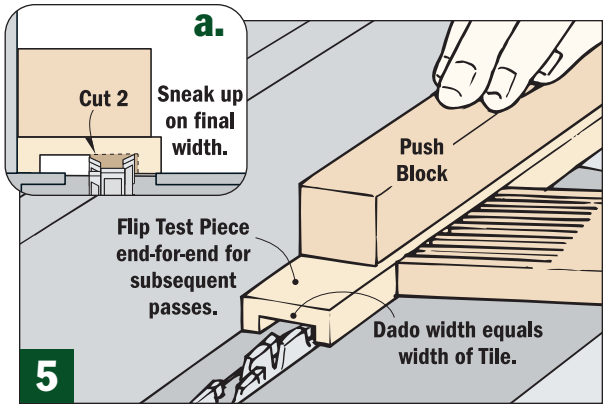
MAKING THE GROOVES

With the pieces sized, the next step is to center a groove in each side piece. This is a cut-to-fit process.

First raise a ½" dado blade to make a 3/16"-deep cut *(Fig. 4a)*. Then using a test piece (same width as the sides), I positioned the fence to establish the shoulder of the groove and made the first pass *(Fig. 4)*. Now flip the test piece end-for-end and make another pass (*Figs. 5* and *5a*).

You'll probably have to sneak up on the groove width. If it's too narrow, nudge the fence *away* from the blade and make two more passes. Once the tile fits flush *(Tile Detail)*, cut the grooves in the side pieces.





Before moving on, cut the joinery just like with the *Contemporary Frame* (page 42). This means end laps in the side pieces and dadoes in the top and bottom pieces.

SHAPING THE TOP & BOTTOM

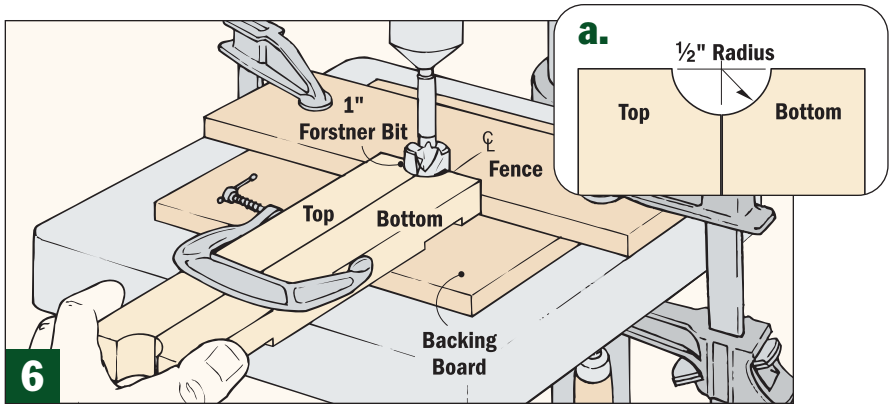
This frame has an arched top and curved corner notches. To ensure the notches matched, I cut them at the same time with a Forstner bit (*Fig. 6*). Start by clamping the pieces together and butting them against a fence clamped to the drill press table. A backing board provides support.

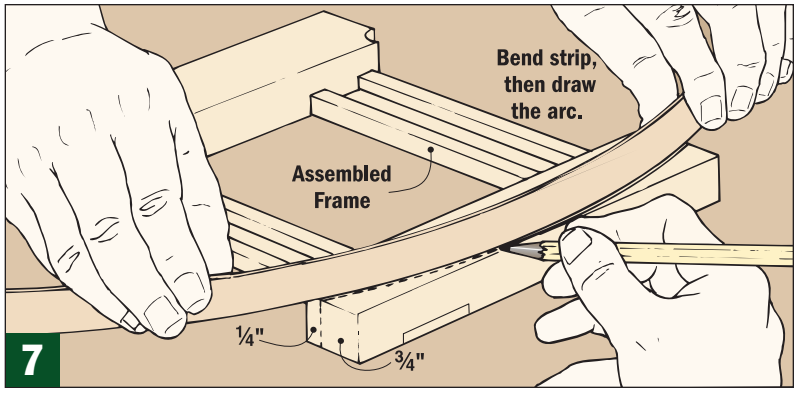
Before laying out the arc on the top, assemble the frame pieces. You'll need an extra pair of hands to mark the arc (*Fig. 7*). After rough cutting the top to shape *(Fig. 8)*, I sanded the edge and then beveled the bottom *(Bevel Detail)*.

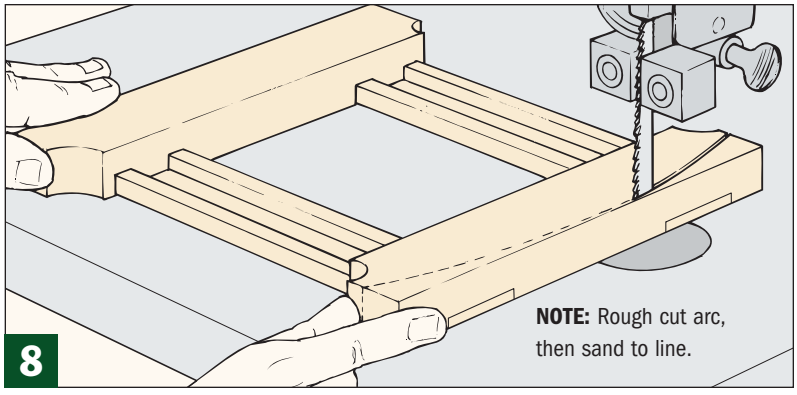
FINISHING UP

The only things left to complete the frame are attaching the photo holder strips (C), applying a finish, and adding the tiles. Note: The top and side holder strips are curved to match the arched top and sides of the frame.

I painted my frame with a stone-textured spray paint (see box below). Whatever finish you choose, make sure it doesn't build up in the grooves. Once the finish is dry, the tiles can be attached with two strips of carpet tape.







TIPS FOR USING TEXTURED PAINT

Adding the richness of stone to a project such as this picture frame is easy using a textured paint. Here are a few guidelines to follow.

1. MULTIPLE COATS: This paint thins out as it dries, so plan on applying two or more coats for an even appearance.

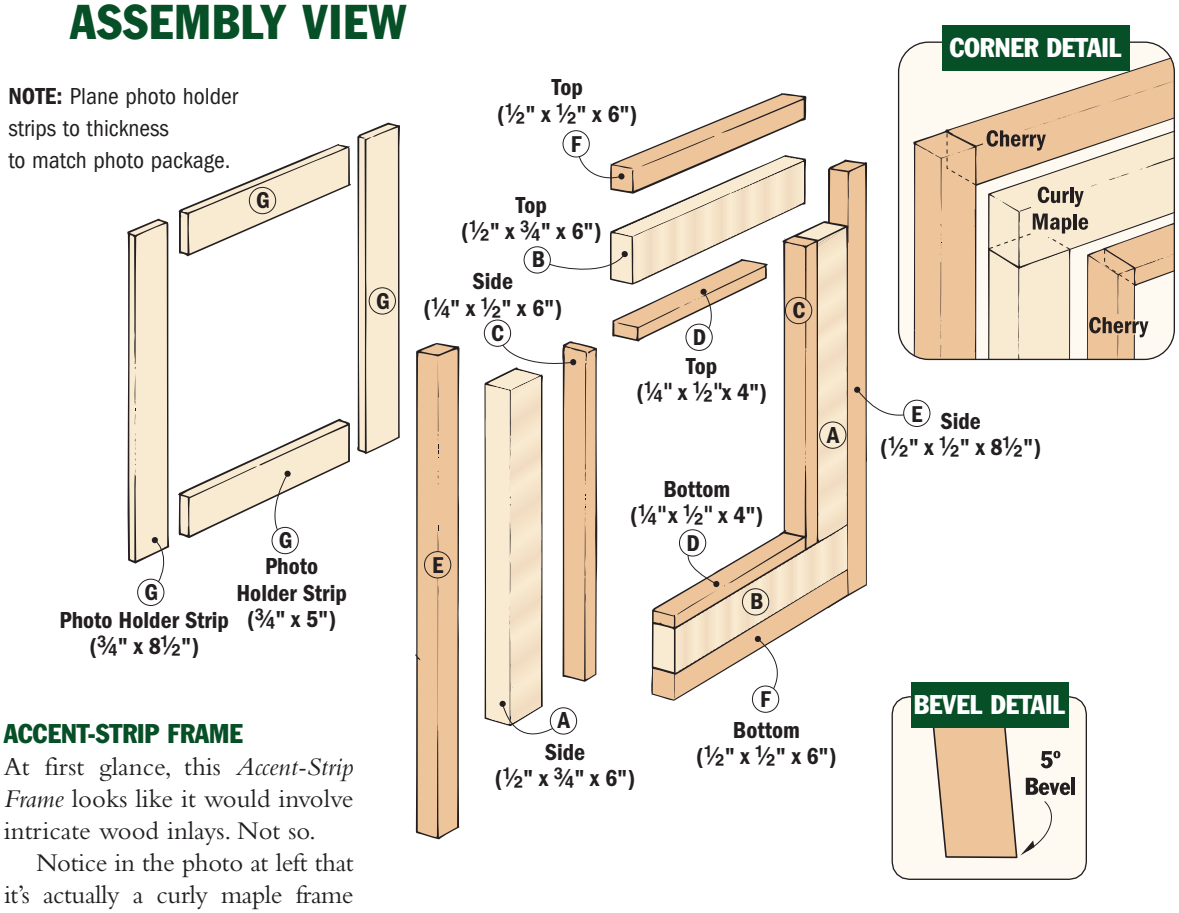
2. SPRAYING MOTION: Hold the can about 16" from the surface and spray in a steady up and down motion. The final finish will vary depending on how far away you spray, so practice on a scrap piece first.

3. DRYING TIME: Wait 15-30 minutes between coats. Allow the final coat to dry about 4 hours, then apply a clear topcoat to protect against moisture.

4. CLEANING THE GROOVES: To ensure that the tiles will fit in the grooves, scrape out the wet paint with a chisel.

SOURCES: Textured paint from Rust-Oleum (American Accents Stone Creations, Blue Slate, item #7997). Clear Topcoat from Rust-Oleum (Matte Finish, item #7902). Both available at home centers and hardware stores.

ASSEMBLY VIEW



ACCENT-STRIP FRAME

At first glance, this *Accent-Strip Frame* looks like it would involve intricate wood inlays. Not so.

Notice in the photo at left that it's actually a curly maple frame sandwiched by two cherry frames. All three frames are assembled with butt joints (see *Corner Detail* above). Together, the combination of the different woods and grain patterns create a striking contrast.

MIDDLE MAPLE FRAME

The place to begin is with the middle frame. I started by planing the stock to thickness, then ripping it to width. The next step is to cut the sides (A), top and bottom (B) to a final length of 6". It's important that all four pieces are exactly the same length. Otherwise, you'll run into problems gluing-up the butt joints so they're flush.

All that's left to complete the middle frame is the assembly. A clamping jig as seen in *Figure 9* really comes in handy for keeping the pieces square during glue-up.

INSIDE CHERRY FRAME

With the middle frame assembled, it's time to add the two cherry frames. I started with the inside frame. It's important that the four pieces for the inside frame *all* must be cut to fit because they're "trapped" by the middle frame.

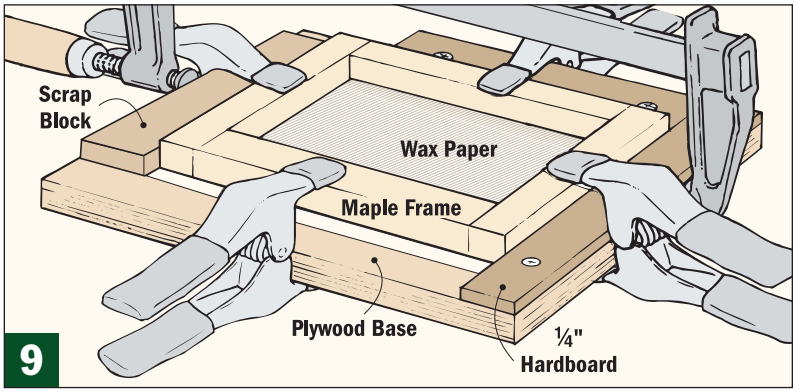
I found it works best to cut and glue on the side pieces (C) first. Then the top and bottom pieces (D) can be cut to fit between each of the sides. You won't need clamps to hold these pieces during glue-up. But it is a good idea to use a few pieces of tape to help hold the frame pieces in place *(Fig. 11)*.

OUTSIDE CHERRY FRAME

The *Accent-Strip Frame* is almost complete. All that's left is to add the outside cherry frame and do a little flush trimming and sanding.

The outside cherry frame starts out as two extra-long side pieces (E). After they're attached, the top and bottom (F) will be cut to fit.

With an oversized blank planed to a thickness of 1/2", go ahead and rip four 1/2"-wide strips *(Fig. 10)*. When ripping strips from an oversized blank like this, I use a pushblock with a heel to hold the workpiece tight against



the table. The heel hooks over the end of the blank and lets me push the workpiece and waste through the cut without getting my fingers close to the saw blade.

To glue-up the outside cherry frame pieces, I started with the two extra-long side pieces (E). Then I cut the top and bottom pieces (F) to fit between the sides and glued them in place *(Fig. 11)*.

Once the glue dries, remove the ears on the ends of the long side pieces, as shown in *Figure 12*. Here again, I cut the 5° bevel along the bottom edge at the same time (see *Fig. 12a*).

A FEW FINAL DETAILS

There are a couple of things to take care of before you apply a finish.

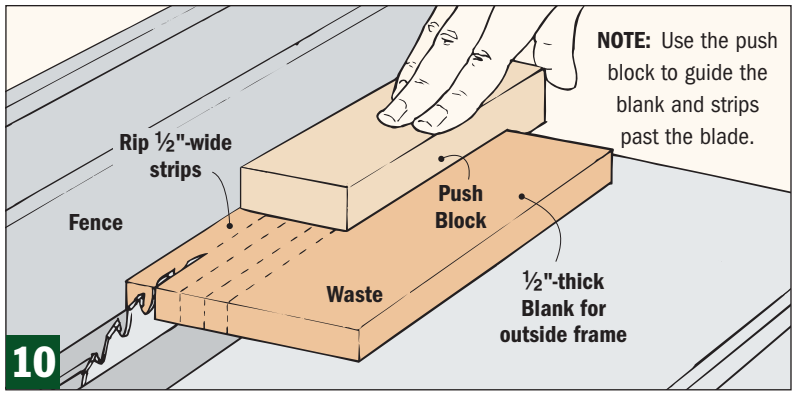
First, I wanted to make sure the faces of all the pieces were smooth and flush. So I gave both sides of the assembled frame a quick finish sanding. One easy way to do this is to tape several pieces of sandpaper to a flat surface (such as your benchtop) and "scrub" the frame across them.

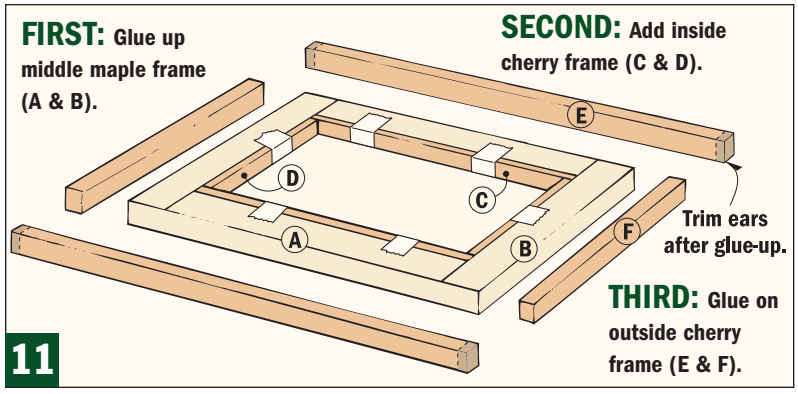
Once you've finished sanding, it's time to add the photo holder strips (G). On this *Accent-Strip Frame*, these strips serve another purpose besides holding the photo package in place. Because they're glued across each of the joint lines, they also strengthen all of the butt joints. Again, space and glue the holder strips 1/4" from the edges of the frame.

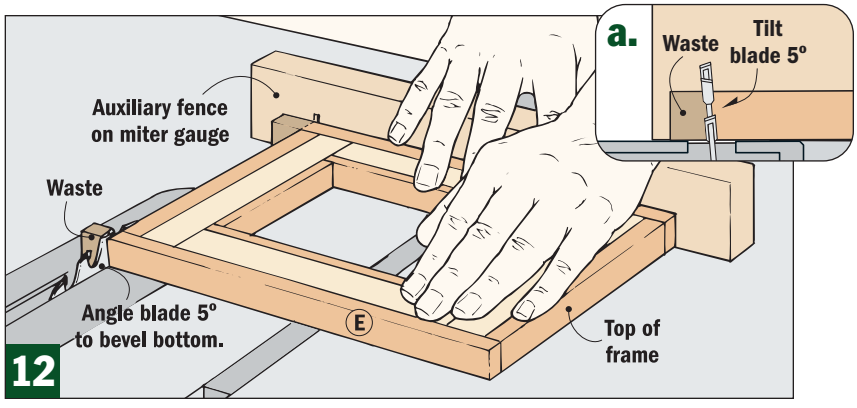
Finally, since frames get handled quite a bit, I was concerned about fingerprints and smudges. So I applied a spray-on lacquer finish. For a smooth finish, it's best to apply multiple (light) coats and sand lightly between each one. I applied three coats to add "depth" and bring out the figure of the curly maple.

A DIFFERENT LOOK

One idea to change the look of this frame is to use a narrow ceramic tile as an accent strip. This will require a thinner middle frame so the tile can be inlayed so it sits just proud of the surface. You'll find a quick way to clean up tiles in the box at right.







TILE SANDING TIPS

In the frame below, flat tile strips (available at home centers) are applied to a thinner middle frame. Together, their combined thickness allows the tile to sit just proud of the inner and outer frames.

To get a good fit where the tiles meet, you'll need to sand off rough glazing from the ends. To do this, I carpet-taped a piece of sandpaper to the top of my table saw. Then I scooted the fence against the edge of the sandpaper to support the back of the tile. A small block of wood (see photo above) also helps hold the tile square against the fence as you rub it back and forth across the sandpaper.

Easel Back

Here's an attractive do-it-yourself support for your desktop frames.

This easel back is sized to fit inside the photo holder strips and makes changing photos simple.

After making my own picture frames, I didn't want to go out and buy a flimsy cardboard back for them. So I experimented a bit and came up with this sturdy easel back that's easy to make.

The easel back consists of three pieces of hardboard and a piece of cardboard (I used the back of a writing tablet). A hardboard backer (A) fits into the recess formed by the photo holder strips.

The other two pieces of hardboard, the easel cleat (B) and easel flap (C), are what make the picture frame stand up. The cardboard holds the cleat and flap together while allowing the flap to actually hinge.

FITTING IT ALL TOGETHER

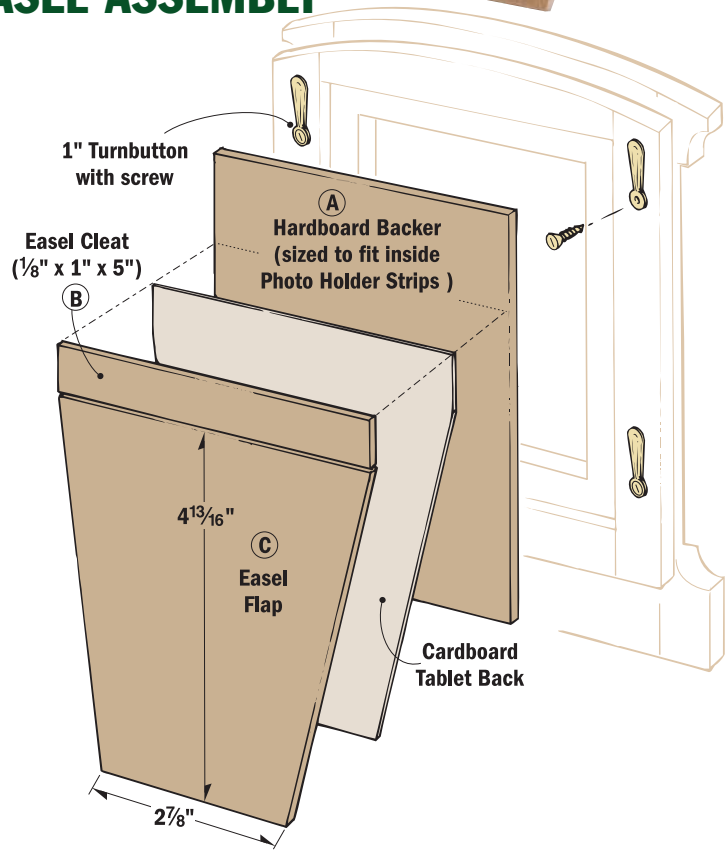
Start by cutting the hardboard backer to size (see dimensions in *Easel Assembly*). Next, cut the easel cleat and easel flap from a piece of hardboard. Then glue the two pieces to the cardboard. Note: I used two dimes as spacers to provide a gap.

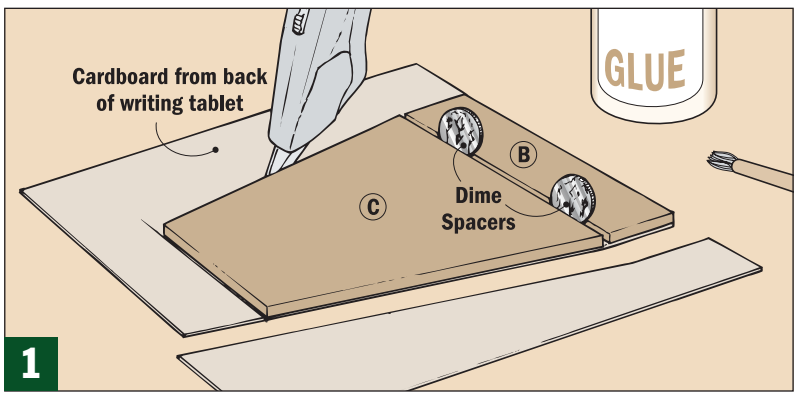
Once the glue dries, cut around the easel cleat and flap with a utility knife, as shown in *Figure 1* below.

Positioning this glued-up piece to the hardboard backer may take a little trial-and-error. You'll first need to fit the hardboard backer into the recess created by the photo holder strips. Then set the frame down just like it's going to stand on the desk. Next fold out the easel flap as far as it will go so that the bottom of the flap rests firmly on the desk.

Finally, slide the frame and glued-up piece together so that you can mark the location of the cleat on the hardboard backer. Now it's just a matter of gluing the easel cleat to the backer and adding some turnbuttons to hold everything in place.

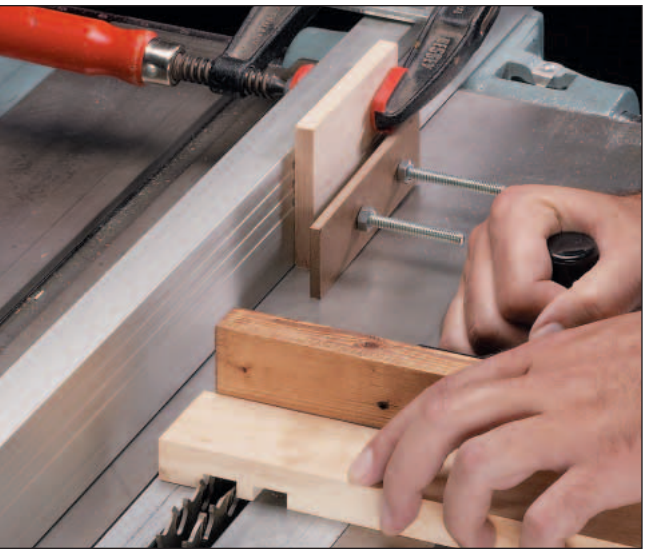
EASEL ASSEMBLY

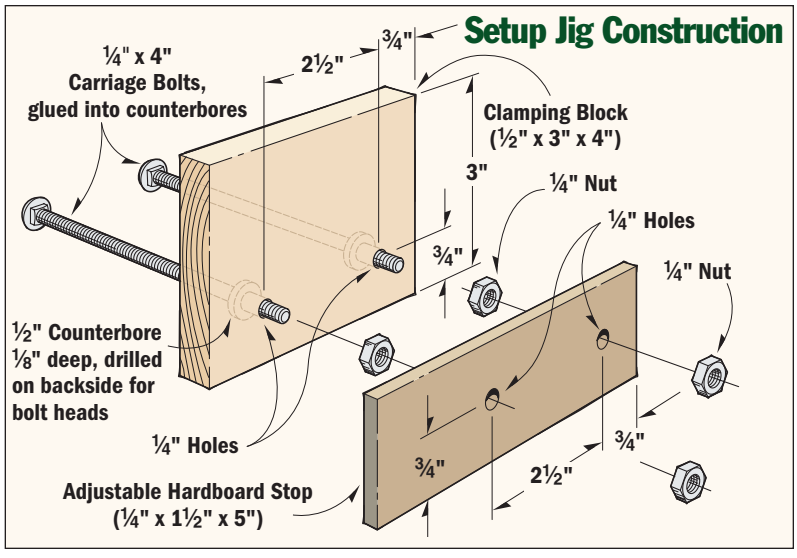




In The Shop

Dado Setup Jig





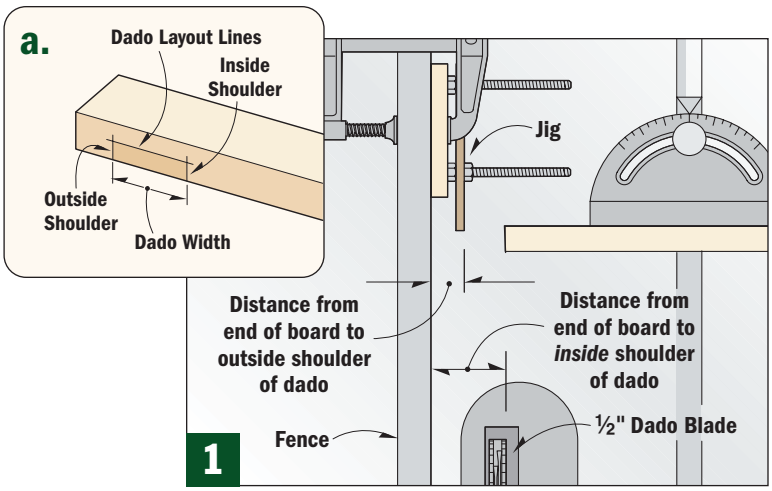
Whenever you need to make a series of matching dadoes (such as with the *Desktop Picture Frames* on page 40), aligning the two shoulder cuts of the dadoes accurately to the blade is the most important part. Here's a simple jig you can make to help you do that without having to reset the fence between cuts.

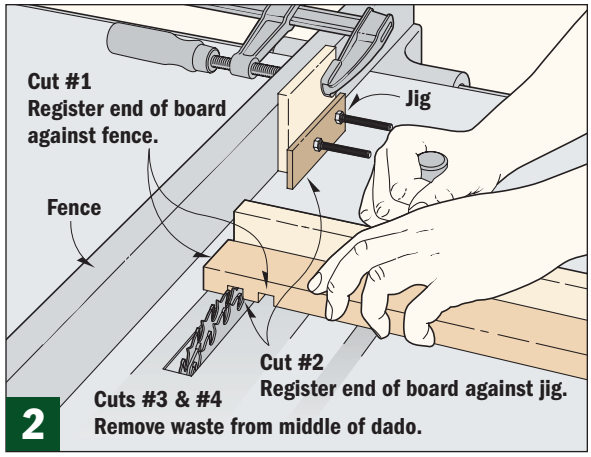
The jig consists of a small adjustable hardboard stop attached to a taller hardwood clamping block with carriage bolts and nuts. Adjusting the nuts allows the hardboard stop to be moved in or out to register the cuts.

To set up the jig, first clamp it to your fence, as shown in *Figure 1*. Next mark the dado locations *(Detail a)*. Then position the fence so that the dado blade aligns perfectly with the *inside* shoulder of the dado (*Figs. 1* and *1a)*. Now, before making any cuts, adjust the hardboard stop so that it aligns perfectly with the *outside* shoulder of the dado.

If you take a look at *Figure 2*, you'll see how to make the actual dado cuts. Start by setting the height of the dado blade. A ½" blade is shown, but any width blade will work. The first cut is made with the end of the board butted against the fence to define the *inside* shoulder of the dado. Now slide the board away from the blade and butt the same end against the hardboard stop to make the second cut. This defines the *outside* shoulder of the dado.

To finish up, remove the waste between the shoulder cuts by making multiple passes over the blade.





Working with Aluminum Strips

On the *Contemporary Frame* featured on page 42, the aluminum strips contrast nicely with the bird's eye maple frame. But working with aluminum does bring up a few questions. For instance, how do you cut it safely and accurately.

CUTTING ALUMINUM. Since aluminum is quite soft, it's easy to cut with a carbide-tipped saw blade mounted in the table saw. For the contemporary frame, all four of the aluminum strips had to be exactly the same length. They also had to be held securely without marring the surfaces.

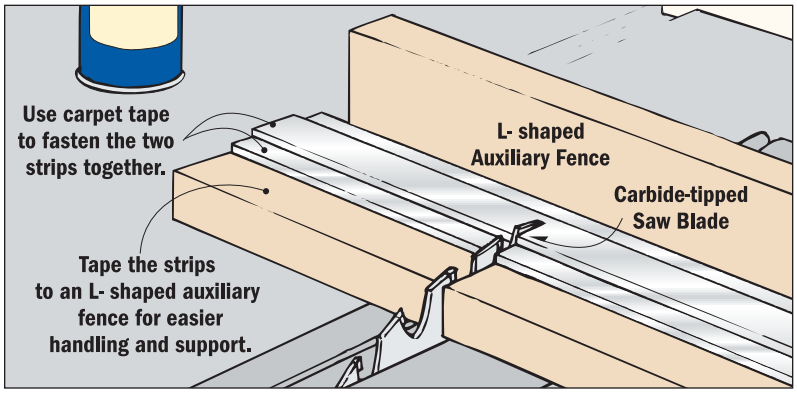
A simple solution was to first carpet-tape together a wide and a narrow strip. Then I used another strip of carpet tape to secure both pieces to an L-shaped auxiliary fence (see illustration below). This made it easy to push the aluminum strips through the blade. Plus, the scrap block underneath helped eliminate any burrs that might have otherwise formed on the ends of the cuts.

SAFETY. Anytime you're working with metals, safety glasses (or a face shield) and gloves are a must to protect your hands and eyes against flying metal chips and sharp edges. It's also a good idea to wear ear plugs.

To get a clean cut, it's best to advance the stock slowly. I also like to spray a little lubricant like WD-40 on the blade before each cut. This helps it cut smoother.

BRUSHED LOOK. After cutting the aluminum strips, I wanted to give them a brushed look. To do this, I simply rubbed them a few times with an abrasive pad. Then I switched to a piece of #0000 steel wool to finish up.

Finally, I sprayed the strips with lacquer to keep them from getting smudged with fingerprints.



Shelf Hole Drilling Guide

Drilling the series of holes for the adjustable shelves in the *Weekend Workbench* featured on page 26 in this issue isn't a hard job. It's just a matter of aligning and spacing the holes equally so that the shelves lie flat on the pegs.

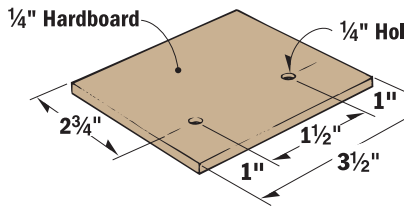
The simple hole drilling guide shown here takes the guesswork out of the job. It's just a small piece of hardboard with two holes drilled through it. The holes are spaced $2\frac{3}{4}$" from one edge of the guide and $1\frac{1}{2}$" apart, as seen in the *Guide Dimensions* illustration above.

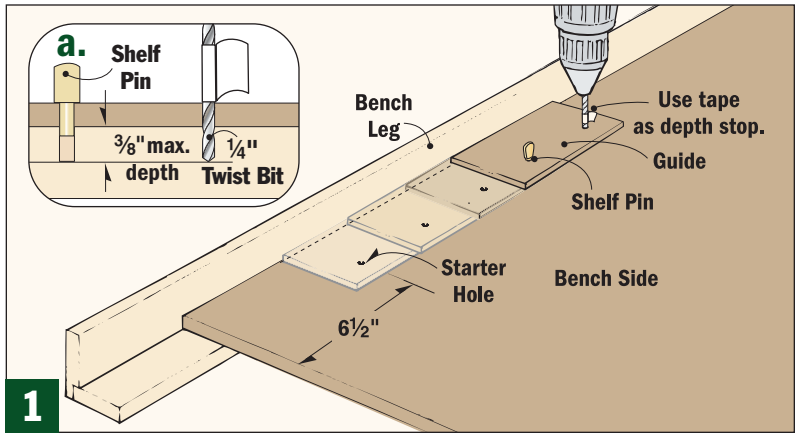
First you'll have to mark and drill the bottom shelf hole. In my case, that was $6\frac{1}{2}$" from the bottom edge of the bench side. This will serve as your starter hole.

To use the guide, start by butting it tightly against the bench leg with one of the holes in the guide aligned with the starter hole. Now insert a shelf pin through the guide and into the starter hole to hold the guide in place *(Detail a)*. Next, drill through the other hole in the guide. Note: Use a piece of tape as a depth stop.

To complete all of the holes, simply repeat this pinning and drilling process as you slide the guide up the side of the bench *(Fig. 1)*.

Guide Dimensions





Feedback and Follow-Up

MINWAX 2001 AWARD

Workbench magazine would like to congratulate the Woodworker's Guild of Georgia, grand-prize winner of the Community Craftsmanship Award sponsored by Minwax Wood Finishes, a subsidiary of Sherwin-Williams.

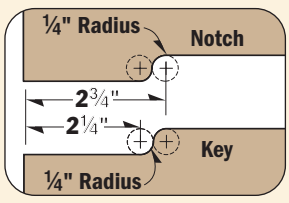
The $5,000 award is presented annually to an individual, community, or group that uses woodworking or wood finishing to benefit their community. Most recently, the Guild has been very involved with the Mountain Top Boys' Home in northeast Georgia.

SEND ENTRIES NOW

Entries (in the form of a summary describing the project and benefits) for this year's Award Program must be received by Nov. 30, 2001. Address entries to: Minwax Community Craftsman Award, c/o Brushfire Marketing, 110 South Jefferson Road, Whippany, NJ 07981.

CORRECTION

In the *Stacking Storage Bins* article (Sept./Oct.), the inside Notch radius (*Radius Detail*, pg. 53) was dimensioned wrong. It should be $2^3/_4$", not $2^1/_4$".

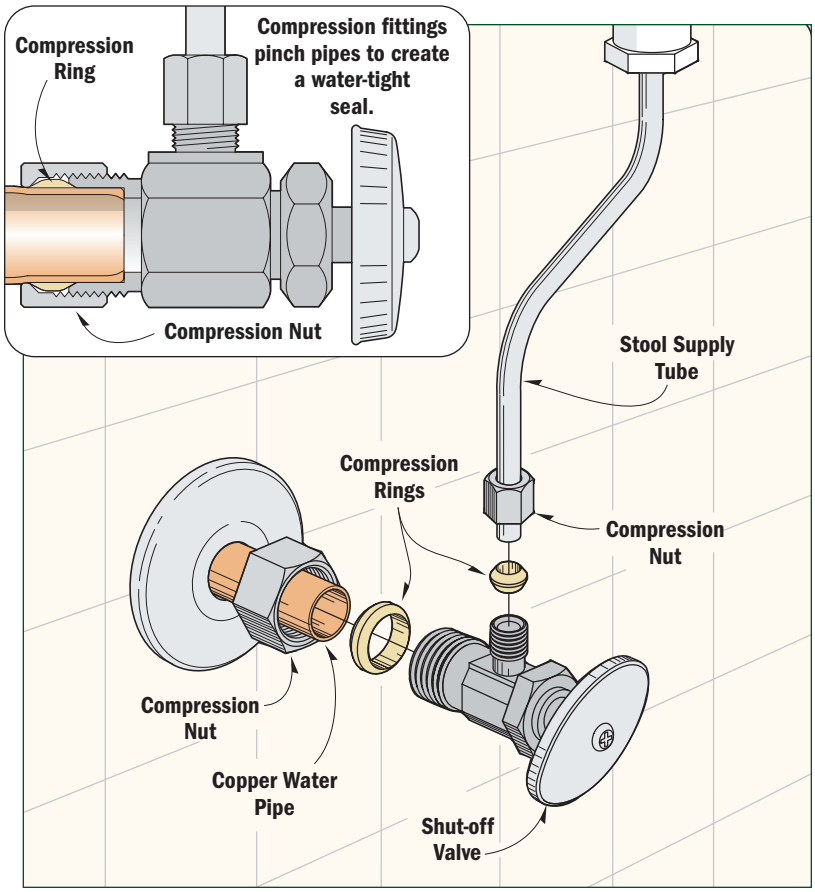


Around The House

Compression Fittings — The "No-solder" Plumbing Fix

There's never a good time for a plumbing crisis. But with a few supplies and the right size shut-off valve that has compression fittings, you can get your bathroom back in working order in no time.

Using compression fittings has several appealing qualities over soldering. First, you don't have to worry about water in the line preventing you from getting a tight seal. Second, running a propane torch in tight quarters can be unnerving if not dangerous. Note: Compression fittings *cannot* be installed in an inaccessible area like a wall that's finished on both sides.



SHUTTING DOWN. To install a compression fitting, first shut off the main water source and open the highest and lowest lines in your home. This will release the pressure off the water lines.

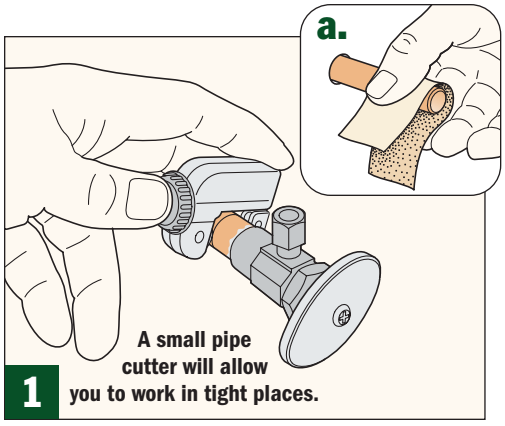
OUT WITH THE OLD. Remove the old shut-off valve with a pipe cutter that fits in the space allowed *(Fig. 1)*. Cleaning the copper pipe with emery paper gives you a better surface for the new fitting *(Fig. 1a)*.

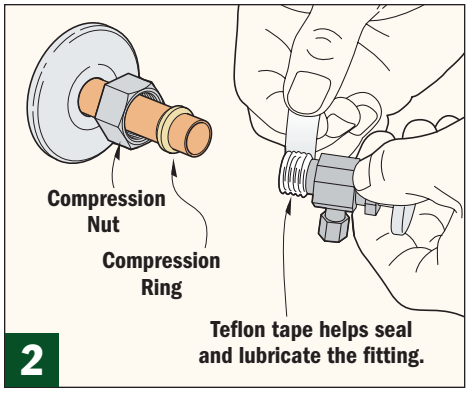
IN WITH THE NEW. Slide the compression nut and ring over the end of the pipe *(Fig. 2)*. Prior to installing the body of the shut-off valve, wrap the threads with a layer of Teflon tape. Note: Wrap the tape in the same direction that the compression nut tightens. This keeps the tape from bunching up *(Fig. 2)*.

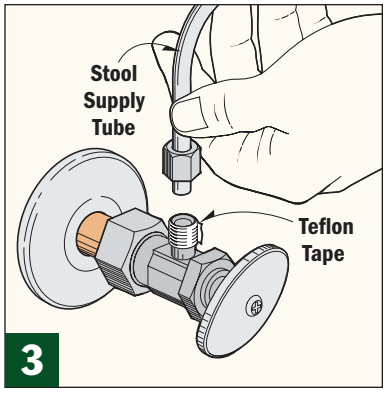
Then hold the fitting in place and tighten the compression nut with an adjustable wrench.

Next, connect the water supply tube that runs between the new shut off and the toilet *(Fig. 3)*. You'll need to use teflon tape on the threads of both connections here, also.

Finally, wipe down the new shut-off valve and supply tube with a dry rag before turning the water on and inspecting for leaks.







Hanging A Wreath

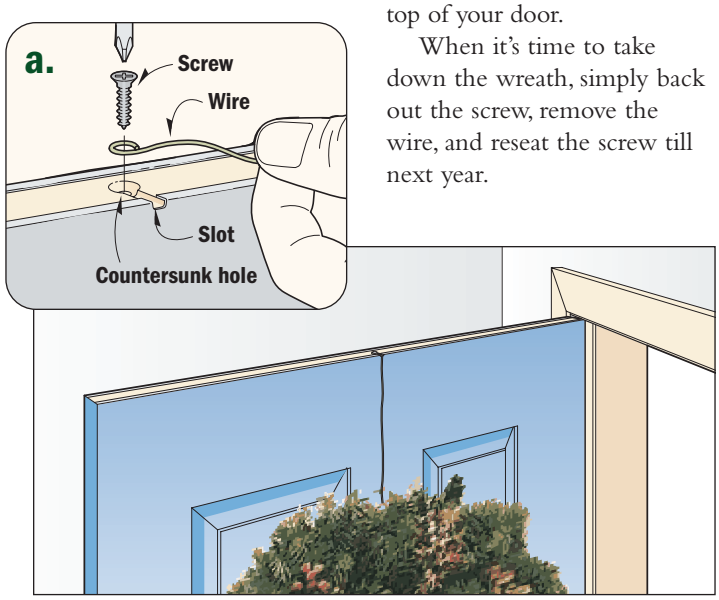
Hanging a wreath on the front door is a holiday tradition that has been around a long time. When doors were made of wood this was easy to do. But today most entry doors are insulated, with a steel skin covering a wood frame.

As nice as an insulated steel door is, it's hard to attach a wreath to a metal surface without damaging the door. There are clips available that hang over the top of the door, but these make the door hard to close and usually scar the door jamb.

A simple remedy for this is to suspend the wreath on a wire that's held by a screw in the top of the door. The trick here is to recess the screw and wire just enough so the door won't bind when you close it.

To do this, first drill a pilot hole, and then make an oversized counter sink for a woodscrew. The next step is to cut a slot from this hole to the front of the door. This will allow the wire to hang flush with the top of the door. You'll need a chisel or metal file, or both, to do this, depending on how the metal skin fits across the top of your door.

When it's time to take down the wreath, simply back out the screw, remove the wire, and reseat the screw till next year.

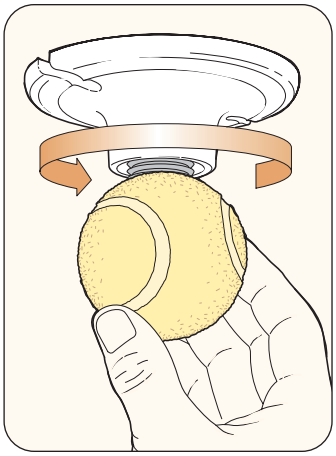


Light Bulb Fix

When a light bulb breaks off in a fixture, here's a safe way to remove the remains of the bulb base.

With the power turned off, (at the breaker panel, not just the light switch) use a tennis ball to unscrew the threaded metal base.

Before installing the new bulb, rub a little paraffin on the threads of the bulb to keep it from "seizing up" next time it needs replaced.



Sources & Resources

Bathroom Makeover – page 16

BEADBOARD WAINSCOTING

We chose $^{5}/_{16}$" x $3^{1}/_{2}$" beadboard to make the wainscoting panels for the bathroom. This material is commonly available at home centers and lumberyards. We picked ours up at Home Depot.

VINYL FLOORING

Individual vinyl tiles are easy to install and have a real-tile look. We used Traffic Master tiles that we purchased at Home Depot.

LIGHTING AND LAVATORY FIXTURES

The brushed nickel and chrome accessories that accent the new bathroom are also available at Home Depot.

DRAWER SLIDES

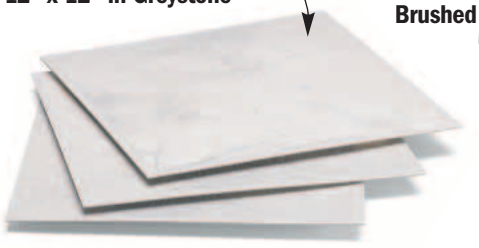
The Accuride 20" full-extension slides that carry the load in the partition are available from Rockler Woodworking.

Beadboard

Kohler Revival
Model K-16100-4A-G
in polished chrome

Accuride Model 301-2590
Full-extension Drawer Slides

Traffic Master Vinyl Floor Tiles
Model TM373
12" x 12" in Greystone



Hampton Bay
Model HB05381
Brushed Nickel Vanity Bar

Kohler Memoirs
Pedestal Lavatory
Model K2238-4

Home Depot 770-433-8211
www.HomeDepot.com

Accuride 562-903-0200
www.Accuride.com

Kohler 800-456-4537
www.Kohler.com

Lowe's 800-445-0937
www.Lowes.com

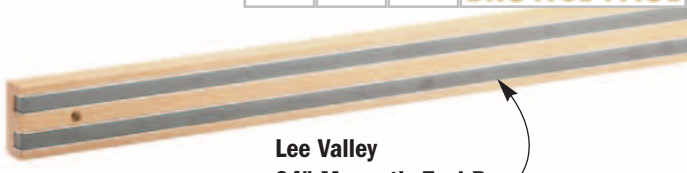
Rockler Woodworking . .800-279-4441
www.Rockler.com

Magnetic Tool Bar – page 26

Add a 24" magnetic tool bar like the one shown here to any workbench and you've got instant organization. These (There's a 12" version, also) toolbars are available in the Lee Valley catalog or on their Web site.

The bars are made of $1^3/_4$"-wide solid hardwood. Each bar has two inlaid magnetic strips capable of holding a 1"-wide metal object that weighs up to three pounds. The bars come with mounting screws included.

24" Tool Bar: Item #93K75.24
12" Tool Bar: Item #93K75.12



Lee Valley
24" Magnetic Tool Bar
Item # 93K75.24

Lee Valley . . . 800-871-8158
www.LeeValley.com

Choose Your Vise
– page 26

No respectable workbench is complete without a vise. But with the number of vises available, choosing the right one for your bench may be trickiest part of setting up your new work surface.

For the *Utility Workbench*, we found two vises that we think are well-suited to the type of use this bench will get.

Record Woodcraft Vise V175B — A conventional woodworking vise with cast jaws and wood pads for stock protection. This model is designed to mount permanently underneath the bench top.

Record Quick Vise — This vise slides into a bench-mounted base. It features fast opening and closing jaws and a non-slip tightening knob.

American Tool/Record Tool 847-478-1090
www.AmericanTool.com
www.RecordTool.com
www.QuickVise.com

One "Stick" at a Time

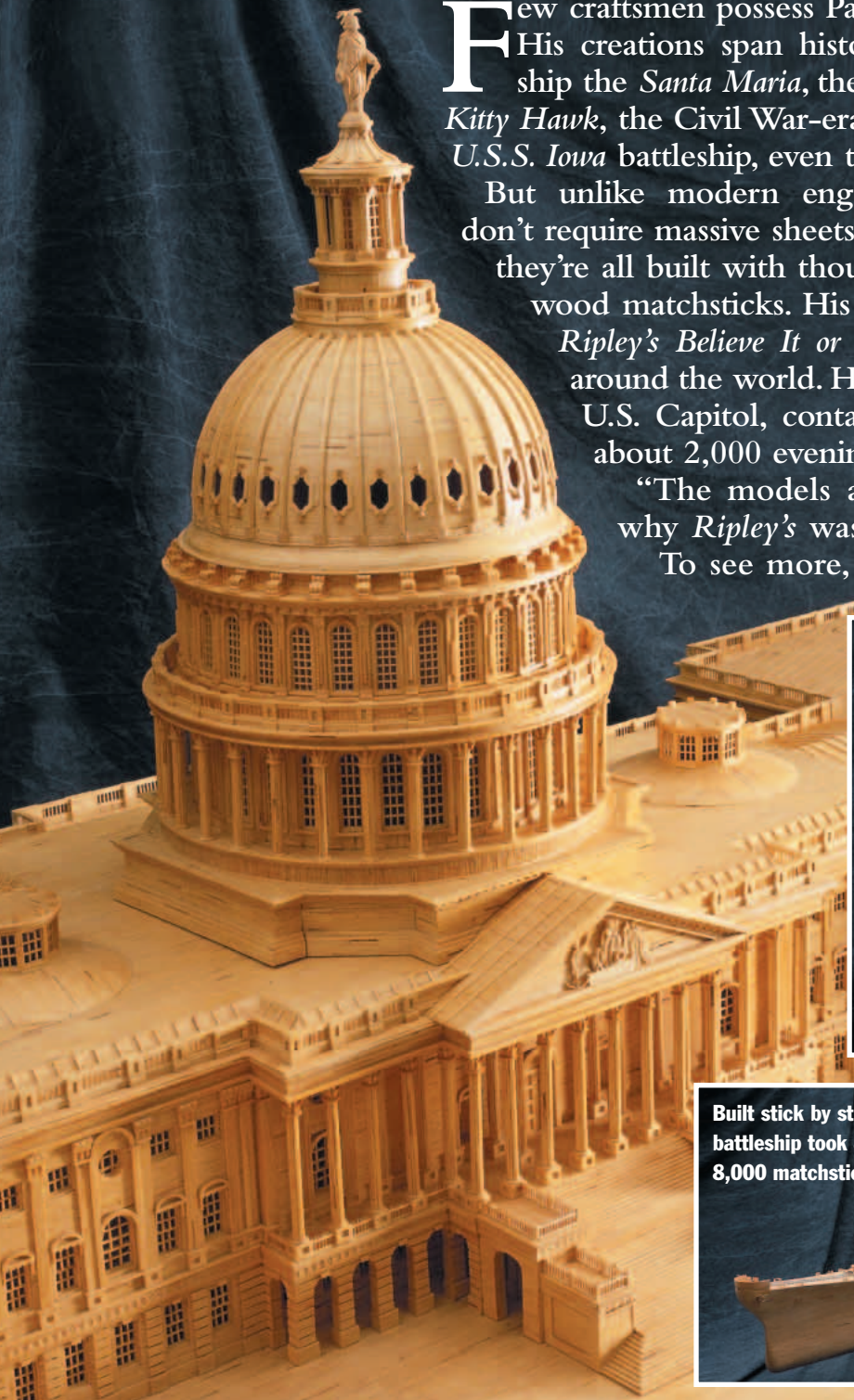
In the small town of Gladbrook, Iowa, craftsman Pat Acton patiently builds incredible models to exact scale using ordinary matchsticks and gallons of glue.

Few craftsmen possess Pat Acton's talent as a master builder. His creations span history's honor roll: Columbus' sailing ship the *Santa Maria*, the U.S. Capitol, the Wright Brothers' *Kitty Hawk*, the Civil War-era steam locomotive *The General*, the *U.S.S. Iowa* battleship, even the *Challenger* space shuttle.

But unlike modern engineering marvels, Acton's replicas don't require massive sheets of steel or tons of lumber. Instead, they're all built with thousands of "tiny timbers" made from wood matchsticks. His historic models are so unique that *Ripley's Believe It or Not* bought 19 for their museums around the world. His most recent work, a 12-foot-long U.S. Capitol, contains 500,000 matchsticks and took about 2,000 evening and weekend hours to complete.

"The models are a novelty," Acton says. "That's why *Ripley's* was so interested." Novel, indeed.

To see more, go to WorkbenchMagazine.com



Pat Acton poses beside his matchstick *Challenger* space shuttle, which contains 200,000 sticks.

Built stick by stick, the *U.S.S. Iowa* battleship took 800 hours and nearly 8,000 matchsticks to create.