

**FREE  
FULL-SIZE  
PATTERNS INSIDE**

# WOOD

## Build This Gorgeous **Lingerie Chest**

p.34

### **Foolproof Jointing & Planing**

p.60

### **30-minute Project: Sanding Disc Storage**

p.32

### **Design Your Projects on a Computer It's *EASY!***

p.64

### **More Projects!**

- **Super-simple Bookshelves** p.70
- **Clutter-busting Organizer** p.49
- **Nifty Napkin Holder** p.20



Display until March 17, 2009

0 3 >

\$6.99 U.S.



0 92567 14072 5



# Grizzly Industrial

PURVEYORS OF FINE MACHINERY®, SINCE 1983!

## 10" Cabinet Saws w/Riving Knife

- Motor: 3 HP, 220V, single-phase
- Precision ground cast iron table
- Table size w/extension: 27" x 40"
- Arbor: 5/8" • Arbor speed: 4300 RPM
- Max. depth of cut (both): 3 1/4" @ 90°, 2 1/8" @ 45°
- Max. rip capacity: G0690 - 30", G0691 - 50"
- Approx. shipping weight: G0690 - 603 lbs. G0691 - 644 lbs.



ADJUSTABLE T-SLOT MITER GAUGE BAR

G0691 SHOWN WITH EXTENSION RAILS & TABLE

**G0690**  
INTRODUCTORY PRICE  
**\$1250<sup>00</sup>**



Features Heavy-Duty Cast Iron Trunnions & Handwheels

Includes Standard & Pado Table Inserts

**G0691** w/Extension Rails  
INTRODUCTORY PRICE **\$1350<sup>00</sup>**

**\$89**

## 17" Heavy-Duty Extreme Series® Bandsaw w/ Cast Iron Wheels & Motor Brake

- Motor: 2 HP, 110V/220V, single-phase, TEFC
- Larger precision ground cast iron table size: 24" x 17"
- Table tilt: 5° left, 45° right
- Max. cutting height: 12"
- 2 blade speeds: 1700 & 3500 FPM
- Double ball bearing blade guides
- Quick change blade release/tensioner
- Approx. shipping weight: 414 lbs.

MADE IN ISO 9001 FACTORY!



DELUXE RESAW FENCE & MITER GAUGE INCLUDED

MOTOR BRAKE STOPS BLADE IN 3 SECONDS!

Features Heavy-Duty Cast Iron Fence, Wheels & Trunnion!



**Brand New!**

**G0513X2B**  
EXTREME SERIES  
INTRODUCTORY PRICE **\$1195<sup>00</sup>**

**\$89**

## 10" Left-Tilting Contractor Style Table Saw w/Riving Knife

- Motor: 2 HP, 110V/220V, single-phase
- Precision ground cast iron table size w/wings attached: 27" x 44"
- Rip capacity: 36" • Lift-off fence
- Capacity: 3 1/4" @ 90°, 2 1/4" @ 45°
- Approx. shipping weight: 342 lbs.

MADE IN ISO 9001 FACTORY!



**G0661**  
ONLY **\$795<sup>00</sup>**

**\$89**

Includes Cast Iron Miter Gauge

## 2 HP, 10" Hybrid Cabinet Saw

- Motor: 2 HP, 110V/220V, single-phase
- Precision ground cast iron table size w/wings attached: 27" x 39 1/2"
- Arbor: 5/8" • Rip capacity: 30"
- Capacity: 3" @ 90°, 2 1/8" @ 45°
- Cast iron miter gauge
- Approx. shipping weight: 439 lbs.

PW

TOOLS

INCLUDES SHOP FOX ALUMA-CLASSIC™ FENCE



**G0478**  
ONLY **\$895<sup>00</sup>**

**\$89**

## 10" Left-Tilting Table Saws w/Cast Iron Router Table

- Motor: 3 HP, 220V, single-phase or 5 HP, 220V, single-phase
- Precision ground cast iron table
- Table size w/wings attached: 27" x 48"
- Cutting capacity: 8" L, 26" R
- Approx. shipping weight: 500 lbs.

ROUTER AND WOOD NOT INCLUDED



**G1023SLW**  
3 HP, single-phase  
ONLY **\$1125<sup>00</sup>**

**G1023SLWX**  
5 HP, single-phase  
ONLY **\$1295<sup>00</sup>**

INCLUDES SHOP FOX CLASSIC™ FENCE

**\$89**

## 14" Heavy-Duty Bandsaw



- Motor: 1 1/2 HP, 110V/220V, single-phase, TEFC, 1725 RPM
- Precision ground cast iron table
- Table size: 20 1/2" x 14"
  - Table tilt: 45° R, 10° L
  - Cutting capacity/throat: 13 1/2"
  - Max. cutting height: 6"
  - Blade size: 92 1/2" to 93 1/2" (1/8" - 3/8" W)
  - Cast iron wheels
  - Approx. shipping weight: 262 lbs.

Includes Deluxe Aluminum Re-saw Fence & Work Light

MADE IN ISO 9001 FACTORY!

EXTREME SERIES

**G0555X**  
ONLY **\$625<sup>00</sup>**

**\$89**

## 14" Industrial Resaw Bandsaw



- Motor: 2 HP, 110V/220V, single-phase, TEFC, 1725 RPM
- Precision ground cast iron table
- Table size: 19 1/4" x 14 1/8"
- Table tilt: 45° R, 8° L
- Cutting capacity/throat: 13 1/2"
- Max. cutting height: 10"
- Blade size: 106" L (1/8" - 3/8" W)
  - Blade speed: 3000 FPM
  - 6" re-saw fence
  - Approx. shipping weight: 284 lbs.

MADE IN ISO 9001 FACTORY!

Includes Blade, Ball Bearing Blade Guides & Miter Gauge

**G0457**  
ONLY **\$895<sup>00</sup>**

**\$89**

## 19" Heavy-Duty Extreme Series® Bandsaw

- Motor: 3 HP, 220V, single-phase, TEFC
- Precision ground cast iron table
  - Table size: 26 1/4" x 19" x 1 1/2"
  - Cutting capacity/throat: 18 1/4"
  - Max. cutting height: 12"
  - Blade size: 143" L (1/8" - 1 1/4" wide)
  - 2 Blade speeds: 1700, 3500 FPM
  - Approx. shipping weight: 458 lbs.

Includes Aluminum Re-saw Fence Attachment, Dual Ball Bearing Blade Guides, Cast Iron Wheels & Fence

MADE IN ISO 9001 FACTORY!

EXTREME SERIES

**G0514X**  
ONLY **\$1250<sup>00</sup>**

**\$89**

11302R

PRICING CODE  
**09WOODM**

MENTION THIS CODE WHEN PLACING YOUR ORDER

# 1-800-523-4777

TECHNICAL SERVICE:  
570-546-9663  
FAX: 800-438-5901

3 GREAT SHOWROOMS! BELLINGHAM, WA • MUNCY, PA • SPRINGFIELD, MO

# BUY DIRECT & SAVE!

- OVER A MILLION SQUARE FEET PACKED TO THE RAFTERS WITH MACHINERY & TOOLS
- 2 OVERSEAS QUALITY CONTROL OFFICES STAFFED WITH QUALIFIED GRIZZLY ENGINEERS
- HUGE PARTS FACILITY WITH OVER 1 MILLION PARTS IN STOCK AT ALL TIMES
- TRAINED SERVICE TECHNICIANS AT ALL 3 LOCATIONS
- MOST ORDERS SHIPPED THE SAME DAY • 24 HOUR ORDERING BY PHONE OR ONLINE

ADVERTISED PRICES EFFECTIVE JAN. 1, 2009. VISIT OUR WEBSITE FOR CURRENT PRICING.

**FREE**  
**FULL COLOR**  
**2009 CATALOG!**  
**A HUGE SELECTION**  
**OF HIGH QUALITY**  
**MACHINES & TOOLS**



## 15" Planers

- Motor: 3 HP, 220V, single-phase
- Precision ground cast iron tables & extension wings
- Table size: 15" x 20"
- Max. cutting height: 8"
- Feed rate: 16 & 30 FPM
- Cutterhead speed: 5000 RPM
- Built-in mobile base
- Magnetic safety switch
- Heavy-duty cast iron construction
- Approx. shipping weight: 675 lbs.



4" DUST PORT & BOARD RETURN ROLLERS

Spiral Cutterhead

**G0453**

4 Blade Cutterhead **ONLY \$950<sup>00</sup>**

**G0453Z** **EXTREME SERIES**

Spiral Cutterhead **ONLY \$1495<sup>00</sup>** **\$159**



## 8" Jointer w/Exclusive Digital Height Readout



PATENT PENDING DIGITAL READOUT

EXTREME SERIES

- Motor: 3 HP, 220V, single-phase, TEFC
- Precision ground cast iron tables
- Total table size: 8" x 76 1/2"
- Infeed table size: 8" x 43 3/4"
- 4 row spiral cutterhead
- Cutterhead speed: 5350 RPM
- Max. rabbeting depth: 1/2"
- Deluxe cast iron fence size: 35"L x 1 1/4"W x 5"H
- Approx. shipping weight: 597 lbs.



MADE IN ISO 9001 FACTORY!

Extra Long Infeed Table & Extra Tall Fence with Rack & Pinion Adjustment

INCLUDES FREE SAFETY PUSH BLOCKS

**G0495X** **ONLY \$1795<sup>00</sup>** **\$159**



## 13" Planer w/Dust Collection

- Motor: 2 HP, 110V, single-phase
- Max. cutting width: 13"
- Max. cutting height: 6"
- Max. cutting depth: 1/16"
- Cutterhead speed: 8000 RPM
- Feed rate: 19 FPM
- Knives: 2 double-edged HSS
- Approx. shipping weight: 95 lbs.

Brand New!



Includes 2 1/2" Dust Port & Collection Bag, Side Handles & Flip Up Wings for Portability!

**G0689**

INTRODUCTORY PRICE **\$375<sup>00</sup>** **\$39**



## 6" Parallelogram Jointers

- Motor: 1 1/2 HP, 110V/220V, single-phase
- Precision ground cast iron tables size: 6" x 55 1/2"
- Rabbeting capacity: 1/2" • Max. depth of cut: 1/8"
- Cutterhead speed: 4850 RPM
- Parallelogram table adjustment
- Center mounted fence
- Built-in mobile base
- Approx. shipping weight: 362 lbs.

INCLUDES FREE SAFETY PUSH BLOCKS



**G0604X**  
4 KNIFE CUTTERHEAD  
**ONLY \$650<sup>00</sup>** **\$89**

**G0604ZX**  
SPIRAL CUTTERHEAD  
**ONLY \$895<sup>00</sup>**

## 8" Jointers w/Built-in Mobile Base

- Motor: 3 HP, 220V, single-phase, TEFC, 3450 RPM
- Precision ground cast iron tables size: 9" x 72 1/2"
- Rabbeting capacity: 1/2" • Max. depth of cut: 1/8"
- Cutterhead speed: 5000 RPM
- Deluxe cast iron fence size: 35" L x 5" H
- Built-in mobile base
- Approx. shipping weight: 552 lbs.

INCLUDES FREE SAFETY PUSH BLOCKS



**G0656**  
4 KNIFE CUTTERHEAD  
**ONLY \$795<sup>00</sup>** **\$159**

**G0656X**  
SPIRAL CUTTERHEAD  
**ONLY \$1095<sup>00</sup>**

## 12" Baby Drum Sander

- Sanding motor: 1 1/2 HP, 110V, single-phase
- Conveyor motor: 1/10 HP, 110V, single-phase, variable speed 0-15 FPM
- Drum surface speed: 2300 FPM
- Max. stock dimensions: 12" wide x 3 1/2" thick
- Min. stock length: 8"
- Sanding drum size: 4"
- Sanding belt: 3" hook & loop
- Approx. shipping weight: 160 lbs.

SIDE HANDLES FOR PORTABILITY!

2 ADJUSTABLE PRESSURE ROLLERS & INDUSTRIAL-DUTY BELT



**G0459**  
**ONLY \$575<sup>00</sup>** **\$69**

## 3 HP Shaper

- Motor: 3 HP, 220V, single-phase w/reversing switch
- Precision ground cast iron table
- Table w/standard wing attached: 30 1/2" x 20 1/4"
- 3 interchangeable spindles: 1/2", 3/4" & 1"
- Spindle travel: 3"
- Spindle speeds: 7000 & 10,000 RPM
- Spindle openings on table: 1 3/8", 2 1/4", 4" & 5 1/2"
- Approx. shipping weight: 357 lbs.

Includes Magnetic Power Switch, Miter Gauge & Fence with Hold-down Springs



**G1026** \$975.00  
**ONLY \$925<sup>00</sup>** **\$89**

## 1 1/2 HP Cyclone Dust Collector

- Motor: 1 1/2 HP, 110V/220V, single-phase, TEFC Class "F", 60 Hertz/3450 RPM
- Intake hole size: 6"
- Impeller: 12 1/2" steel
- Suction capacity: 1025 CFM @ 2.6 SP
- Max. static pressure (in. of water): 10.3"
- Filter: .02-2 microns (99% efficiency)
- Filter surface area: 96 sq. ft.
- Collection drum: 35 gal. steel
- Approx. shipping weight: 313 lbs.

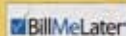


**G0443** **ONLY \$895<sup>00</sup>** **\$69**



**grizzly.com**

OVER 12,000 PRODUCTS ONLINE!



# in this issue



## TOOLS & MATERIALS

- 16 Shop-proven Products**  
Granite-enhanced woodworking machines, more.
- 22 Six Gotta-have Gadgets for Tool Set-up**  
These inexpensive shop aids help you make projects that look like a million bucks.
- 28 Wise Buys: Router-table Power Switches**
- 54 Tool test: 6" jointers**  
You can't finish square if you don't start square. True faces and straight edges begin with a jointer.

## PROJECTS

- 20 Made-from-scrap Napkin Holder**
- 32 Shop Project: Sanding-disc Caddy**
- 34 Cover Project: Lingerie Chest**
- 49 Wall-hung Organizer**  
Hide keys, cell phones, and more in this convenient by-the-door catch-all.
- 70 Basic-Built: Stacking Shelves**  
These versatile modular units reconfigure easily as your space or needs change.

## TECHNIQUES

- 30 How to Fix Uneven Table legs**
- 42 Learn to Turn: Scrapers & Parting Tools**
- 60 No-fail Jointing and Planing Routines**  
Here's how to maximize the performance of these essential woodworking machines.
- 64 Design Projects on Your Computer**  
Discover how free, powerful software will help you create accurate and detailed designs.

## DEPARTMENTS

- 6 Sounding Board**
- 8 Shop Tips**
- 76 Ask WOOD**
- 92 What's Ahead**



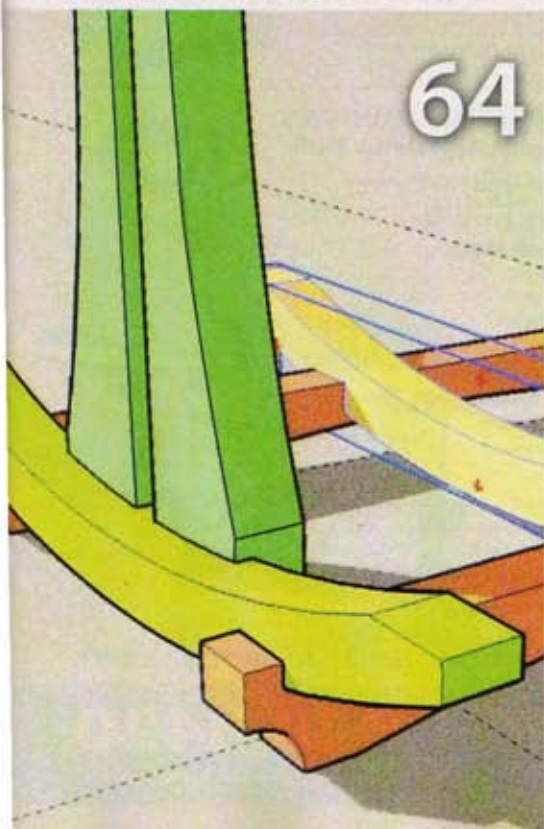
This seal is your assurance that we build every project, verify every fact, and test every reviewed tool in our workshop to guarantee your success and complete satisfaction.

70

**BASIC-BUILT**  
GREAT PROJECTS MADE SIMPLE.



22



64

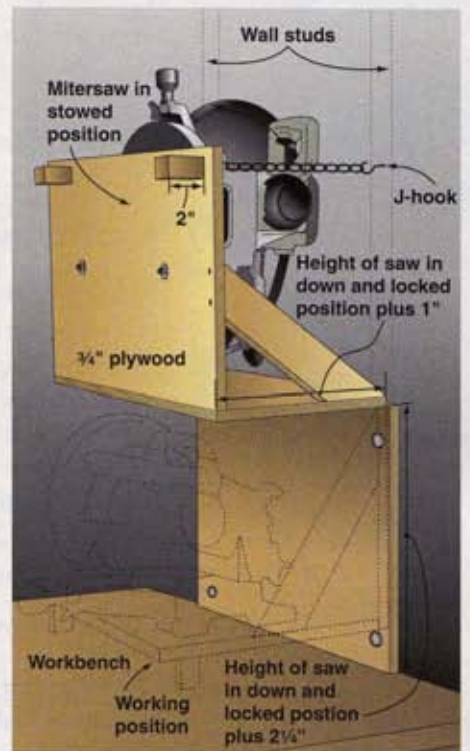
## SHOW OFF YOUR SHOP, SEE OTHERS



Check out the new Shop Showcase forum at [woodmagazine.com/shopshowplace](http://woodmagazine.com/shopshowplace), where you can post brag-book photos and descriptions of your shop; browse and get ideas; or just ask questions about shop flooring, walls, lighting, etc. Here's a snapshot from John Moody of Florence, Ala.

## SAVE SPACE AND MONEY

For woodworkers, storage space and cash always seem to be in short supply. *WOOD Online*® comes to your rescue with dozens of shop-stretching project plans and organizers, all free for the download at [woodmagazine.com/freeplans](http://woodmagazine.com/freeplans).



## FREE VIDEO: LEARN JOINTING AND PLANING TECHNIQUES

Buying a jointer and planer actually *saves* you money by enabling you to surface cheaper, rough-cut lumber. Learn how to get the most from these machines at [woodmagazine.com/videos](http://woodmagazine.com/videos).

### MORE FREE VIDEOS

- *Basic Finishing* (3-video series)
- *Make Super-simple Drawers*
- *Fine-furniture Accuracy from any Tablesaw*
- *Rout Perfect-fitting Dadoes*
- Plus 111 more!





# INNOVATIVE PRODUCTS



SHOP FOX® machines are backed by a 2 Year Warranty!

SHOP FOX® is one of the fastest growing machinery lines in the country, offering an unbeatable combination of quality and affordability to all segments of the woodworking trade.



## 21", 5 HP BANDSAW with Foot Brake

- ▶ 5 HP, 220V, single-phase TEFC motor
- ▶ Precision ground cast iron table
- ▶ Table size: 20 3/4" W x 29 1/2" L
- ▶ Max. cutting height: 14"
- ▶ Cutting capacity/throat: 20"
- ▶ Blade size: 165" L (1/4" - 1 1/8" W)
- ▶ Blade speed: 4,600 FPM
- ▶ Deluxe cast iron fence with extruded aluminum resaw fence attachment

W1770 21" Bandsaw

MADE IN ISO 9001 FACTORY!

## 10" SLIDING TABLE SAW with Scoring Blade & Riving Knife

- ▶ 5 HP, 220V, single-phase, TEFC motor
- ▶ Table size with extension wings: 40" W x 47" L
- ▶ Sliding table size: 12 1/4" W x 63" L
- ▶ Scoring blade dia.: 3 1/8"
- ▶ Scoring blade arbor speed: 8,000 RPM
- ▶ Main blade arbor speed: 4,000 RPM
- ▶ Single lever locking fence

W1811 10" Sliding Table Saw



## 18" OPEN END WIDE-BELT SANDER

- ▶ 3 HP, 220V, single-phase, 1,725 RPM TEFC sanding drum motor
- ▶ Variable speed conveyor feed rate
- ▶ Sanding drum speed: 1,850 FPM
- ▶ Rubber sanding drum dia: 4"
- ▶ Pneumatic belt tracking
- ▶ Spring belt tensioning system
- ▶ 2 steel pressure rollers
- ▶ Amp load meter

W1813 18" Wide-Belt Sander

## VARIABLE SPEED PLANER/MOULDER with Stand

- ▶ 2 HP, 220V, single-phase TEFC motor
- ▶ Precision ground cast iron table and infeed & outfeed extension wings
- ▶ Cutterhead speed: 7,000 RPM
- ▶ 2 HSS cutterhead knives
- ▶ Number of cuts per minute: 14,000
- ▶ Pedestal mounted control switch with variable speed control
- ▶ Dovetailed way with precision gib adjustments

W1812 Planer/Moulder



## SPIRAL CUTTERHEAD PLANERS with Built-in Mobile Base

- ▶ 3 HP or 5 HP, 220V, single-phase motor
- ▶ Precision ground cast iron table & extension wings
- ▶ 2 speed gear box
- ▶ 2 adjustable bed rollers
- ▶ German-made carbide insert spiral cutterhead
- ▶ Pedestal mounted thermal overload magnetic safety switch
- ▶ Built-in locking mobile base

W1742S 15" Planer

W1754S 20" Planer

## SPIRAL CUTTERHEAD JOINTERS with Parallelogram Adjustable Beds

- ▶ 110V or 220V, single-phase, TEFC motor
- ▶ Precision ground cast iron table
- ▶ German-made carbide insert spiral cutterhead
- ▶ Quick adjust levers
- ▶ Large center mounted cast iron fence
- ▶ Pedestal mounted safety switch
- ▶ Built-in locking mobile base

W1755S 6", 1 1/2 HP Jointer

W1741S 8", 3 HP Jointer

W1744S 12", 3 HP Jointer



**We asked our staff:**  
How do you mark your projects?



I bore a shallow hole with a Forstner bit, then epoxy or super-glue in a penny of the current year.



I carve a simple cross into each piece I build, usually on the bottom. The cross stands for everything I believe in.

EDITOR-IN-CHIEF  
**BILL KRIER**

Managing Editor **MARLEN KEMMET** Deputy Editor **DAVE CAMPBELL**

Art Director **KARL EHLERS** Senior Design Editor **KEVIN BOYLE**

Techniques Editor **BOB WILSON** Tool & Techniques Editor **BOB HUNTER**

Multimedia Editor **LUCAS PETERS** Multimedia Editor **CRAIG RUEGSEGGER**

Design Editor **JEFF MERTZ** Projects Editor **LARRY JOHNSTON**

Associate Art Director **GREG SELLERS** Assistant Art Director **CHERYL A. CIBULA**

Production/Office Manager **MARGARET CLOSNER** Administrative Assistant **SHERYL MUNYON**

Photographers

**MARTY BALDWIN, JASON DONNELLY, DEAN SCHOEPPNER, JAY WILDE**

Contributing Illustrators **TIM CAHILL, LORNA JOHNSON, ROXANNE LeMOINE**

Technical Consultants **JEFF HALL, DOUG HICKS, BRIAN SIMMONS**

Contributing Craftsman **JIM HEAVEY**

Contributing Proofreaders **BABS KLEIN, IRA LACHER, JIM SANDERS**

**SUBSCRIBER SERVICE**

Go to [woodmagazine.com/help](http://woodmagazine.com/help) or write to  
WOOD magazine, P.O. Box 37439, Boone, IA 50037-0439

Publisher **MARK L. HAGEN**

**ADVERTISING AND MARKETING**

**CHICAGO:** 333 N. Michigan Ave., Suite 1500, Chicago, IL 60601

Marketing Manager **AMANDA SALHOOT**

Advertising Manager **JACK CHRISTIANSEN**

Account Executive **RYAN INTERLAND**

Direct Response Advertising Representative **LISA GREENWOOD**

Assistants **GAYLE CHEJN, NIA WILLIAMS**

**ATLANTA:** Navigate Media

**DETROIT:** RPM Associates

Business Manager **JEFF STILES**

Associate Consumer Marketing Director **DAN HOLLAND**

Associate Director of Marketing-Newsstand **TOM DEERING**

Production Manager **SANDY WILLIAMS**

Advertising Operations Manager **JIM NELSON**

E-Commerce Manager **MATT SNYDER**

Vice President/Group Publisher **TOM DAVIS**

**MEREDITH PUBLISHING GROUP**

President **JACK GRIFFIN**

Executive Vice President **DOUG OLSON**

Chief Revenue Officer **TOM HARTY**

Finance & Administration **MIKE RIGGS**

Manufacturing **BRUCE HESTON**

Consumer Marketing **DAVID BALL**

Corporate Sales **MICHAEL BROWNSTEIN**

Meredith 360° **JEANNINE SHAO COLLINS**

Interactive Media **LAUREN WIENER**

Corporate Marketing **NANCY WEBER**

Research **BRITTA WARE**

Chief Technology Officer **TINA STEIL**

New Media Marketing Services **ANDY WILSON**



President and Chief Executive Officer **STEPHEN M. LACY**

Chairman of the Board **WILLIAM T. KERR**

In Memoriam — E.T. Meredith III (1933-2003)

Our subscribers list is occasionally made available to carefully selected firms whose products may be of interest to you. If you prefer not to receive information from these companies by mail or by phone, please let us know. Send your request along with your mailing label to Magazine Customer Service, P.O. Box 37452, Boone, IA 50037-0452.

© Copyright Meredith Corporation 2009. All rights reserved. Printed in the U.S.A.

Retail Sales

Retailers can order copies of WOOD for resale  
by e-mailing [jennifer.buser@meredith.com](mailto:jennifer.buser@meredith.com)



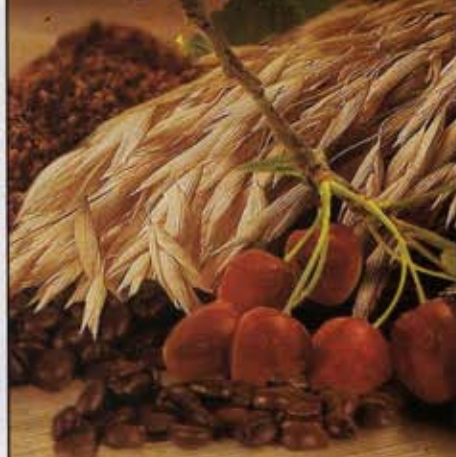
I burn my name into the back or bottom of the piece using a branding iron heated by a propane torch.



I sign a hidden portion of the project using a permanent marker.

**ZAR® ULTRA MAX WOOD STAIN**

*Let your  
good taste  
show*



**ZAR® ULTRA MAX OIL MODIFIED WOOD STAIN** interior formula applies easily and penetrates evenly to achieve a rich, uniform color. It is ideal for furniture, hardwood floors, woodwork and wood, metal or fiberglass doors.

**Core/Shell Technology** provides the deep tones of an oil-based stain with the low odor, fast drying and easy clean-up of a water-based stain.

In addition, the **Advanced Green Phase Resin Dispersion Technology** utilizes environmentally friendly resins that result in a VOC compliant product.

With its delicious new colors, Ultra Max Wood Stain gives you a great look that is also good for the environment.



For more information  
or a dealer near you  
visit [www.ugl.com](http://www.ugl.com) or  
call 1-800-272-3235.



# Sounding Board

Our bulletin board for letters, comments, and timely updates

## After our review, WorkSharp goes wide



In your review of sharpening systems in issue 186 (October 2008), your assessment of the WorkSharp 3000 reiterated what our customers have been wanting: Greater capacity. We've answered that with a new wide-blade attachment that accepts plane irons up to 3" wide. (The fixed tool holder's limit is 2".) This \$85 accessory includes a flat table that mounts onto the tool rest (as shown at left), a honing guide with a bevel range from 15° to 60°, and a bevel-setting gauge. You can also hone a 1° microbevel with it. Unfortunately, this attachment does not work on our smaller WorkSharp WS2000.

— Kyle Crawford,  
Professional Tool Manufacturing

## Article update

Issue 186 (October 2008)

■ Rockler no longer sells the barbed threaded inserts used to make the Quilt Ladder on pages 62–65. Instead, you can use a similar insert that works with the same connector bolts. Rather than hammering these into the holes, you thread them using a 1/4" hex wrench, as shown below. Rockler sells the inserts in packs of eight, part #31872, for \$4.50. (800-279-4441 or rockler.com)



## Custom-made furniture: Who benefits most?

### Craftsmen invest more than money in heirlooms

Thank you for the article "Crafting Keepsake Furniture in a Throwaway World" in issue 184 (July 2008). We educate people daily on the difference and value of quality, handmade, solid-wood furniture. People must realize that the wood being harvested in the U.S., shipped overseas to furniture shops, and then shipped back as "disposable furniture" will likely never become an antique, but rather end up in a landfill. Instead, buy furniture

made by a craftsman who will stand by his product.

— Mike Schanz, Schanz Furniture & Refinishing,  
South Amana, Iowa

We heard from several dozen readers like Mike, who not only enjoy their craft but also take pride in knowing their work will be enjoyed by future generations.

—WOOD® editors

### Stop and smell the sawdust. You'll love it!

I'm a hobbyist woodworker, not a professional, so for me the point is not about justifying the costs of custom furniture versus imported. I work in my shop because I enjoy the experience and the process of building. While I like to imagine my work lasting for centuries, the reality is it might not because I'm still learning and developing my skills. But that does not rob me of the fun along the journey.

—Howard Denmark, Dallas

## HOW TO REACH US

### ■ For woodworking advice:

Post your woodworking questions (joinery, finishing, tools, turning, general woodworking, etc.) on one of 16 online forums at [woodmagazine.com/forums](http://woodmagazine.com/forums).

### ■ To contact our editors:

Send your comments via e-mail to [woodmail@woodmagazine.com](mailto:woodmail@woodmagazine.com); or write to WOOD magazine, 1716 Locust St., LS-221, Des Moines, IA 50309.

### ■ Subscription assistance:

To notify us of an address change or to get help with your subscription, visit [woodmagazine.com/service](http://woodmagazine.com/service). Or write to WOOD magazine, P.O. Box 37439, Boone, IA 50037-0439. Please enclose your address label from a recent magazine issue.

### ■ To find past articles:

See our index at [woodmagazine.com/index](http://woodmagazine.com/index).

### ■ To order past issues and articles:

Order past issues of WOOD magazine, our special issues, or downloadable articles from issue 100 to present: Visit our online store at [woodmagazine.com/store](http://woodmagazine.com/store). Some issues are sold out.

### ■ Updates to previously published projects:

For an up-to-date listing of changes in dimensions and buying-guide sources from issue 1 through today, go to [woodmagazine.com/editorial](http://woodmagazine.com/editorial).



# How Do You Create Stunning French Doors in Any Size, Design & Wood Species?

**Rail Bit**  
For Making Extended Tenons

**Mortising Bit**  
For Making Extended Tenons

**Stile Bit**  
For Making Stile Cuts & Muntins

**Muntin Joint Bit**  
For Making Simulated Divided Lights

**Straight Bit**  
For Making Simulated Divided Lights

**Strong Extended Tenons of Any Length**

**Simulated Divided Lights**

## With Freud's NEW French Door Router Bit Sets!

**Freud's Unique French Door Router Bit System Allows you to Build Truly Customized French Doors without Spending a Fortune!**

These custom doors are not only beautiful; their mortise and tenon construction can produce doors that will hold up in the toughest conditions. Thanks to Freud's unique system, you can create door joints with precisely fit tenons at any length to produce doors that will last a lifetime. The French Door Router Bit System is the only router bit set that produces French Doors with either True Divided Light or Simulated Divided Light grills.



- 5 Piece French Door Bit Sets:**
- Roundover Profile (#98-317)
  - Ogee Profile (#98-318)
  - Cove & Bead Profile (#98-319)

**freud**  
Precisely the best.

[www.freudtools.com](http://www.freudtools.com)

**Step-by-Step  
Instructional Poster  
Included with Each Set.**

**1-800-334-4107**



- 3 Piece French Door Bit Sets:**
- Roundover Profile (#98-307)
  - Ogee Profile (#98-308)
  - Cove & Bead Profile (#98-309)

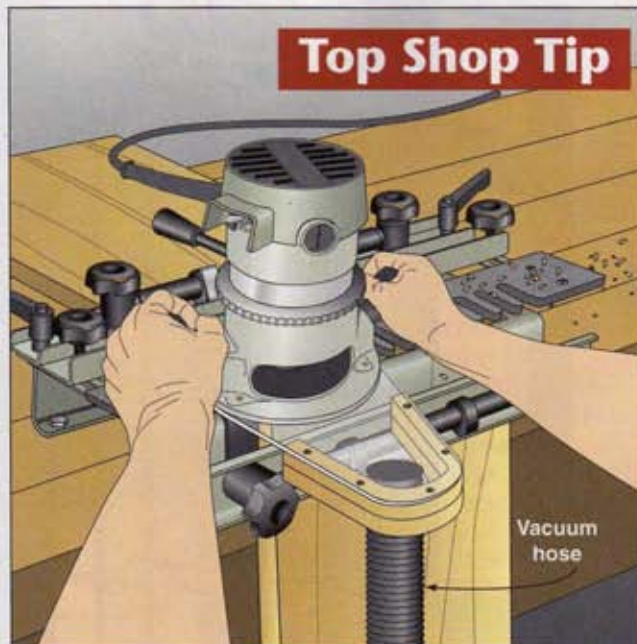


# Shop Tips

Helping you work faster, smarter, and safer

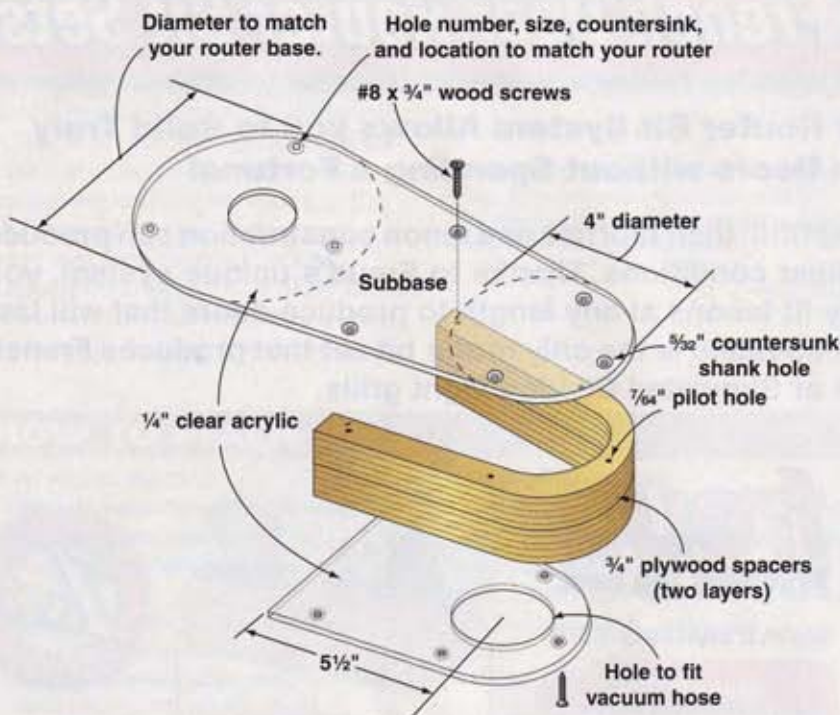
## Do away with dovetail dust

I came up with this attachment for collecting dust from a handheld router—a difficult task at best, especially when using a dovetail jig. From  $\frac{1}{4}$ " clear acrylic, cut a subbase with an extended wing, using the dimensions shown below. Drill mounting holes to attach the subbase to your router, aligning them so the router handles will line up with the sides of the subbase. Then make a duplicate of only the wing portion of the base with a hole to fit your vacuum hose. At the bandsaw, cut two  $\frac{3}{4}$ "-wide curved spacers from  $\frac{3}{4}$ " plywood to match the profile of your wing. Glue and stack the spacers together. Drill pilot and shank holes,



then assemble the jig. Attach your router, hook up your vacuum hose, and get ready for mess-free routing.

—Reid Smith, Huntsville, Ala.



continued on page 10

## The Top Tipster



Judging from his shop-made hand-tool cabinet above (42 hand planes, 58 chisels and carving tools, and 64 marking and measuring tools), you'd think Reid Smith wouldn't have time for anything other than woodworking. But, in addition to his day job, this Renaissance man restores antique autos and races remote-controlled cars. Back in the day, he was even a concert pianist.



For posting this issue's Top Shop Tip, Reid Smith earns a \$350 gift certificate from Lee Valley Tools. He might have to add on to his tool cabinet!

## Top tips earn tools!

Tell us how you've solved a workshop stumper. If we print it, you'll get \$100 and a copy of 450+ Best-Ever Shop Tips ([woodmagazine.com/450tips](http://woodmagazine.com/450tips)). And, if your idea garners Top Shop Tip honors, we'll also reward you with a tool prize worth at least \$300.

Send your best ideas, along with photos or drawings and your daytime phone number, to: **Shop Tips, WOOD Magazine, 1716 Locust St., LS-221, Des Moines, IA 50309-3023.** Or, by e-mail: [shoptips@woodmagazine.com](mailto:shoptips@woodmagazine.com). Include your contact info in the e-mail.

Because we try to publish original tips, please send your tips only to WOOD® magazine. Sorry, submitted materials can't be returned.





PRECISION CONTROLS AT YOUR FINGERTIPS.



ACCURACY FROM A ONE-PIECE TRUNNION.



CONVENIENCE IN A WELL-DESIGNED DRAWER.

THE NEW UNISAW. GET READY FOR THE COMPLETE PACKAGE.

## Shop Tips

### Ensure accuracy with these triple-threat story sticks

My furniture-building accuracy improved dramatically when I started using story sticks—scraps of wood on which I lay out all of a project's critical dimensions and details. But I've carried the concept even further, making these three-in-one story sticks. I did it by spray-painting the backs of my 36" and 48" steel rulers with white satin paint. When the rulers were completely dry, I scuffed the paint lightly with 320-grit sandpaper so penciled story marks would show up well. Because the marks erase easily, I can use the rulers over and over as story sticks. Each one doubles as a straightedge. And, with a flip, triples as a ruler.

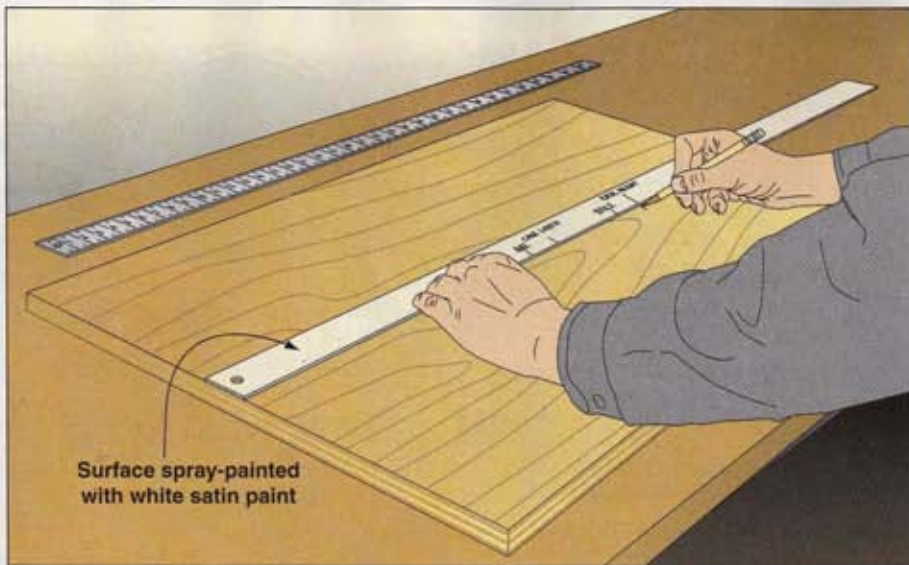
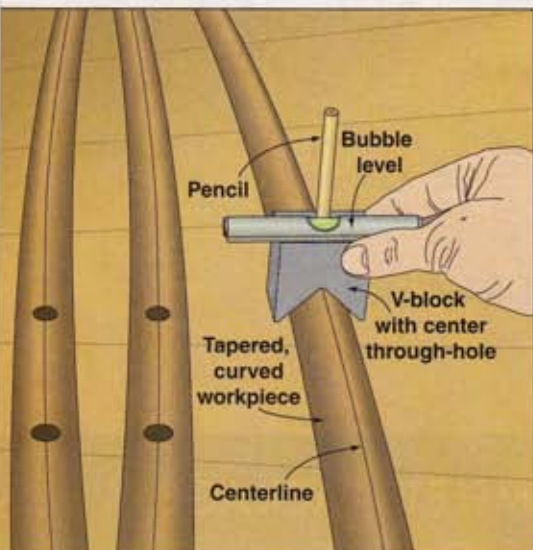
—Patrick Conroy, Erie, Colo.

### Find center on a tapered, curved chair rail

My chair plans called for turned, tapered, and steam-bent back rails, so I needed a way to find the centerline to position the holes for the back spindles. This easy jig did the trick.

Drill a pencil-sized hole through a  $\frac{3}{4} \times 1\frac{1}{2} \times 1\frac{1}{2}$ " block, cut a V-shape notch into it, glue a small bubble level on one edge, and insert the pencil, as shown below. Working on a flat, level surface, with the pencil pressed to the rail, run the V-block along the rail while keeping the bubble centered. The resulting centerline follows the tapers, bends, and curves of the rail.

—Ted Sheroke, Medina, Ohio



## ARE YOU READY FOR THIS?



### Check all that apply:

- I have a collection of old dull drill bits I just can't throw away.
- I'd rather spend my money on new tools than on buying more drill bits.
- I know I should sharpen my drill bits, but I don't have time to become a sharpening expert.
- I want to drill clean, precise holes every time.
- I'm tired of searching through all of my used bits trying to find one sharp enough to use.

If you checked any of these, you're ready to sharpen your drill bits with Drill Doctor, THE Drill Bit Sharpener. See it in action online at

[www.drilldoctor.com](http://www.drilldoctor.com)

1-888-MYDRILL (693-7455)



**Drill Doctor.**  
The Drill Bit Sharpener



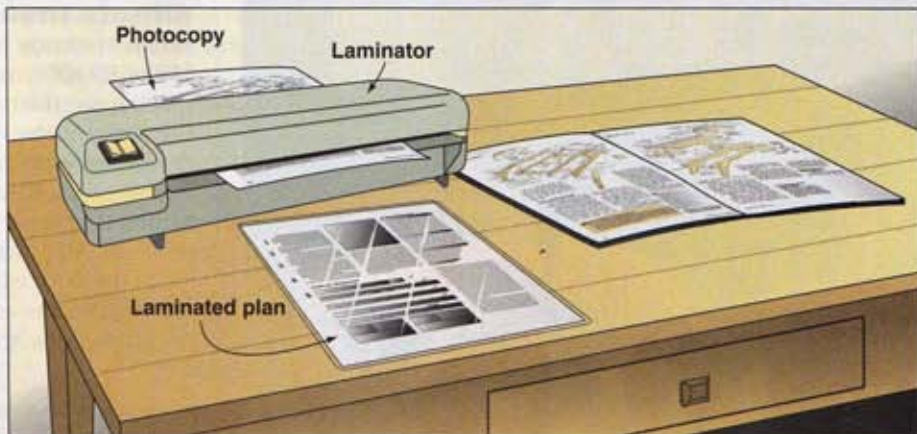
Look for the Drill Doctor at Sears, The Home Depot, Lowes, Northern Tool, Amazon.com, and wherever you buy your tools.

## Permanent plan preservation

When I find a woodworking plan I like well enough to graduate it to the workshop, I laminate a color copy of it using an inexpensive laminating machine. (You can buy one from an office supply store for as little as \$85.)

Lamination protects the pages from the rigors of project building, including glue drips, stain, and even spilled coffee. Plus, I can jot temporary notes on the plans with a grease pencil. They also store easily, either in a three-ring binder or on a hook by punching a hole in the corner.

—Allan Peters, Agassiz, B.C.



## PROUD OF WHAT YOU MAKE?

### US, TOO.

Introducing



NEW from the makers of  
**Drill Doctor**

### Cutting Edge Technology for Woodworkers

Take a look at our latest project. It's the result of years of work, listening to woodworkers like you, and then building the wood tool sharpener that you wanted. Take a tour of the features and see what you think:



Learn more about the award-winning Work Sharp at  
[www.worksharptools.com](http://www.worksharptools.com)  
or call 1-800-597-6170

Ask for it at Sears, Rockler, Woodcraft, Amazon.com, and wherever you buy your tools.

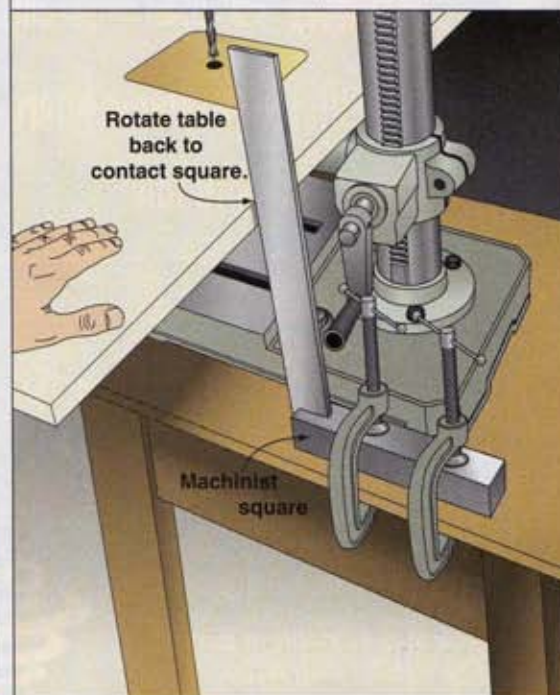


Innovative Edge-Vision™ Slotted Wheel lets you see the cutting edge as you sharpen!

## Return your drill-press table to dead center

When I have to bore a counterbore on a shank hole at the drill press, the bit change sometimes requires me to lower the table out of the way. Recentering the workpiece under the bit proves difficult because the table tends to swing left or right as it changes height. Here's a trick for perfect realignment: Before moving the table, clamp a machinist square to the drill-press stand, with the blade against the back of the table. After making the bit change, swing the table back into place until it once again touches the square.

—Avrahami Nissim, Garwolin, Poland



continued on page 12

# Built to Last A Lifetime.

"Holy '----'! This is what made in the U.S.A. used to be... solid... well-built... and man, does it pull dust! Thank you for a great product!"

J.H. - Michigan



Proudly Made in the USA  
with USA Components.

- ▶ Ultra-Efficient Cyclonic Micro-Separation
- ▶ Sub-Micron Filtration

## Ductwork Design Service

FREE Shipping on ductwork orders \$100+ / 48 states / Some restrictions apply

Oneida products now sold through Woodcraft Supply stores.

Now also available in Europe. See web for distributor.



Call Today for FREE Catalog!  
**1.800.732.4065**

Order Online!  
[www.oneida-air.com](http://www.oneida-air.com)

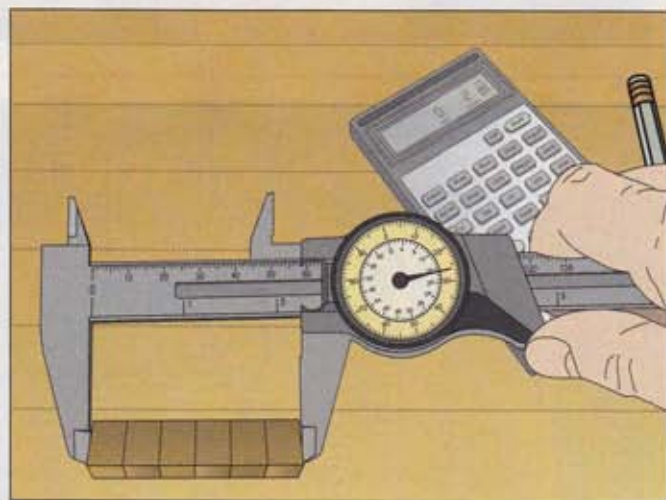
Circle No. 2039

## Shop Tips

### Multiplication mitigates minute measuring mistake

When I recently made the Outdoor Bar/Server from issue 184 of WOOD® magazine (July 2008), I ran into trouble spacing out the two dozen slats that make up the top. A tiny error in the width of my spacers, multiplied by each piece, threw the layout way off. Because the margin of error was so small, it made it hard to measure precisely, so I turned the power of multiplication back against the problem. Aligning six of the spacers together edge-to-edge made the error easy to measure with my calipers. Then I just divided the accumulated error by 6, resized the spacers to compensate, and the slats fit perfectly.

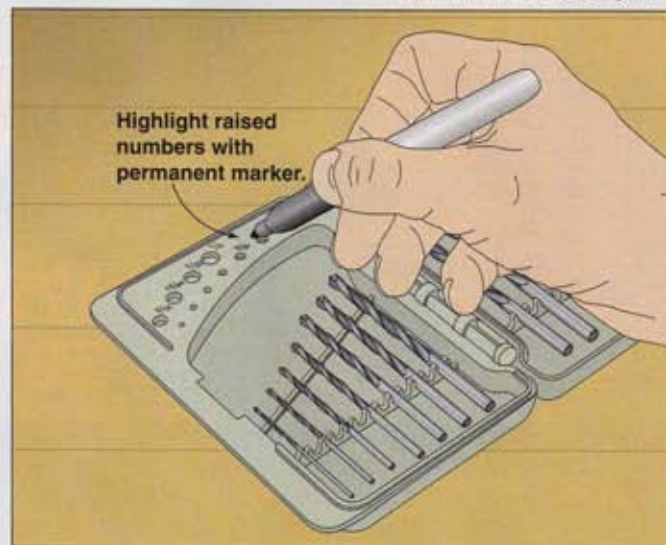
—Erv Roberts, Des Moines, Iowa



### Black marker: A sight for sore eyes

The tiny raised lettering on my plastic drill-bit case that indicates the drill-bit sizes proved difficult to read. I fixed this by simply coloring them lightly with a black permanent marker.

—Emilie Redelman, Greensburg, Ind.



## Use (saw)horse power for lifting sheet goods

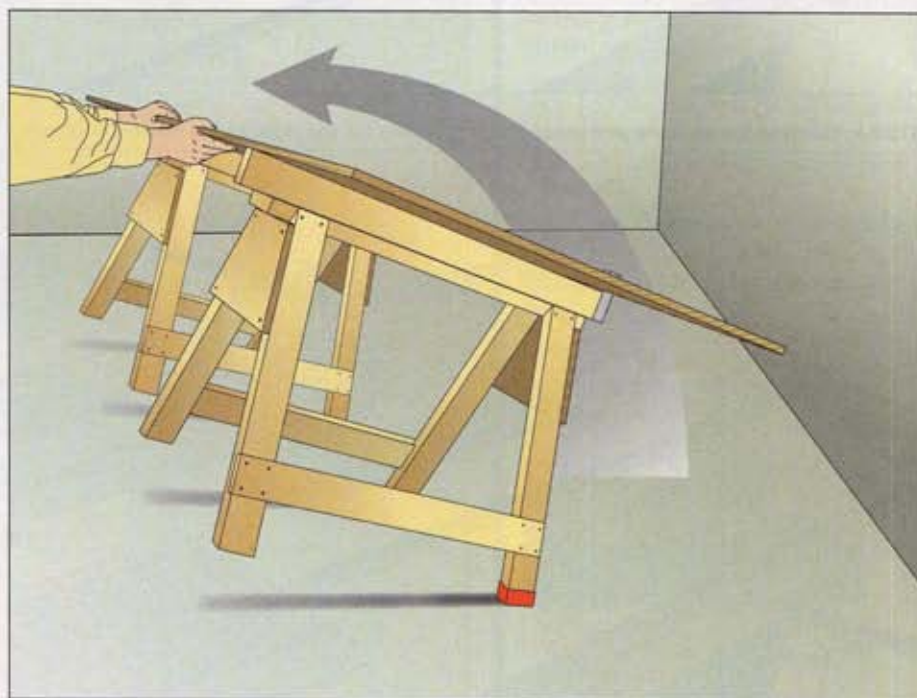
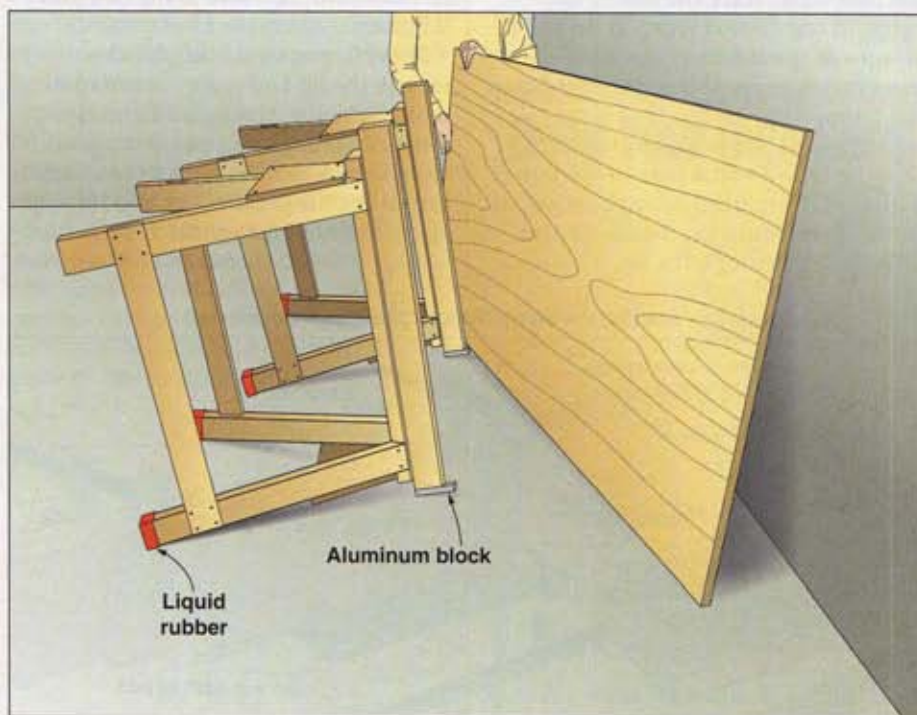
The older I get, the more difficult I find it to handle full sheets of plywood safely. So, I made two simple modifications to my sawhorses that let me easily lift a full sheet.

Simply drill and screw an aluminum block onto one end of each sawhorse as shown. Then, dip the sawhorse feet on that end into liquid rubber, such as

Plastidip (800-969-5432, [plastidip.com](http://plastidip.com)), and let them dry to make them skidproof.

To safely lift a sheet of plywood onto the sawhorses, stand the sawhorses on end next to the plywood, place the edge of the plywood on the aluminum blocks, and tip the sawhorses, plywood and all, into the working position.

—John Andrus, Daytona Beach, Fla.



## Bring to Life Each Treasured Story

Each piece of wood has its own story. From its unique lines and contours to the admiring attributes of color and form unfolds a story to be brought to life.



For over 50 years, Old Masters craftsman quality stains and finishes are produced to accentuate wood's natural beauty and provide durability for life's treasured pieces.

**Old Masters**  
Since 1953

Call 800-747-3436 for a FREE product guide or visit [www.oldmasters.biz](http://www.oldmasters.biz) to locate a dealer near you.

Proud Sponsor of:  
**Woodsmith**  
SHOP   
Shown weekly on PBS.

continued on page 14

## Shop Tips

### A slick trick for routing perfect hinge mortises

Aligning box hinges has always been a trial-and-error proposition for me. The method that I came up with for routing the hinge recesses ensures that the hinges are precisely placed on both the box and the lid, and that their positions mirror each other.

Start with a scrap of  $\frac{1}{4}$ " hardboard 4" wide and the same length as your box. On that scrap, trace the leaf of the hinge in the desired location. Install a  $\frac{1}{4}$ " up-cut spiral bit in your table-mounted router and lower the bit below the table. With the hardboard jig against the fence, position the fence so that the bit will cut a hole in the outer corner of the marked hinge location, as shown *below*. Turn on the router and raise the bit through the jig.

Next, clamp a stopblock in place at the opposite end to fix the jig's location. Cut a  $\frac{1}{4}$ " hardboard spacer the length of the hinge you'll be using. Place this alongside the jig, as shown, and clamp a second stopblock against the spacer. Remove the jig and spacer, set the bit to the proper height for the hinge depth, then rout the hinge recesses from one side of the box and lid using the stopblocks as guides.

Finally, remove the stopblocks, reverse the jig and spacer orientation, replace the stopblocks, and rout the remaining hinge recesses. After you clean up the corners with a chisel and install the hinges, the box and lid align, and the hinges match perfectly.

—Gordon McGill, Sequim, Wash.

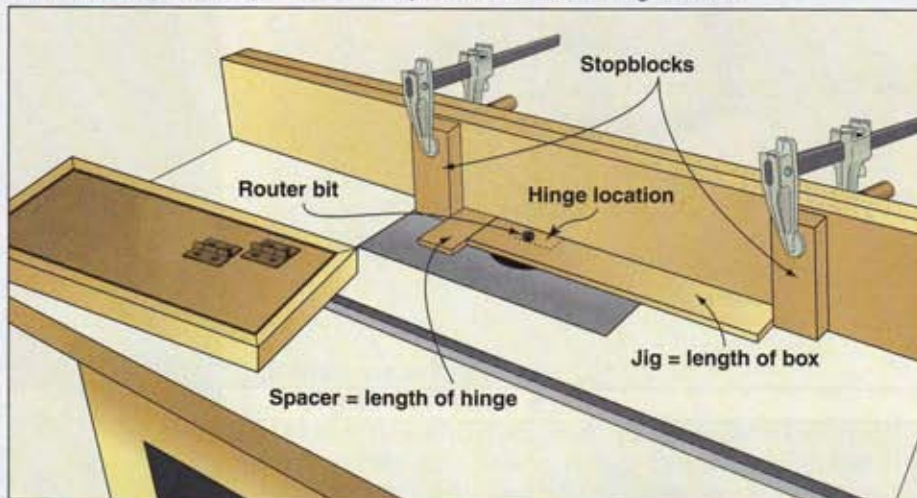
TODAY I DISCOVERED  
**NEW GORILLA  
WOOD GLUE**  
BONDS STRONGER  
WITH LESS CLAMP TIME  
AND THAT THE GREATEST MEASURE OF  
MY WORK IS IN THE SMALLEST DETAIL.



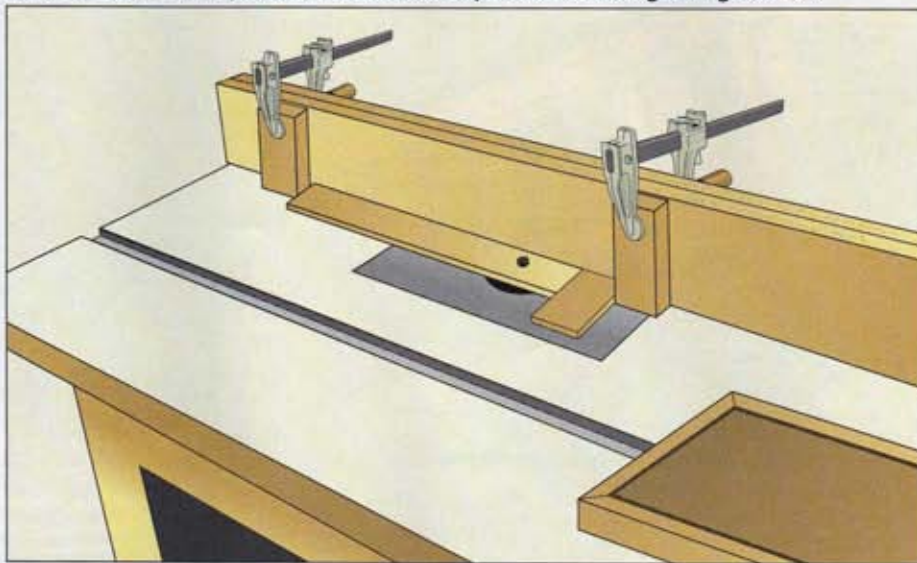
FOR THE TOUGHEST JOBS ON PLANET EARTH.™

1-800-966-3458 • WWW.GORILLATOUGH.COM

**STEP 1:** Use spacers to position the stopblocks for the left hinge recess.



**STEP 2:** Reverse the spacers and reset the stopblocks for the right hinge recess.





## Fine wines and finer finishes

Even in tightly sealed cans, leftover paint and varnish will skin over from the oxygen in the can. I found a solution in my kitchen—a wine bottle vacuum pump used for drawing air from opened wine bottles (Vacu Vin, 704-882-3521, vacuvin.nl).

Whenever I purchase a can of finish, I also pick up a matching extra paint-can lid from my home center. Before opening the finish can, I prep the extra lid like this:

Start by drilling a 1" hole in the extra lid (I used a spade bit). Place the pump's stopper in the hole, sealing it on the top and bottom of the lid with silicone, and let it cure. After you've used the can of finish, replace its lid with your new vacu-lid and use the pump to remove the air. But don't overdo it. I've accidentally crushed a can with the force of the vacuum. 🌱

—Bart Crowe, Marietta, Ga.



## Ready for the next level?

### Berea Brand Pen Kits!

- High Quality
- Original Designs
- Reasonably Priced

Visit us at [www.bereahardwoods.com](http://www.bereahardwoods.com) or call us at 1-877-736-5487 or e-mail us at [bereahard@aol.com](mailto:bereahard@aol.com)



**THE BeraHardWoods** CO. Inc.  
18745 Sheldon Rd • Middleburg Hts, OH 44130

Circle No. 2127

## Build Your Own Shop Tools and Accessories



Preview dozens of plans created by the editors of **WOOD** magazine including:

- Workbenches
- Jigs
- Tool and Hardware Storage
- Tool Bases and Stands
- Hand Tools

Download these shop-tested plans at [woodmagazine.com/shoptools](http://woodmagazine.com/shoptools)

## Put a ShopBot to Work in Your Shop

When Justin Rank opened Coastal WoodworX, he knew he would need a professional-grade CNC system to keep up with the competition. He did his homework - researching everything from the economy tools to the big iron machines - and finally decided on a ShopBot.

Justin had his ShopBot PRSalpha up and running in April 2008 and began running files as fast as he could create them. He's been a ShopBotter for less than a year, but Justin is already using his tool to create cabinets, doors, furniture, signs and everything in between.

"The ShopBot is more than a hobby for me. My customers are very impressed with the products it helps me create, and even my shop neighbors are buying from me. I plan on buying another ShopBot this year to help me keep up with the demand I now have for my work."

Coastal WoodworX relies on ShopBot.  
Do you?



PRSalpha 120-60

[www.coastalwoodworx.com](http://www.coastalwoodworx.com)



**ShopBot**<sup>®</sup>  
What will you make today?

888-680-4466  
[www.shopbottools.com](http://www.shopbottools.com)  
[info@shopbottools.com](mailto:info@shopbottools.com)

# Shop-Proven Products

These woodworking wares passed our shop trials

## About our product tests

We test hundreds of tools and accessories, but only those that earn at least three stars for performance make the final cut and appear in this section.

## Granite machines weigh in with rock-solid showings

When Steel City launched its granite-enhanced tablesaws, bandsaws, and jointers last summer, we greeted the news with skeptical optimism: Sure, the granite is flat and won't rust, but will the hard-but-brittle slabs prove as durable as cast iron? After testing them,

we're convinced the granite should withstand the typical bumps and bangs that happen in a woodworking shop. And Steel City (877-724-8665; steelcity-toolworks.com) backs it up with a 10-year warranty. Although you might be attracted by the granite as a curiosity,

the performance of these machines also proved worthy in our testing. (For a review of the granite-top hybrid tablesaw, right, see issue 187, November 2008.)



### 6" and 8" jointers

The granite fences on Steel City's 6" and 8" jointers, a \$50 upgrade on both machines, proved slippery-smooth and dead-flat. In fact, I found myself using the fence as a straight-edge reference rather than the beds, as I've done on my cast-iron jointer beds. Slick UHMW pads keep the granite from scratching the cast-iron beds, but only the 8" model has a rack-and-pinion system, which I prefer, to move the heavy fence.

Fence aside, I really like the long beds on both units—68" on the 6" model, 75½" on the 8"—because they enabled me to joint longer boards than I could on jointers with beds that are typically 20–25 percent shorter. Handwheels make it a snap to precisely adjust the infeed and outfeed table heights, and in no time at all I was getting snipe-free faces and edges. You also get built-in mobile bases, but curiously, the 8" machine's wheels don't swivel.

The 8" model sports three self-indexing, double-edge disposable knives, like those commonly found on benchtop planers these days, so you never have to fuss with jackscrews or a knife-setting jig. I changed these knives in 10 minutes, but needed nearly four times that for the three standard knives on the 6" jointer.

—Tested by Craig Ruegsegger, Multimedia Editor

Performance	★★★★★
Price	6" model, #40615G \$880
	8" model, #40620G \$1,150

### 14" bandsaw

If you're willing to pony up more than \$700 for a loaded 14" bandsaw, choose Steel City's granite-table 50100G (\$900) over its sibling with the cast-iron table (#50100, \$770). The consistent thickness of the 1¼×16×16" table makes it easy to clamp on jigs and fixtures. It also has a miter slot, although a miter gauge is not included. Besides the table upgrade, the 50100G also comes with a rip fence (optional on the 50100) that adjusts for blade drift, and a 1"-diameter resaw pivot bar, shown below right, that mounts to the fence. As a bonus, the fence scale has separate, accurate markings just for using this pivot bar.

Cool table, but can it cut wood? The 1½-hp-rated motor and cast-iron wheels powered through all the tough jobs I could throw at it, and ball-bearing blade guides held the blades' tracking true without deflecting. The quick-release tensioner makes blade changes quick and eases stress on the tires when not in use. A built-in mobile base is also included.

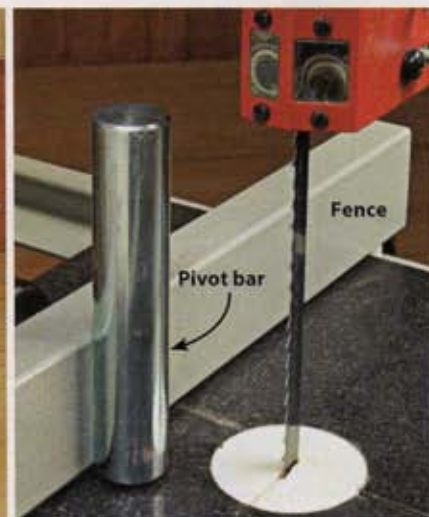
My only beef with this saw: the blade guard is obtrusive and impaired my ability to see the cutline. I had to raise it 1½" above the workpiece, dangerously exposing the blade.

—Tested by Doug Hicks

Doug Hicks taught high school woodshop for 5 years and has edited woodworking magazines and books for the past 24.

Performance	★★★★☆
Price	#50100G \$900

continued on page 19



# MLCSwoodworking.com...

## Free "Online Videos" show you how to rout it, join it, and build it.



### "Hide the Ply"

The Edge Banding router bit set adds an attractive edge to plywood panel doors and shelves. Two piece, carbide tipped, 1/2" shank.

#1475 - T & G .....\$44.95  
#1474 - 90° .....\$39.95



### "Custom Made Doors"

Our Mitered Door Frame Kit creates elegant Rail & Stile Doors. Includes 1/2" shank carbide tipped Profile Router Bit, 1/4" & 5/32" Slot Cutter bits & 100 #11 biscuits.

Item #1480.....\$79.95



### "Portable Versatility"

The Marvel 40 3-In-1 Router Kit is a 1 HP Router, Laminate Trimmer & Cut-Out Tool with 1/4" & 1/8" collets, 3 bases, straight edge, and circle cutter.

Item #1478 .....\$89.95



### "Beauty-In-Utility"

The Shaker Cabinetmaker Router Bit Set makes professional Raised Panel Doors and Drawers. Five piece, carbide tipped, 1/2" shank.

Item #1485.....\$114.95



### "Classic Strength"

Make strong Half Blind 1/2" Dovetail Joints. Our set includes a solid Aluminum Template, 12" Steel Jig, and a carbide tipped 1/4" or 1/2" shank Dovetail Router Bit.

1/4" shank • #1483 | 1/2" shank • #1484.....\$59.95



1-800-533-9298

PROFESSIONAL ROUTER BITS & WOODWORKING PRODUCTS

# MLCS

FREE SHIPPING!

IN CONTIGUOUS USA • P.O. BOX 4053DA, RYDAL PA, 19046 \*2008

# Hands-on Education FREE at

# The Wood Working Shows

With Top Educators

Graham Blackburn

Brian Boggs

Jim Heavey

Mark Hensley

Kelly Mehler

William Ng



- Hand Tool Rodeo
- The Skills Express:  
*Right Track to Furniture Building*
- Woodworking Shows Library
- Intro to Pen Turning
- Sommerfeld's Cabinet Making Clinic
- Apollo Finishing Seminar

Better Homes and Gardens  
**WOOD**  
MAGAZINE  
**Project Shop™**

Sponsored by

**DELTA**

**PORTER + CABLE**

**See 'em! Try 'em! Buy 'em!**  
**The best tools at the best prices!**

**Coming soon to a city near you!**

Come learn at WOOD Magazine's Project Shop at a woodworking show near you. Master Craftsman Jim Heavey will demonstrate valuable tool tips and techniques as he walks you through projects from the pages of WOOD Magazine.

For more information visit:  
[woodmagazine.com](http://woodmagazine.com)  
[deltaportercable.com](http://deltaportercable.com)



Jan. 2-4	Baltimore, MD	Mar. 6-8	Hartford, CT
Jan. 9-11	Milwaukee, WI	Mar. 13-15	Tampa, FL
Jan. 16-18	Columbus, OH	Mar. 20-22	Charlotte, NC
Jan. 23-25	Atlanta, GA	Mar. 27-29	Chantilly, VA
Jan. 30 - Feb. 1	Indianapolis, IN	Apr. 3-5	Houston, TX
Feb. 6-8	St. Louis, IL	Apr. 17-19	Seattle, WA
Feb. 13-15	Kansas City, KS	Apr. 24-26	Sacramento, CA
Feb. 20-22	Boston, MA	May 1-3	Ontario, CA
Feb. 27 - Mar. 1	Somerset, NJ		

For additional information and tickets visit [www.thewoodworkingshows.com](http://www.thewoodworkingshows.com)

## Shop-Proven Products

### Remove tough nails with this handy puller

Pulling nails with the claw of a hammer proves easy, but what about when you've broken off the head or there never was one? Enter The Extractor. This nail-pulling pliers combines long adjustable rubber-coated pliers-type handles with parallel serrated jaws that tightly grip the nail.

I used The Extractor to remove various lengths and grades of headed nails, finish nails, brads, and staples. I really like it for pulling 23-gauge pins, something my hammer cannot do. It's also perfect for pulling old cut nails from reclaimed lumber without breaking them off. The Extractor left indentations in pine and even tough white oak, but I prevented that by inserting a scrap of 1/4" hardboard between the board and tool before prying nails free. 🌲

—Tested by Bob Hunter, Tools & Techniques Editor

#### The Extractor, #HL-1121

Performance ★★★★★

Price \$28

Jefferson Tool LLC

843-556-0455, nailextractor.com



Pinnacle is defined by Webster's as *the highest point of development or achievement*. The latest offering of router accessories that bear the Pinnacle® name have certainly lived up to this definition. Every detail of these Pinnacle® tools was engineered with one thing in mind: to provide woodworkers with tools that empower them. Pinnacle® tools are available exclusively at Woodcraft.

Made In The USA



Tired of getting burn marks on your table saw? Woodcraft's Pinnacle® Saw Gauge has been designed to satisfy this need.

- No knobs, no tools, no recalibration
- Automatically adjusts to any miter slot, 1/8" – 7/8"
- Fitted MDF case for safe storage



Pinnacle® Saw Gauge  
149019

PROFESSIONAL QUALITY TOOLS™

Available Exclusively At Woodcraft!

For A Free Catalog Or To Find Your Local Woodcraft Store, Visit [woodcraft.com](http://woodcraft.com)  
Or Call 800-225-1153. [www.woodcraft.com/pinnacle\\_WD.aspx](http://www.woodcraft.com/pinnacle_WD.aspx)

Circle No. 700

## CHOOSE THE TOOL THAT WORKS FOR YOU



### Measure Master® Pro

#### Feet-Inch-Fraction and Metric Dimension Calculator

The Measure Master makes it simple to work in, and convert between, most common dimensional formats – as well as Areas and Volumes. Includes built-in Board-Foot solutions. Model 4020

### Construction Master® Pro

#### Advanced Feet-Inch-Fraction Construction-Math Calculator

It features more powerful built-in solutions, in addition to those found in the Measure Master Pro. The perfect tool if your woodworking passion includes projects such as remodeling or adding a room. It even provides Angles for compound miters. Model 4065

### Home ProjectCalc®

#### Do-It-Yourself Project Calculator

Simplify your home improvement projects with this easy-to-use calculator. Built-in function keys let you quickly and accurately find material requirements for paint, concrete, tiles, wallpaper and carpet. Model 8510

To see how these tools can help you today, go to

[www.calculated.com](http://www.calculated.com)

**CALCULATED INDUSTRIES**  
FAST. ACCURATE. RELIABLE.

WD-309

## Nifty Napkin Holder

Turn a few small cutoffs into a stunning centerpiece for your table.



### Machine the parts

Make four oversize post blanks (A,  $1\frac{1}{4} \times 4\frac{5}{8}$ ") from  $\frac{1}{2}$ "-thick stock. Adhere to each blank a copy of the full-size pattern from the *WOOD Patterns*® insert on page 45. Cut these to shape with a bandsaw or scrollsaw, and then sand the edges smooth. (For quicker results stack the four blanks together with double-faced tape, and then machine them at the same time.)

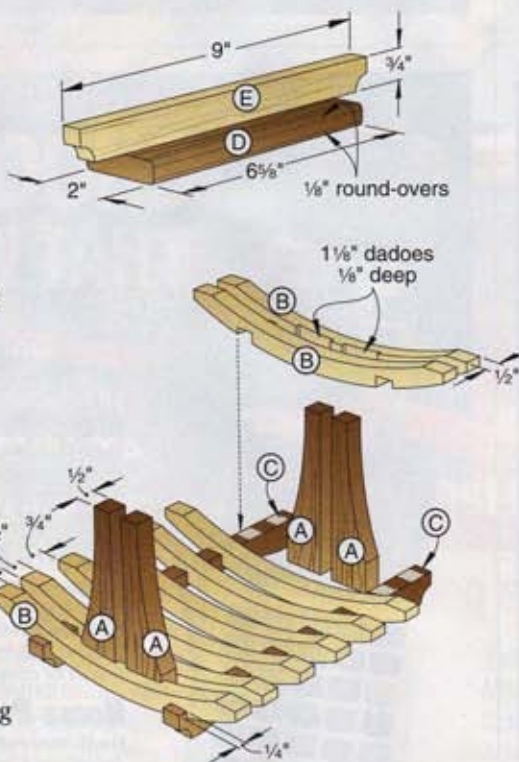
Make eight  $1\frac{1}{4} \times 8$ " blanks from  $\frac{1}{2}$ "-thick material for the rests (B). Adhere a full-size pattern to each; then cut dadoes where shown. Finally, cut the rests to shape and sand smooth.

Machine the feet (C) and retainer guide (E) to shape using the full-size pattern, and then sand them smooth. Cut the retainer (D) to size, and rout  $\frac{1}{8}$ " round-overs along the top and bottom of both edges. Remove the patterns and sand all parts smooth to 220 grit.

### Glue up the assembly

Glue and clamp the posts (A) into the dadoes on the outside rests (B), aligning the inside corner of the posts to the inside corners of the dadoes. Sand the posts to length [Photo A].

Next, glue the end assemblies (A,B) onto the feet (C) [Photo B]. Place a rest (B) onto the feet tight against the inside faces of the posts (A). Glue the remaining rests to the feet spaced  $\frac{3}{4}$ " apart.



Glue the retainer guide (E) to the center of the retainer (D). Sand to 220 grit as needed, and then apply a clear finish of your choice. (We used three coats of aerosol polyurethane.)

Project design: **Jeff Mertz**

Illustration: **Roxanne LeMoine**

### FLUSH-FIT THE POSTS



**A** Sand the bottom of the posts even with the bottom of the rests.

### STICK OUT YOUR FEET



**B** Install both outer rests  $\frac{1}{4}$ " from the end of the feet.



# ROCKLER®

WOODWORKING AND HARDWARE

Create with Confidence™



Rockler's Exclusive Torsion Hinge - 29002

## Satisfy your most important client

The best projects aren't for, or about yourself. And when someone special is involved, safety is even more critical. With an innovative torsion mechanism tested to 25,000 cycles, our new Lid-Stay Hinges hold lids open at almost any angle so her fingers stay secure and your mind stays at ease—another way Rockler helps you *Create with Confidence*.

# \$10 Savings Certificate

To get \$10 off a \$30 order, simply place your order at Rockler.com by entering promotion code V9310 at checkout.

Or bring coupon to a Rockler store near you. One-time use only. Minimum purchase of \$30 in qualifying merchandise required. Cannot be applied to sales tax or shipping. No cash value. Cannot be combined with other offers or coupons. Valid at Rockler retail stores only. Not valid at Rockler Partner store locations. Excludes sale items, power tools, Leigh jigs, Porten-Cable dovetail jigs, Shark CNC, Omni Jigs, Festool, Fein, Rockler and Bench Dog router table packages and Rockler Gift Cards. Offer expires 6/1/2009.



Rockler Woodworking and Hardware - Since 1954



For a store near you or free catalog visit [Rockler.com](http://Rockler.com) 1-877-ROCKLER

## 6 Essential Machinery Setup Tools



Don't settle for "close enough" accuracy. Here's how to get hairsplitting precision.

**P**roperly adjusted machines make better cuts and you can dial in peak performance on your stationary machines with this practical set of tune-up tools. Most cost under \$20, and you can buy all of them for well under \$200. See the chart on page 24 for even more uses for each tool.

### 1 Combination square

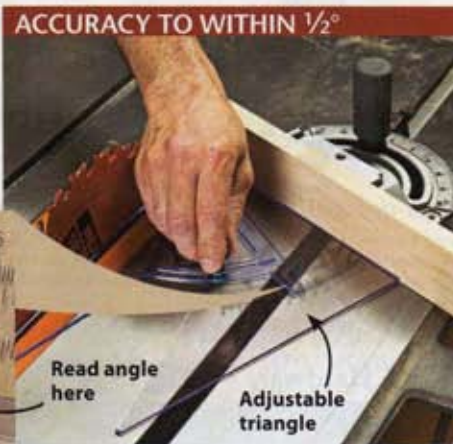
In many shops, this multifunction tool finds use only when scribing a line across a workpiece. What a shame! You can use the head alone to set 45° and 90° angles on a tablesaw blade, miter gauge, or jointer fence. Lock the head in position on the rule to check the distance from a router bit to the router-table fence (above) or the height of a

tablesaw blade. Hold the edge of the rule against the router-table fence to set a router-bit bearing flush. Prices start at about \$15 and can run up to \$75. (Generally speaking, price reflects reliability and accuracy.) In the *WOOD* shop, we rely on a Starrett 12" model, shown above. (\$75, item 30N03.01, Lee Valley, 800-871-8158, leevalley.com)

### 2 Adjustable triangle

Not every angle in woodworking measures 90° or 45°. For anything in between, add an adjustable triangle to your tool kit. Find one at an art-supply store for about \$20.

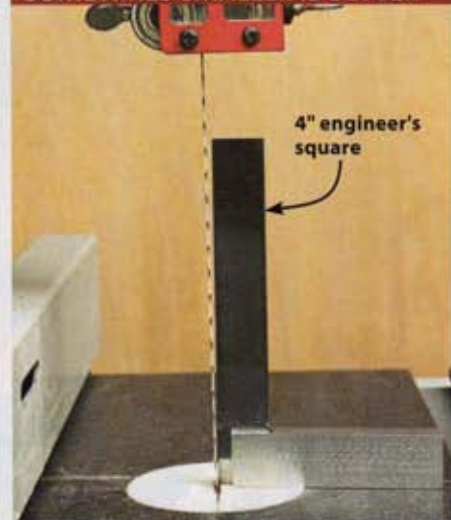
The widely spaced half-degree increments and a fine-line red cursor on this adjustable triangle make setting precise angles easy.



### 3 Engineer's square

This miniature marvel squeezes into spaces where a bigger square can't. It fits in an apron pocket, so it's always at your fingertips for checking square on machine setups or workpiece edges after completing a cut. (\$12.99, item 141014, Woodcraft, 800-225-1153, woodcraft.com)

#### SOMETIMES SMALLER IS BETTER



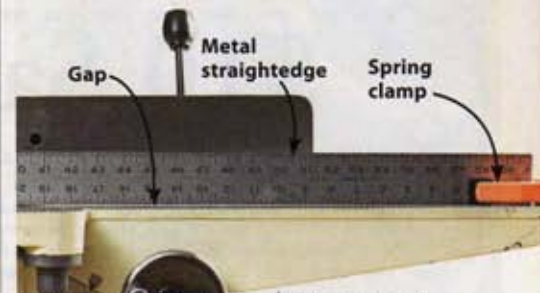
An engineer's square fits below a bandsaw or miter saw blade guard. It stands on its wide handle, leaving your hands free.

### 4 Long straightedge

Tables and extension wings sag, cast iron warps, and moving machines around bumps them out of alignment. A straightedge helps you spot problems in surfaces that are supposed to be flat.

For these jobs, use a long metal rule that easily shows gaps and irregularities under its narrow edge. Simply clamp a spring clamp on one end, and it stands on edge, freeing your hands to fine-tune the machine. We found 48" and 60" steel rules at big-box lumberyards for \$12-\$15.

#### THE STRAIGHT-AND-NARROW WAY



Highlight gaps by shining a light behind the straightedge. In this case, the jointer bed needs to be raised at the cutterhead.

*continued on page 24*



# Make Your Tool Collection Complete

**CT50™**  
Powered by  
Lithium Ion  
Technology



## The innovative CT50™ Professional Cordless Staple Gun

More than just a sleek, light weight design, this cordless wonder is a rugged, heavy duty staple gun that appeals to everyone, from the do-it-yourselfer to the contractor.

The light weight 10.8v Lithium-ion battery guarantees more power, while firing over 2000 staples on a single charge. Its unique "on-board" battery design maintains perfect balance for increased control and accuracy.

The ultra-bright "LED guide light" will light any surface with precision positioning of the staple location.

The adjustable "depth of drive" control lets you perfectly fire each staple to the desired depth.

Unique to the CT50™ this tool holds two full strips of any of the six Arrow™ T50® staple sizes saving time on the project.

All this, and more, in a well thought out, ergonomically designed, professional tool that will make any project faster and easier for both the pro and do-it-yourselfer. The additional endless list of features will ensure a professional finish to every project.

*Available where fine  
hand tools are sold.*



### Arrow Fastener Company, Inc.

USA Tel: 201.843.6900  
Canada Tel: 514.321.3983  
UK Tel: 44.208.686.9180

[www.arrowfastener.com](http://www.arrowfastener.com)

© 2008 Arrow Fastener Company, Inc.  
Arrow® is a Registered Trademark of Arrow  
Fastener Co. Inc.

## 5 Dial indicator

When checking a setup requires minuscule measurements, reach for a dial indicator. It shows increments as fine as  $\frac{1}{1000}$ ". You can spend a lot, but an inexpensive one will do the job.

A jig keeps the indicator stationary while taking measurements. Purchase

one like the Super Bar (*below left*), or make your own for setting jointer knives (*below right*). Find a free plan for the jointer jig at [woodmagazine.com/jointerjig](http://woodmagazine.com/jointerjig). (Dial indicator, \$12.95, item G1479, Grizzly Industrial, 800-523-4777, [grizzly.com](http://grizzly.com); Super Bar, \$69, MasterGage Corp., 888-893-8300, [mastergage.com](http://mastergage.com))

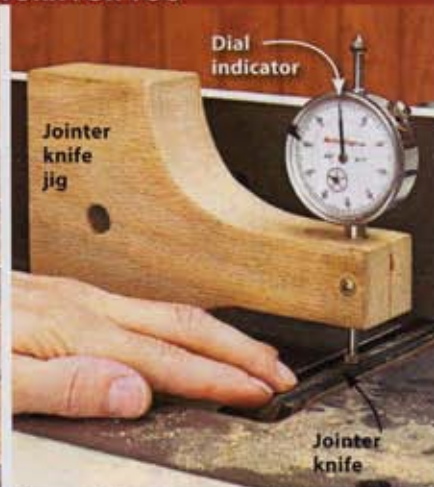
## 6 Alignment plate

Mount this dead-flat, machined plate in place of a saw blade in your tablesaw, radial-arm saw, or miter saw. It provides a longer, truer surface than a saw blade for taking measurements and checking setups. (Master Plate, \$49, MasterGage Corp., 888-893-8300, [mastergage.com](http://mastergage.com))

### SIMPLE JIGS MAKE A DIAL INDICATOR WORK FOR YOU



Secure a dial indicator to a jig that rides in the miter-gauge slot. Then slide it along the slot to check your rip fence for parallel.



Compare the measurement taken on the outfeed table with measurements taken on the knives to ensure all are the same height.

### A TRUE COMPANION



Mount a machined steel plate in place of a blade to check saw alignments. The plate is perfectly flat from one edge to the other.

### HOW & WHERE TO USE 6 ESSENTIAL MACHINERY SETUP TOOLS

	12" Combination Square	Adjustable Triangle	4" Engineer's Square	48-60" Metal Straightedge	Dial Indicator	Alignment Plate
<b>Tablesaw</b>	Set blade square to table; check fence for square to table; check that table and fence are parallel to blade; set blade 45° to table; set blade height	Set blade tilt; set angle of miter gauge	Check fence for square to table; set blade square to table	Check table and extension wings for flatness; check fence for flatness	Check blade and fence for parallel to miter-gauge slot; check run-out (wobble) on blade and arbor	Use with dial indicator to set blade parallel to miter slot
<b>Bandsaw</b>	Check 45° table-tilt stop and 90° stop for accuracy	Set tilt of table	Check table for square to blade; verify 90° stop	Align wheels to each other		
<b>Jointer</b>	Check fence angle; set stops at 45° and 90°	Position fence angle for bevels	Check fence and 90° stop for square to table	Set tables parallel; check tables for twist; check outfeed table height	Set knives flush with outfeed table	
<b>Planer</b>	Measure thickness of planed stock to set thickness indicator			Set infeed, outfeed tables flat and flush		
<b>Drill Press</b>	Check table for square to bit; set table 45° to bit	Set table tilt angle	Check table for square to bit		Check quill and chuck for run-out (wobble)	
<b>Mitersaw</b>	Check blade for square to fence; check 45° bevel	Set miter angle of blade to fence	Verify blade is square to table; check that blade is square to fence	Check table and extension wings for flatness and flush		Check blade for square to table and fence
<b>Router Table</b>	Set bit height; align fence with bit bearing; set distance from bit to fence		Check fence for square to table	Check table and fence for flatness	Measure fine fence and bit-height adjustments; set bit height	
<b>Radial-Arm Saw</b>	Check blade for square to fence	Set miter angle of blade to fence	Confirm blade and table are square to each other	Check table and extension wings for flatness and flush	Check blade run-out (wobble)	Check blade for square to table and fence

# NEW!

## For the Discriminating Finisher

Finishing is all about **PRECISION.**

Apollo introduces the first Turbine in its **PRECISION SERIES**

### The Precision Series Apollo 1040VR

The 1040 VR Features:

- Precision LCD displays atomizing pressure that is accurate to 0.10 PSI.
- Precision Pressure Control System (PPCS™) controls motor speed, voltage and amperage worldwide, adjusts automatically for altitude and barometric pressure. Assures precise atomizing pressure anywhere in the world.
- Precision FreeFlo™ Filter Warning LED that indicates when a filter is restricted. Green for clean, red for clogged or partially blocked filters.
- Precision four-stage power atomizes higher viscosity coatings with ease.

The 1040VR and the award-winning Apollo 7500 - The Atomizer  
Precision Partners for the Perfect Finish



We're Holding to 2008 Prices  
as Long as We Can!  
Don't Delay, Order Today!

888-900-4857 (HVL P) [www.hvlp.com](http://www.hvlp.com)

Dept. w209

Circle No. 1061

The  
NEW



# EAGLE

AMERICA

Eagle America  
Made in the USA

PriceCutter  
A bit for any budget



**FREE  
Shipping**

# The World's Router Bit Source

Over **5,600**  
Woodworking  
Items Online!

- Over **2,000** Router Bits
- Over **3,600** other woodworking tools!
- Request your **FREE Catalog** today,  
1-800-872-2511 / [www.EagleAmerica.com](http://www.EagleAmerica.com)



Router Accessories



Measuring



Saw Blades



Pocket Hole

**FESTOOL** **JesseEm** **DEWALT** **Kreg** **froed** **PORTER-CABLE** **Incora**

for details go to: [www.EagleAmerica.com/WD292](http://www.EagleAmerica.com/WD292) Now thru 4/30/09

Circle No. 193

WD 0902

# CATALOGS FOR CRAFTSMEN



ADVERTISEMENT

## Select the catalogs you



**1 ADAMS WOOD PRODUCTS**  
– The widest variety of solid wood components available in the industry: bun feet, island and table legs, bedposts, table bases, corbels, onlays, pool table legs, and more.



**2 AMERICAN FABRIC FILTER**  
– Increase the performance of your shop's dust collector with our economical and low maintenance optimized dust bags.



**3 AMERICAN FURNITURE DESIGN**  
– The leader in woodworking plans for furniture! Over 65,000 copies of our Mission Bed have been sold! CAD generated designs, 36"X48" with instructions. Hardware, hand tools, router bits, finishes & books.



**4 APOLLO SPRAYERS** – TrueHVP™ innovative spray finishing systems, precision turbines, award-winning spray guns, expert engineering, exceptionally low overspray.



**5 BEREA** – High Quality pen kits, wine bottle stopper kits and more. Huge selection.



**6 THE CARVERIGHT WOODWORKING SYSTEM** – A revolutionary compact computer-controlled CNC with simple to use software allowing anyone to create complex carvings.



**7 CHERRY TREE** – Patterns and kits for whirligigs, bird feeders, toys, clocks, dollhouses, totem poles and more. Great deals on wood parts, etc. Catalog.



**8 DAKOTA ALERT** – Driveway alarms notify you when someone enters your drive or yard. Many styles to choose from. Wireless ranges up to several miles.



**9 DETAILED PLAY SYSTEMS** – Features wooden swing sets and backyard playground equipment kits, plans, and accessories to build children's outdoor play structures. Free catalog.



**10 EAGLE AMERICA** – The World's Router Bit Source! Over 2,000 bits from Eagle America and PriceCutter, plus 3,600 other woodworking items — all online.



**11 EPILOG** – Laser technology that fits your shop and budget! Receive a free catalog, CD demo and engraving and cutting samples.



**12 FORREST MANUFACTURING** – The finest, quietest saw blades and dados! Full line of sizes available.



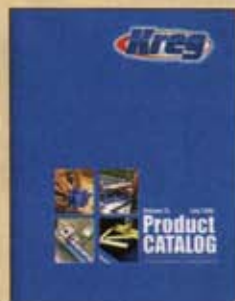
**13 NUT PRODUCTS** – "Turn to Quality". A comprehensive catalog for Wood Turners from HUT Products.



**14 THE JDS COMPANY** – Free Brochure featuring award winning Air Filtration, Dust Collection, the Accu-Miter and the amazing Multi-Router!



**15 KLOCKIT** – Whether your next project is to build a beautiful clock or repair a treasured heirloom. Klockit can supply all you need; Plans, Wood Kits and Clock Components.



**16 KREG TOOL COMPANY** – Specializing in tools and supplies for Pocket-Screw Joinery including our NEW line of Precision Routing products and Clamping Systems.



**17 LIGNOMAT** – Catalog describes full line of wood moisture meters. Convenient, reliable and affordable moisture meters for any hobbyist and woodworker.



**18 MAGSWITCH TECHNOLOGY** – Revolutionizing Tabletop Workholding! Giving you unmatched ability to hold your work on any steel or cast-iron table. Featuring the NEW MagFence Woodworking Guide System.



**19 MARC ADAMS SCHOOL OF WOODWORKING** – Committed to fine woodworking excellence through hands-on learning experiences with the best woodworkers of modern time.



**20 MCKELVEY TOOL** – "THE HOLE THING" – Eliminate 20 different hole cutters, no burn free cutting, clean slug and hole.

want from these **33 FREE LISTINGS!** See the attached card for ordering info.



- 21 MEISEL HARDWARE SPECIALTIES** – Over 2,000 woodworking project plans for indoor and outdoor furniture, toys, clocks, patriotic, birdhouses, Christmas, etc. Request our full-color catalog.



- 22 ONEIDA AIR SYSTEMS, INC.** – Offers the finest quality dust collection systems and a complete line of ductwork and accessories. Free catalog.



- 23 PACKARD WOODWORKS** – Catalog for Woodturners! All major brands of Turning Tools, Chucks, Penmaking Supplies, Finishing Supplies, Books, Videos and much more. Just for Turners.



- 24 PANEL PRO** – Panel Pro is an economical panel saw that makes it easy to handle those big sheets of wood or plastic and cut them accurately.



- 25 PHASE-A-MATIC** – Convert single-phase electric power into 3-phase; run 3-phase equipment anywhere for router, planer, sander, dust collection, saw, lathe, CNC and more!



- 26 RED HILL** – Supergrit® Abrasives, industrial quality sandpaper and refinishing supplies at wholesale prices. FREE 48-page color catalog.



- 27 ROCKLER WOODWORKING AND HARDWARE** – Quality, innovative products for the workshop. Exclusive jigs, router bits and accessories, unique hardware and more!



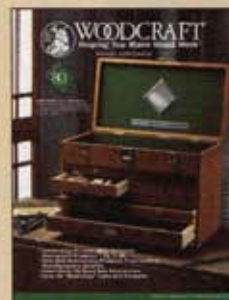
- 28 STEVE WALL LUMBER CO.** – Supplier of hardwoods, exotics, plywood, custom panel doors, turning squares, hardwood flooring, Oliver Machinery, and Festool products. Catalog.



- 29 TOOLMART** – Your best online brand name Power tools and Accessories store. Our aim is to provide the finest and best quality tools and accessories at the lowest price.



- 30 WILDWOOD DESIGNS** – A complete line of scroll saw patterns and scrollsaw supplies, including scrollsaw blades, clock parts, books, lumber, plywood, hardware, and tools. Free catalog.



- 31 WOODCRAFT** – Over 8,000 woodworking hand & power tools, finishing supplies, hardware, exotic woods and more! Top quality tools from around the world, exclusives & hard-to-find jigs and accessories.



- 32 WOODLINE USA** – Supplier of quality tools for woodworking professionals and hobbyists alike. Cutting tools and clamps to jigs and safety. Woodline does it all.



- 33 WOODWORKER'S HARDWARE** – Our 544-page catalog features the largest selection of cabinet hardware in this industry, with over 10,000 items in stock.

## CATALOGS FOR CRAFTSMEN Order Form

Fill out the coupon below, circle the numbers corresponding to the catalogs you'd like to receive, and mail to:

WOOD® Magazine • Catalogs for Craftsmen • Dept. W0CCMA9  
P.O. Box 5135 • Buffalo, NY 14205-5135.

This coupon expires July 13, 2009.

Allow 4-6 weeks for delivery. Expired cards will not be processed.

CIRCLE THE NUMBERS BELOW CORRESPONDING TO ITEMS IN THIS ISSUE.

1	5	9	13	17	21	25	29	33
2	6	10	14	18	22	26	30	4000
3	7	11	15	19	23	27	31	
4	8	12	16	20	24	28	32	

Discover how rewarding woodworking can be! Get one full year of WOOD® for just \$28.00 (7 Issues). Simply circle No. 4000. You will be billed later.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

E-MAIL ADDRESS \_\_\_\_\_

PHONE (OPTIONAL) \_\_\_\_\_

## Our Editor Tests

# Router-Table Power Switches

### Why buy?

With one of these accessories, you'll end the annoying under-the-table fumbling for your router's power switch. Simply plug your router into the outlet on the auxiliary switch, lock the router switch in the "on" position, and you're ready to go. Tool and Techniques Editor Bob Hunter tried out a number of accessory switches, and recommends the three shown here.

### RATING SYSTEM

★★★★★ Top of the line    ★★★ Solid performer for the price

### —Tested by Bob Hunter

3 years as an editor at  
WOOD® magazine,  
24 years of  
woodworking experience



ROUSSEAU, #3506, \$40



Editor rating: ★★★★★

### Editor test-drive:

Although this one costs more than the others, it's worth it. The low-profile rocker switch prevents accidental start-ups, and the 6"-long yellow "crash bar" proves easy to locate without looking to shut down the router. I like its compact steel box with steel angle bracket for easy, sturdy mounting to the stand or the top. Either way, it's unobtrusive while still easy to reach. The 8½"-long power cord—the longest in the test—features 14-gauge wire with insulation coating that stays flexible even in 40° conditions. And the outlet on the bottom of the box allows the router cord to hang straight down without getting in the way of my stance when I'm routing a workpiece.

### To learn more:

800-635-3416; rousseauco.com

ROCKLER, #20915, \$36



Editor rating: ★★★★★

### Editor test-drive:

This model's big stop-sign "off" switch proved the easiest to reach and find without taking my eyes off the spinning router bit. And nestled above the STOP switch, the recessed "start" switch prevents accidental startups, but is still easy to locate without looking. The Rockler switch has a 7' power cord (with 14-gauge wire) that exits the box from the bottom, and instead of an outlet, there's a handy 2' pigtail cord for plugging in the router. Mounting the switch to my 5-year-old Rockler router table required drilling one hole through the steel leg because the predrilled holes did not line up with the box. (Rockler tells us newer tables match up perfectly.)

### To learn more:

800-279-4441; rockler.com

MLCS, #9079, \$25



Editor rating: ★★★

### Editor test-drive:

At first, I didn't like this switch because it works best on the left-hand side of a router table, and I'm right-handed. Because the cord exits the box from the center of its left side, it kept getting in my way when I mounted it on the table's right side. After relocating it to the left side, to my surprise, it quickly felt natural to reach to my left to power down (just as on my tablesaw). I don't like the standard toggle switch as well as the others—there's no quick-find kill switch—but it does have a removable key to lock out power. Although the cord features lightweight 18-gauge wire, it never got hot or became an issue, no matter what size router or bit I used.

### To learn more:

800-533-9298; mlcswoodworking.com

# 4-WAY MONEY MAKER

## MOLDS • PLANES • SANDS • SAWS

Own a 4-in-1 MOLDING FACTORY!



Now, turn a \$5.00 rough board into \$75.00 worth of high-dollar molding in just minutes. Make over 500 standard patterns, curved molding, tongue & groove, picture frame stock, any custom design. QUICKLY CONVERTS from Molder/Planer to Drum Sander or powerfeed Multi-Blade Ripsaw. Made in U.S.A. 5-Year Warranty. Choose from 12", 18" or 25" models.

### NEW! SHAPE 3 SIDES IN 1 PASS!

NEW 3-Side Molding System turns your Woodmaster into a POWERFUL 3-SIDE MOLDER that efficiently & AFFORDABLY cuts T&G flooring, paneling, & more!



**NEW!**  
3-Side Molding System

- Shape 3 sides per pass!
- Over 500+ Molding Patterns!
- RISK FREE 30-Day Trial Offer!
- Highest Profit: MAKE CURVED MOLDING!



Quick-Change Molding Head



Commercial-Duty Thickness Planer



Power-Feed Drum Sander



Gang Ripsaw Attachment

Get Your **FREE DVD & BUSINESS STARTER KIT!**  
**CALL TOLL FREE 1-800-821-6651**



Woodmaster Tools, Inc. Dept. P342, 1431 N. Topping Ave., Kansas City, MO 64120 [www.woodmastertools.com](http://www.woodmastertools.com)

Circle No. 1820



**JDS Company**  
Award winning air filtration  
and dust collection products.



[www.jdstools.com](http://www.jdstools.com)

For more information call:  
**800.480.7269**

Circle No. 1974

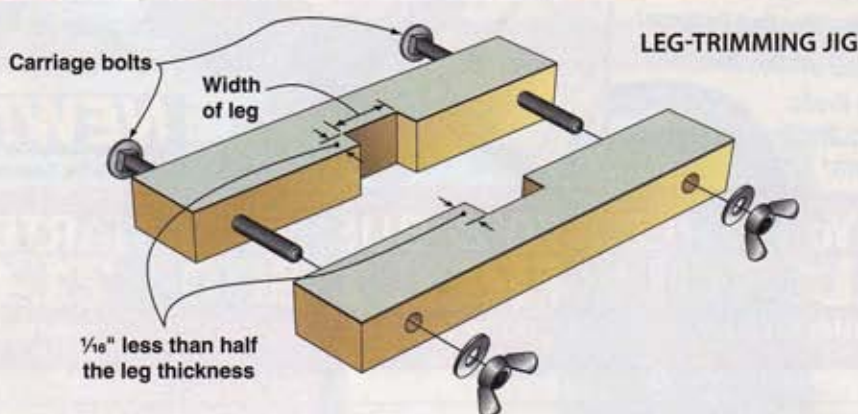
## Fixing Goofs

# Equalize Uneven Legs

**N**o matter how precisely you cut table legs to length, nor how carefully you glue up the legs, aprons, and top, your four-legged table may still rock or wobble a bit. Just the act of attaching the top can pull one or more of the legs out of alignment. If it happens to your table, don't panic: Here's a simple way to wipe out wobble the first time.

The trick in solving this rocky problem: Remember that three points describe a plane. That's why a three-legged stool or tripod won't rock, but a four-legged table might. To determine whether your table will rock, first stand it on a dead-flat surface, such as your tablesaw top. If it wobbles, look for the two long legs that are diagonally opposite from each other. To remove the wobble, you need to trim the longer of these two legs. Position the table on the saw and then score lines on the "long" leg, as shown [Photos A, B].

If the score lines are less than about  $\frac{1}{16}$ " from the bottom end of the leg, it may be easiest to just sand off the excess, as shown in the *top* photo. Stick



a piece of 80-grit adhesive-backed sandpaper to the top of your tablesaw, then work the long leg back and forth on the sandpaper to remove the excess.

If you have to remove more than  $\frac{1}{16}$ ", make a leg-trimming jig, shown above, that clamps onto the leg right at the score lines. We made this one from scraps of melamine because it has a smooth, slick surface, but you could use any hardwood.

With the cutting guide in place, use a sharp, low-angle block plane or a flush-cut saw [Photo C] to trim the leg on the score lines. (Note: If you're using a block plane on a thin leg, clamp the leg securely in a vise or get a third hand for added support.)

Finally, check the table once again on the top of your saw for wobble. If it's close, finish it off using the sandpaper method described previously. 🌲



**A** After determining which are the long legs, hang one over the edge of a reliably flat surface. (In most shops, a cast-iron tablesaw top or large shaper table fills the bill better than a wooden benchtop.)



**B** With the other three legs down tight against the top of the tablesaw, set a straightedge on top of the saw. Then score a line on the leg along the bottom of the straightedge. Repeat on the opposite face.



**C** For removing  $\frac{1}{16}$ " or more, clamp the cutting guide around the leg so its top aligns with the score lines on the leg. Hold a flush-cut saw flat against the top of the cutting guide and trim the leg along the score lines.





FESTOOL

# Getting it straight since 1964.

Festool introduced the guide rail system over 45 years ago and has been redefining the perfect cut ever since. To learn more about the amazing TS saw and guide rail system, view our guide at [www.festoolusa.com/tsguide](http://www.festoolusa.com/tsguide). For more information about the entire line of Festool products, contact us at 888-337-8600 or visit us online at [www.festoolusa.com](http://www.festoolusa.com). It's not a tool...it's a Festool.

	FESTOOL		COMPETITION*	
	TS 55 EO	TS 75 EO	SAW 1	SAW 2
LIGHTEST WEIGHT (9.92 LBS.)	✓			
GREATEST DEPTH OF CUT (2-15/16")		✓		
MOST POWER (4,600 WATTS)		✓		
SPLINTER-FREE CUTS ON BOTH SIDES OF THE BLADE	✓	✓		
SLIP-CLUTCH SAFETY FEATURE		✓		
AVAILABLE GUIDE RAILS	10	10	3	3
AVAILABLE BRANDED BLADES	6	7	1	1
RIVING KNIFE	✓	✓	✓	✓
BEST DUST COLLECTION (UP TO 76%)	✓	✓		
PLUNGE ACTION (SMOOTH PIVOT)	✓	✓		
REPLACEABLE PLUG-IT POWER CORD	✓	✓		
GREATEST RPM RANGE (2,000 - 5,000)	✓			
BATTERY OPERATED				✓

\*Based on competitor's published information as of 11/20/08.



**FESTOOL**

Faster. Easier. Smarter.

# Great Ideas for Your Shop

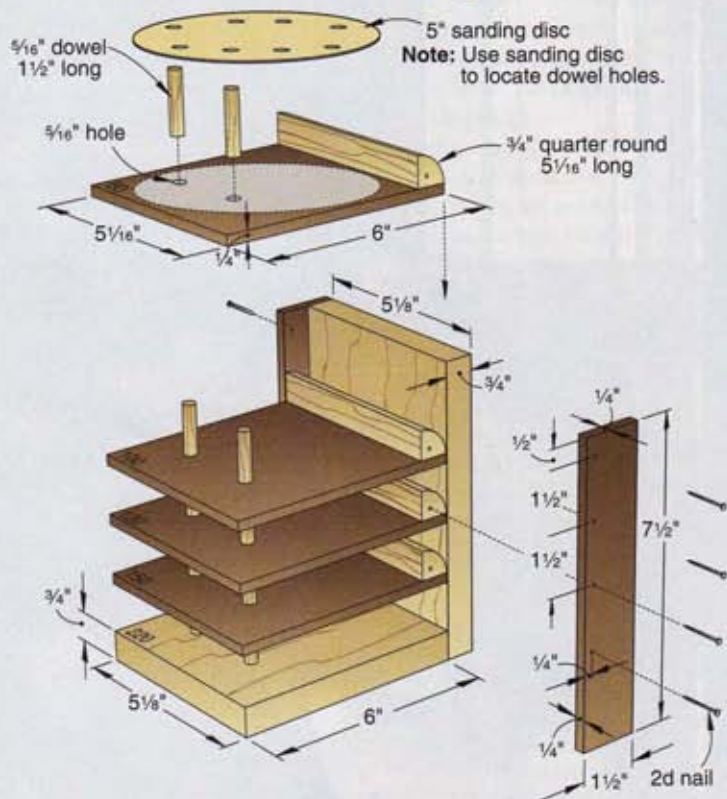
## Flip-up Sanding Disc Caddy



**W**hile sanding a table, *WOOD*® magazine reader Charlie Walsh of Shelton, Wash., got tired of looking through boxes of sanding discs and having the different grits spread out over his workbench. So he made a few sketches, and presto, in less than 30 minutes he built this project he calls the “Sand-Which”—a caddy with flip-up shelves that organizes, stores, and provides easy access to all his sanding discs. Charlie keeps his caddy on his workbench, but you could easily wall-mount it.

Use the drawing to build your own “Sand-Which.” Adjust the number of shelves, if you like, for however many sanding grits you typically use. 🌲

Find more  
shop organizer plans at:  
[woodmagazine.com/freeplans](http://woodmagazine.com/freeplans)





SINCE 1972

Essential,  
Unique,  
& Hard To  
Find Tools!

WOODWORKING

**NEW!**  
**HandyMan NailFinder  
Metal Detector**

**Only!**  
**\$79**  
#63897

- Prevent damage to expensive bits & blades
- Find hidden metal in wood up to 6" deep.



Offer Expires 04/30/2009

**FREE!**  
**SHIPPING**

On Orders Over \$75 (Lower 48 States)

**FREE!**  
**Woodworking Catalog!**

Order Online  
or Call Us:

**hartvilletool.com**  
**800-345-2396**

Circle No. 596

**Wixey**<sup>TM</sup>

#1 NAME IN  
DIGITAL



ANGLE GAUGE



PROTRACTORS



FRACTION  
CALIPERS



HEIGHT  
GAUGE

KITS TO DIGITIZE YOUR:

- PLANNER
- TABLE SAW
- ROUTER
- SHAPER
- AND MORE!

**www.Wixey.com**

*We have the hardware  
and supplies you need!*

**Functional Hardware**



Hinges



Knobs & Pulls



Drawer  
Slides

**Abrasives & Adhesives**



Sheet  
Stock



Discs



Wood  
Glue

**Tools**



Bits & Blades



Clamps

Also see:

- Locks • Lighting • Bar Rail
- Fasteners • Kitchen organizers
- Shelf brackets and much more...

Request a FREE catalog - Promotion #824

**Woodworker's Hardware**  
woodworkershardware.com  
or 1-800-383-0130

Circle No. 713



www.osbornewood.com



Osborne Wood Products, Inc. introduces Mission products that feature the clean lines and classic design indicative of the Mission style.

Order Line: 800.849.8876  
For a Catalog: 800.746.3233  
info@osbornewood.com

4618 GA Highway 123 N  
Toccoa GA 30577

Circle No. 1849



# A 7-drawer delight Lingerie Chest

Assemble the case quickly using glue and biscuits, and then machine the drawer parts with simple tablesaw setups.

## PROJECT HIGHLIGHTS

- Materials needed: Cherry, soft maple, cherry plywood, birch plywood.
- Good alternate choices for the primary wood include maple and ash.
- The chest matches the pencil-post bed, nightstand (both in issue 187), dresser, valet, and wall mirror (all in issue 188) to create a complete bedroom suite.

Seven spacious drawers in this lithe Shaker-style chest create a piece of furniture that's as practical as it is beautiful. It completes the bedroom suite that started with the pencil-post bed and matching nightstand in the November issue.

## Start with the legs

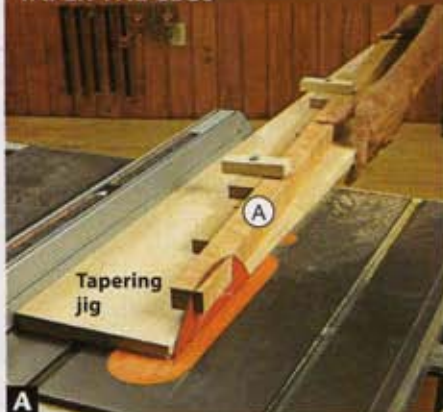
**1** Cut four legs (A) to size [Materials List, page 40]. You can cut them from solid stock or laminate thinner stock. Mark the position of each leg on its top (FL for front left, for example).

**2** Lay out the tapers on the two inside bottom faces of each leg (A) [Drawing 1]. Using a tablesaw and tapering jig, cut the tapers [Photo A]. (Buy plans for a simple tapering jig at [woodmagazine.com/taperingjig](http://woodmagazine.com/taperingjig).) Sand to remove saw marks, and round over the bottoms.

**3** Lay out the locations of the mortises for the front rail (F) and back rail (G) on the legs (A) [Drawings 1, 1a]. Form the mortises by drilling a  $\frac{1}{4}$ " hole  $\frac{1}{2}$ " deep at each end of each mortise. Then drill evenly spaced holes between them to remove the waste. Clean out the mortises and square the corners with  $\frac{1}{4}$ " and  $\frac{3}{4}$ " chisels.

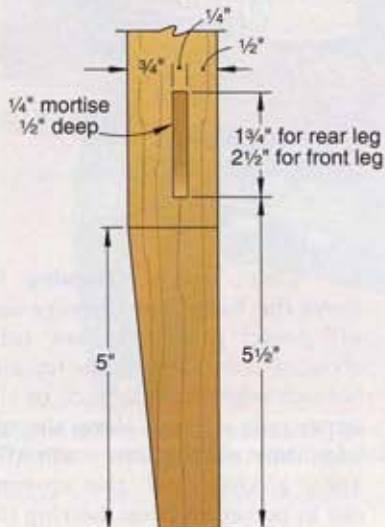
Overall dimensions:  
22 $\frac{1}{4}$ " wide x 21 $\frac{1}{4}$ " deep x 58" high.

## TAPER THE LEGS



**A** Saw tapers on the inside faces at the bottom of each leg (A). The straight sides face out at each corner.

### 1a LEG MORTISE DETAIL (Left rear/right front leg shown, right rear/left front leg is mirror image)



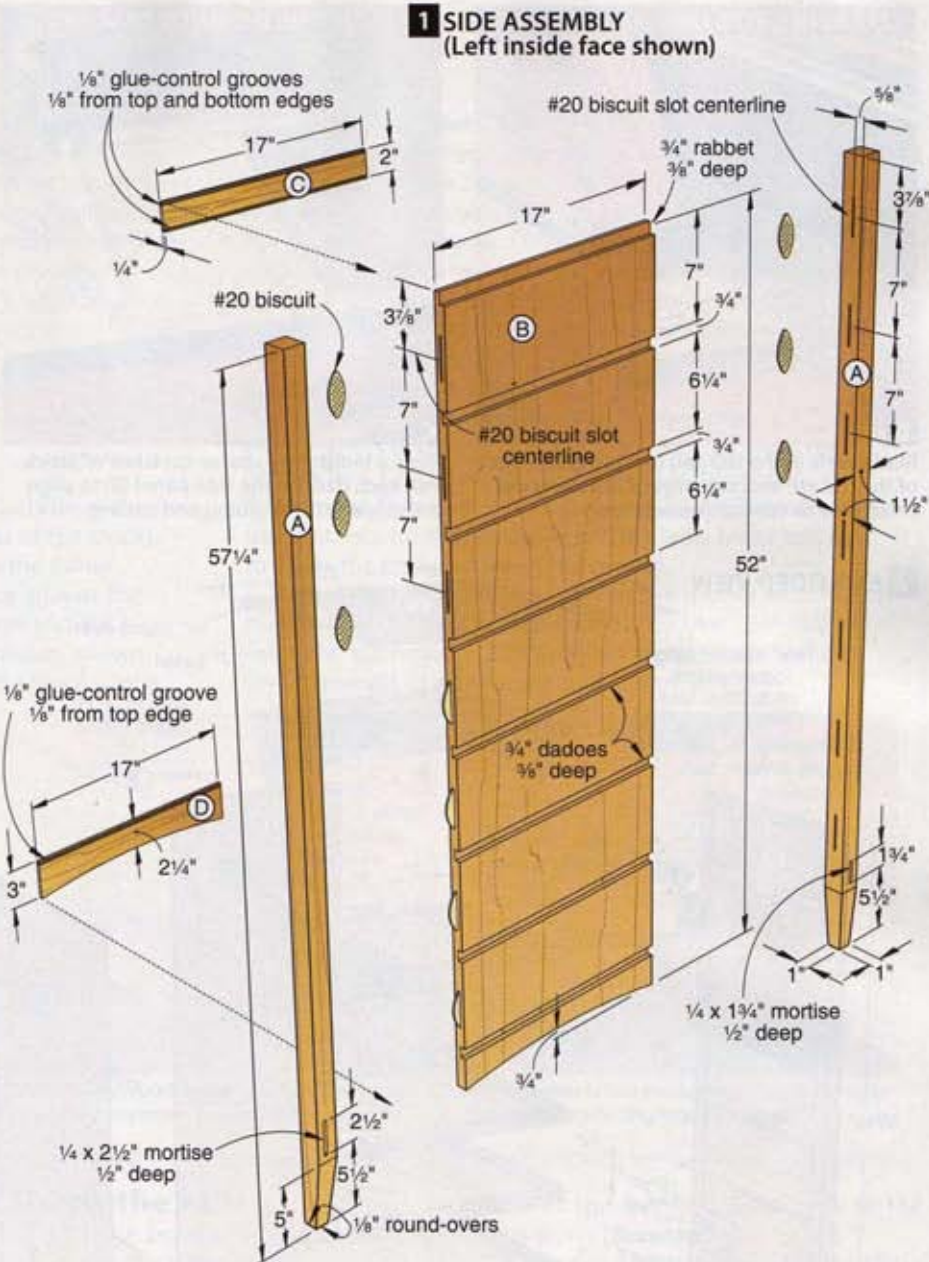
## Make the side panels

**1** Cut the side panels (B) to size. **Quick tip: Don't wrestle with big sheets.** Rough-cut the plywood sheet into slightly oversize blanks with a circular saw. (The plywood dealer might break down the sheet for a nominal charge, too.) Then, rip and trim the panels to final size on your tablesaw.

**2** Cut seven  $\frac{3}{4} \times \frac{3}{8}$ " dados and one  $\frac{3}{4} \times \frac{3}{8}$ " rabbet in the inside face of each side panel (B) [Drawing 1].

**3** Mark the centerpoint of the arc on the bottom of each side panel (B) [Drawing 1], and then draw a line through it and the endpoints with a fairing stick. (For a free video and fairing stick plan, go to [woodmagazine.com/fairingvideo](http://woodmagazine.com/fairingvideo).) Bandsaw the arc slightly outside the line, and sand to the line.

**4** Lay a side panel (B) on your workbench, dadoed side up, and then position the front and back legs (A) for



that side flush with the panel at the top. Mark biscuit locations on the side panel, centered between the dados and rabbet [Drawing 1], and mark the corresponding locations on each leg. Repeat for the other side panel and legs.

**5** Adjust your biscuit joiner fence to center #20 biscuit slots on the edges of the side panels (B)  $\frac{3}{8}$ " from the inside (dadoed) face. Plunge slots at the marked locations on the panels. Finish-sand the side panels to 220 grit.

## Build the case sides

**1** Adjust your biscuit joiner fence to center a #20 biscuit slot  $\frac{5}{8}$ " from the inside edge of the legs (A) [Drawing 1]. Plunge slots at the marked locations. Finish-sand the legs, using a flat sanding block to prevent rounding the faces.

**2** Cut the upper rails (C) to size [Drawing 1]. Cut two blanks  $\frac{1}{4} \times 3\frac{1}{4} \times 17$ " for the lower rails (D); the extra width facilitates trimming the bottom arcs.

**3** Mark the endpoints and centerpoint of the arc on the lower rail (D) [Drawing 1], and lay out the arc through the three points. **Quick tip: Stack-cut parts to save time.** You can lay out the arc on one blank, and stack-cut both rails. Stack the blanks with all edges flush, and fasten them together with masking tape or double-faced tape. Bandsaw about  $\frac{1}{8}$ " outside the line, but do not sand the curve to the line.

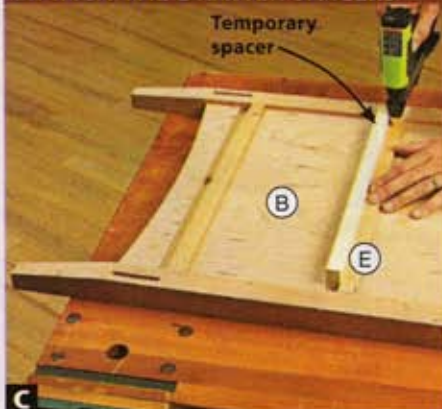
**4** Glue and clamp the upper rails (C) flush with the top of the side panels (B) and the lower rails (D) overhanging the bottoms of the side panels by  $\frac{1}{8}$ ". Align both ends of each rail flush with

### CUT KERFS TO CURB SQUEEZE-OUT



Blade kerfs in the top and bottom back edges of the top rail and top edge of the lower rail catch glue to control squeeze-out.

### ATTACH THE DRAWER SPACERS

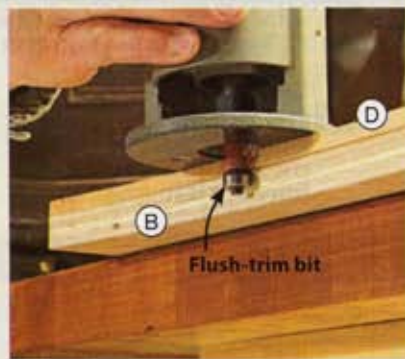


Place a temporary spacer cut from  $\frac{3}{4}$ " stock into each dado in the side panel (B) to align the spacers (E) for gluing and nailing.

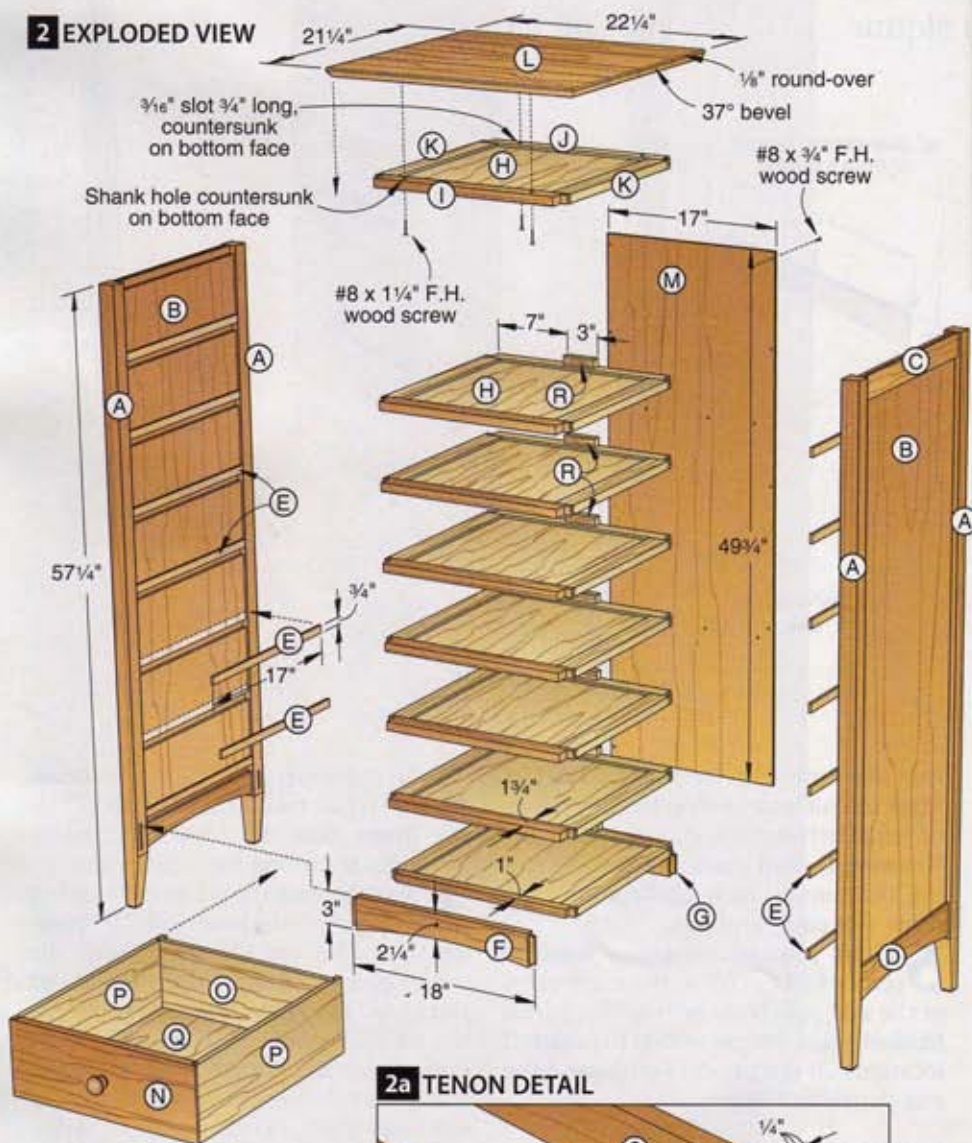
## SHOP TIP

### Match edges exactly with a flush-trim router bit

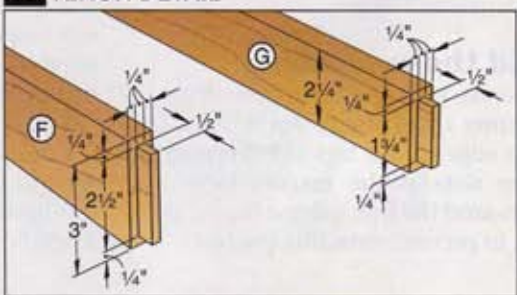
Easily trim the overhanging edge of the lower rail (D) to the same curvature as the arc in the side panel (B) with a flush-trim bit in your handheld router. Adjust the cutting depth so the pilot bearing on the bit rides along the bottom edge of the side panel. Keep the bearing firmly against the bottom edge of the side panel to neatly trim the lower rail.



## 2 EXPLODED VIEW



### 2a TENON DETAIL



the panel edges [Drawing 1].

**Quick tip:** Keep glue squeeze-out off panel faces. Cut saw kerfs about  $\frac{1}{8}$ " deep  $\frac{1}{8}$ " from the top and bottom edges on the back of the upper rails (C) and along the top edge only on the lower rails (D). These grooves catch glue squeeze-out to prevent it from marring the side panels (B) when you glue on the rails [Photo B].

**5** Trim the bottom edges of the lower rails (D) flush with the side panels (B) [Shop Tip, above]. Finish-sand the rails (C, D) and touch-up sand the side panels.

**6** Apply glue to the biscuit slots in the legs (A) and one side assembly (B/C/D). Run a bead of glue along the edges of the side panel (B) near the dadoed face to minimize squeeze-out on the outside face. Lay the side assembly, dadoed face down, on  $\frac{3}{4}$ " spacers on your workbench. Insert biscuits in the panel slots, assemble, and clamp, keeping the tops of the legs and the side panel flush [Drawing 2]. The mortises in the legs should face down. Repeat to assemble the other side.

**7** Cut the drawer spacers (E) to size. Align the spacer bottoms

# SKILL BUILDER

## Size panel rails to plywood thickness for pro results

Plywood usually measures less than its stated (nominal) thickness. When you build a framed panel, such as the dust panels (H/I/J/K), the plywood should fit snugly into grooves in the frame members. Stub tenons on the end rails must fit the grooves, too. Here's how to make the parts fit together:

First, measure the actual thickness of the plywood, shown *below*. For plywood thicker than  $\frac{1}{4}$ " (.250"), you can then shim a dado stack to cut a groove the correct width. Here, the plywood dust panel (H) measures less than  $\frac{1}{4}$ ", so cut overlapping kerfs with a tablesaw blade. You can take either of two approaches, depending on whether you prefer starting with cuts or calculations:

### Trial-and-Error

Position the rip fence about  $\frac{7}{16}$ " from the outside of the blade (slightly more than half the thickness of the stock). Then, in scrap stock the same thickness as the frame members, cut a  $\frac{1}{4}$ "-deep kerf with one face against the fence, and then rotate the piece end for end and cut another kerf. Test-fit the plywood in the groove, shown *center*. If the groove is too narrow, move the fence a little

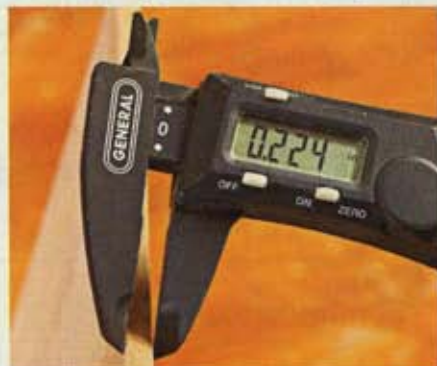
farther from the blade. When you have fine-tuned the width, cut the grooves in the rails (I, J, K).

To cut the centered stub tenons on the end rails (K), set the tablesaw cutting height at  $\frac{1}{4}$ ", and place the fence  $\frac{1}{4}$ " from the outside of the blade. Then, on scrap stock the same thickness as the frame members, cut rabbets on both faces of one end, and test-fit the tenon, shown *below*. If it is too thick, raise the cutting height slightly, and recut. When the tenon fits, cut the tenons on both ends of each end rail (K).

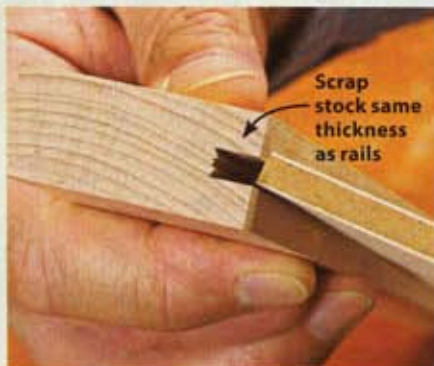
### Measurements-and-Math

Subtract the plywood thickness (ours measured .224") from the thickness of the rail (I, J, K) stock (.750"). Divide the remainder (.526") by two (.263") and add the plywood thickness to the result (.487", or about  $\frac{31}{64}$ "). Place the fence that distance from the outside of the blade. Make test cuts to verify the plywood fits in the groove.

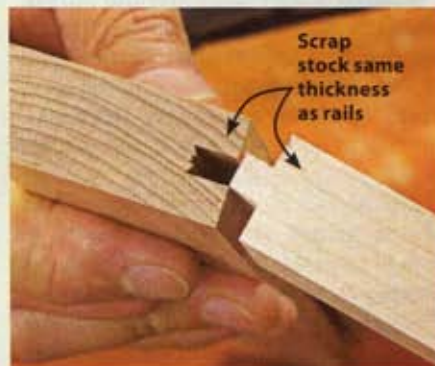
To find the rabbet depth, subtract the groove width from the thickness of the stock, and divide by two. (For this example, cut rabbets .263", or  $\frac{17}{64}$ ", deep.) Make test cuts on scrapwood to achieve the best tenon fit.



Digital calipers measure precisely. On a fractional scale, measure to 64ths, at least.



Test the plywood in the groove, and judge how much to move the fence for good fit.



If the tenon is too thick for the groove, raise the dado blade slightly and recut.

flush with the dadoes in the side panels (B). Glue them to the side assemblies (A/B/C/D) and fasten with a pneumatic brad nailer, pinner, or  $\frac{1}{2}$ " wire nails [Drawing 2, Photo C].

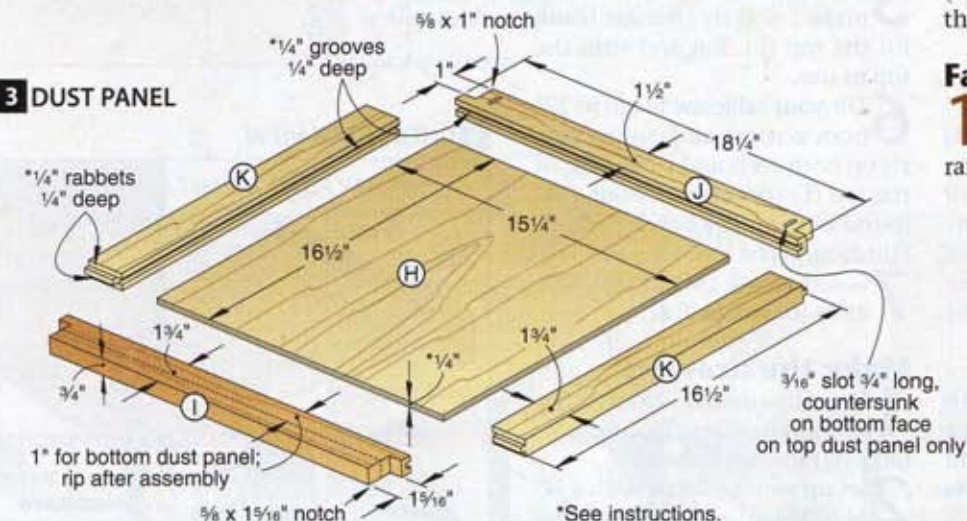
## Shape the rails

- 1 Cut the front rail (F) and back rail (G) to size [Drawing 2].
- 2 Install a  $\frac{1}{2}$ " dado set on your table-saw and adjust the cutting depth to

$\frac{1}{4}$ ". Cut the tenons on the ends of the rails (F, G) [Drawing 2a].

3 Lay out and bandsaw the arc along the bottom edge of the front rail (F) [Drawing 2] as you did for the side panels (B) and lower side rails (D). Finish-sand the front and back rails to 220 grit.

## 3 DUST PANEL

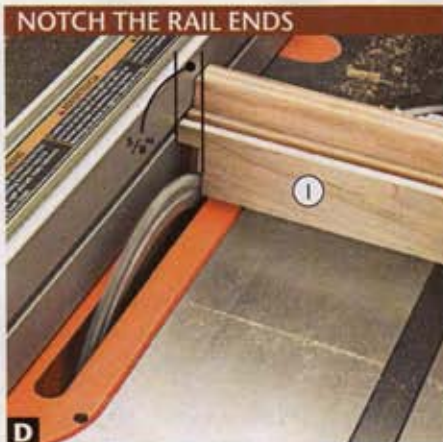


## Fabricate the dust panels

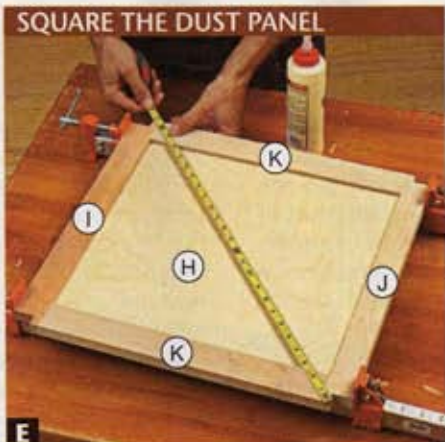
1 Cut the dust panels (H), dust panel front rails (I), back rails (J), and end rails (K) to size [Drawing 3].

2 Cut a groove  $\frac{1}{4}$ " deep to fit the dust panel (H), centered on the edge of the dust panel front, back, and end rails (I, J, K) [Drawing 3, Skill Builder, above].

3 Cut  $\frac{1}{4}$ "-long stub tenons on the ends of the dust panel end rails (K) to fit the grooves in the front and back rails (I, J) [Drawing 3, Skill Builder, above].



**D** Set the tablesaw fence as a stop for the  $\frac{5}{8}$ " length of the notch. A miter-gauge extension supports the rail (I, J) for cutting.



**E** Glue and clamp the dust panel (H/I/J/K), and measure both diagonals. The panel is square if the measurements are equal.



**F** For the shallow bottom dust panel (H/I/J/K), rip the front (cherry) rail (I) on one dust panel to 1" wide.

**4** Attach an extension to your miter gauge, and notch the ends of the dust panel rails (I, J) [Drawing 4] with the dado set in several passes [Photo D].

**5** Arrange a dust panel (H) and rails (I, J, K) in assembly order on your bench [Drawing 3]. Apply glue in the rail grooves, assemble the dust panel, and clamp, checking for square [Photo E]. Construct the remaining seven panels the same way.

**6** Rip  $\frac{3}{4}$ " off the front rail (I) of one dust panel (H/I/J/K) [Drawing 3, Photo F] to make the bottom dust panel [Drawing 2]. Finish-sand the panel.

**7** On the bottom of the top dust panel (H/I/J/K), drill and countersink screw holes to attach the top (L) [Drawings 2, 5]. (For #8 screws, drill  $\frac{5}{32}$ " shank holes and  $\frac{3}{64}$ " pilot holes.) To allow wood movement in the top, enlarge the holes in the dust panel back rail (J) into slots about  $\frac{3}{4}$ " long [Drawing 5]. **Quick tip:** When you're slottin', just keep rockin'. Drill through each back-rail hole with a  $\frac{3}{16}$ " twist drill, then rock the bit back and forth to form the slot. Elongate the countersinks also. Finish-sand the remaining dust panels.

### Construct the case

**1** Lay one side assembly (A/B/C/D/E) on padded sawhorses or benchtop, dados facing up. Without gluing, fit the bottom dust panel (H/I/J/K), the shallow one, into the bottom dado of the side assembly [Drawing 2]. Place another dust panel temporarily in the middle dado.

**2** Without gluing, insert the tenon of the front rail (F) into the mortise in the front leg (A) [Drawing 2]. Then, place the other side assembly on the rail and dust panels. Check the fit of all parts [Drawings 2, 6].

**3** Lift off the side assembly (A/B/C/D/E) on top, and remove the front rail (F). Apply glue to the front edge only of the bottom dust panel (H/I/J/K). Then, put the front rail back in position and replace the side assembly on top. Square the case, clamp the sides, and then clamp the front rail to the dust panel [Photo G].

**4** After the glue dries, lift off the side assembly (A/B/C/D/E) on top, the front rail/bottom dust panel assembly (F/H/I/J/K), and the other dust panel (H/I/J/K). Apply glue to the rabbet, dados, and mortises in the side assembly on the sawhorses. Then, with a helper, position the front rail/bottom dust panel assembly, the back rail (G), the top dust panel, and the six remaining dust panels on the side assembly [Drawing 2]. Apply glue and install the other side assembly, and clamp [Photo H].

**5** Joint and edge-glue  $\frac{3}{4}$ " stock to make a slightly oversize blank for the top (L). Rip and trim the top to size.

**6** Tilt your tablesaw blade to 37° from vertical, and cut the bevels on both ends and front edge of the top (L) [Drawing 2]. Rout a  $\frac{1}{8}$ " round-over on the beveled edges. Finish-sand the top.

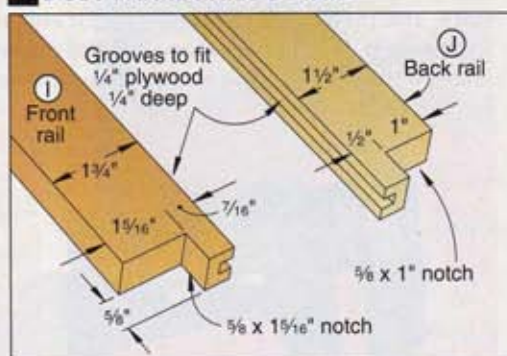
**7** Cut the back (M) to size. Test its fit [Drawings 2, 6].

### Make the drawers

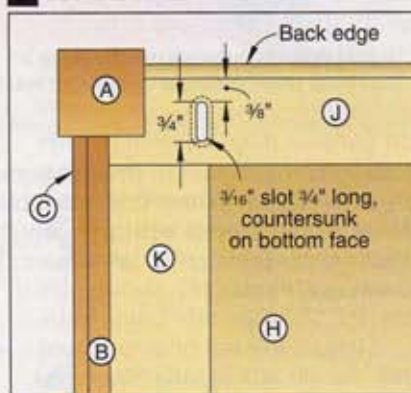
**1** Cut the drawer fronts (N), backs (O), sides (P), and bottoms (Q) to size [Drawing 7].

**2** Set up your tablesaw with a  $\frac{1}{4}$ " dado blade, and machine the

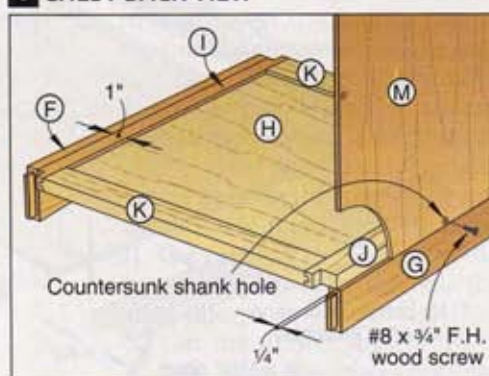
### 4 DUST PANEL RAILS DETAIL



### 5 TOP DUST PANEL DETAIL



### 6 CHEST BACK VIEW







## Complete the dresser

**1** Cut the drawer stops (R) to size, and attach them to the dust panel back rails (J), where shown [Drawing 2]. Apply low-friction tape to help the drawers slide smoothly [Drawing 10].

**2** Inspect the case and drawers, and touch up the finish-sanding as necessary. Stain as desired. (We stained the chest with Minwax no. 607 Cherrywood gel stain to match other pieces in the bedroom suite.)

**3** Apply a clear finish. (We applied three coats of satin polyurethane, sanding to 320 grit between coats.)

## 10 SLIPPERY-TAPE DETAIL



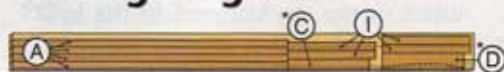
**4** Install the drawer pulls. Then slide the drawers into place. 🌱

Written by **Larry Johnston** with **Kevin Boyle**

Project design: **Kevin Boyle**

Illustrations: **Roxanne LeMoine; Lorna Johnson**

## Cutting Diagram

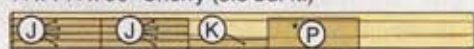


$\frac{3}{4}$  x 7 $\frac{1}{4}$  x 96" Cherry (5.3 bd. ft.) (2 needed)

\*Plane or resaw to the thicknesses listed in the Materials List.



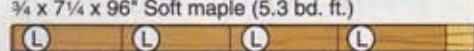
$\frac{3}{4}$  x 7 $\frac{1}{4}$  x 96" Cherry (5.3 bd. ft.)



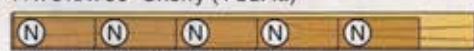
$\frac{3}{4}$  x 7 $\frac{1}{4}$  x 96" Soft maple (5.3 bd. ft.)



$\frac{3}{4}$  x 7 $\frac{1}{4}$  x 96" Soft maple (5.3 bd. ft.)



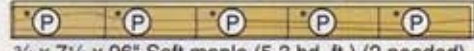
$\frac{3}{4}$  x 5 $\frac{1}{2}$  x 96" Cherry (4 bd. ft.)



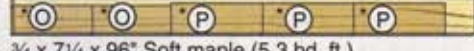
$\frac{3}{4}$  x 7 $\frac{1}{4}$  x 96" Cherry (5.3 bd. ft.)



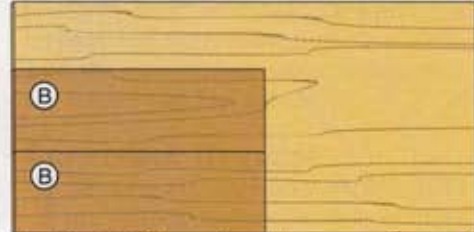
$\frac{3}{4}$  x 7 $\frac{1}{4}$  x 96" Soft maple (5.3 bd. ft.)



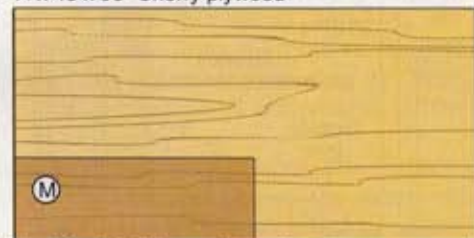
$\frac{3}{4}$  x 7 $\frac{1}{4}$  x 96" Soft maple (5.3 bd. ft.) (2 needed)



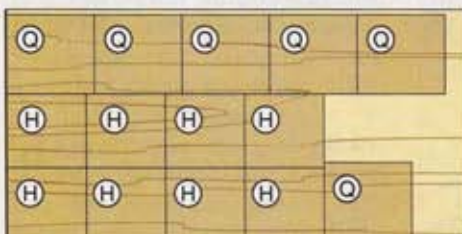
$\frac{3}{4}$  x 7 $\frac{1}{4}$  x 96" Soft maple (5.3 bd. ft.)



$\frac{1}{4}$  x 48 x 96" Cherry plywood



$\frac{1}{4}$  x 48 x 96" Cherry plywood



$\frac{1}{4}$  x 48 x 96" Baltic birch plywood



$\frac{1}{4}$  x 24 x 48" Baltic birch plywood

## Materials List

Part	FINISHED SIZE			Matl.	Qty.	
	T	W	L			
<b>Side assemblies</b>						
A	legs	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	57 $\frac{1}{4}$ "	C	4
B	side panels	$\frac{3}{4}$ "	17"	52"	CP	2
C	upper rails	$\frac{1}{4}$ "	2"	17"	C	2
D*	lower rails	$\frac{1}{4}$ "	3"	17"	C	2
E	drawer spacers	$\frac{1}{4}$ "	$\frac{3}{4}$ "	17"	C	14
<b>Case</b>						
F	front rail	$\frac{3}{4}$ "	3"	18"	C	1
G	back rail	$\frac{3}{4}$ "	2 $\frac{1}{4}$ "	18"	C	1
H	dust panels	$\frac{1}{4}$ "	15 $\frac{1}{4}$ "	16 $\frac{1}{2}$ "	BP	8
I	dust panel front rails	$\frac{3}{4}$ "	1 $\frac{3}{4}$ "	18 $\frac{1}{4}$ "	C	8
J	dust panel back rails	$\frac{3}{4}$ "	1 $\frac{1}{2}$ "	18 $\frac{1}{4}$ "	SM	8
K	dust panel end rails	$\frac{3}{4}$ "	1 $\frac{3}{4}$ "	16 $\frac{1}{2}$ "	SM	16
L*	top	$\frac{3}{4}$ "	21 $\frac{1}{4}$ "	22 $\frac{1}{4}$ "	EC	1
M	back	$\frac{1}{4}$ "	17"	49 $\frac{3}{4}$ "	CP	1
<b>Drawers</b>						
N	fronts	$\frac{3}{4}$ "	6 $\frac{1}{8}$ "	16 $\frac{3}{8}$ "	C	7
O	backs	$\frac{1}{2}$ "	5 $\frac{5}{8}$ "	16 $\frac{3}{8}$ "	SM	7
P	sides	$\frac{1}{2}$ "	6 $\frac{1}{8}$ "	19"	SM	14
Q	bottoms	$\frac{1}{4}$ "	16 $\frac{3}{8}$ "	18 $\frac{1}{4}$ "	BP	7
R	drawer stops	$\frac{3}{4}$ "	$\frac{3}{4}$ "	3"	SM	7

\*Parts initially cut oversize. See the instructions.

**Materials key:** BP—birch plywood, C—cherry, EC—edge-glued cherry, CP—cherry plywood, SM—soft maple.

**Supplies:** #8x $\frac{3}{4}$  1 $\frac{1}{4}$ " flathead wood screws, #20 biscuits, 1 $\frac{1}{2}$ " wood knobs (7), 1" wire nails.

**Blade and bits:**  $\frac{1}{8}$ " round-over bit, rabbeting bit, flush-trim bit, dado set.

## Source

**Low-friction tape:** Slippery tape, 25U04.01, \$12.50, Lee Valley, 800-871-8158 or leevalley.com.



Download plans for the other pieces in this set at [woodmagazine.com/pencilsuite](http://woodmagazine.com/pencilsuite)



# Put Some **Metal** In Your Wood



*The PlasmaCAM machine makes it easy for you to cut intricate metal shapes that really enhance your wood projects.*

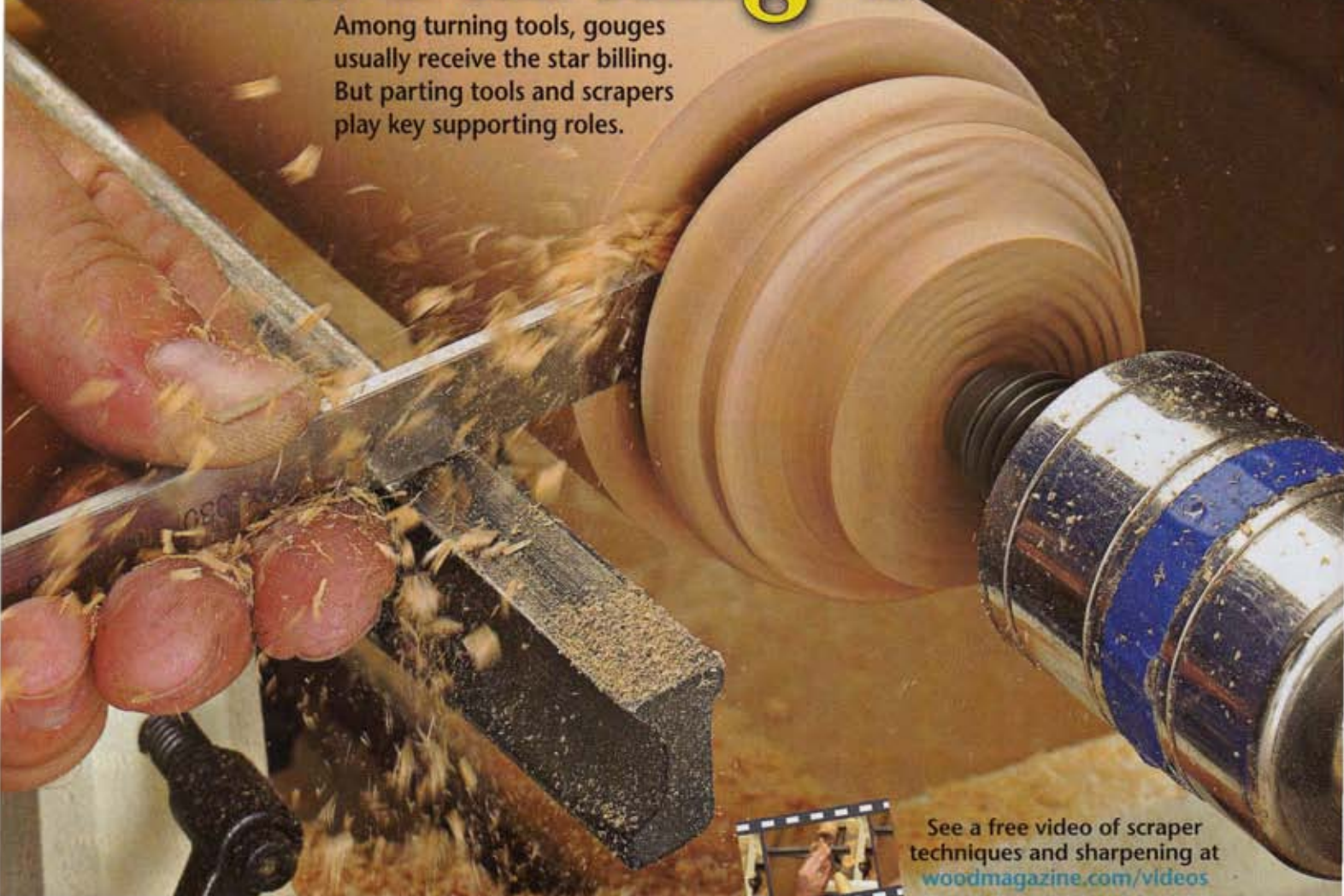
*Call today for your **FREE** demo video to see what you can do with this amazing machine!*

(719) 676-2700 • fax (719) 676-2710 • [www.plasmacam.com](http://www.plasmacam.com)  
PO Box 19818 • Colorado City, CO 81019

**Plasma**  
**CAM**

# How to Use Scrapers and Parting Tools

Among turning tools, gouges usually receive the star billing. But parting tools and scrapers play key supporting roles.



See a free video of scraper techniques and sharpening at [woodmagazine.com/videos](http://woodmagazine.com/videos)

**S**crapers, which date back to the earliest days of woodturning, still come in handy for modern turners in tasks as diverse as beading spindles and hollowing end-grain vessels. Here's how to use them, along with pointers about using parting tools.

## Get into a few good scrapes

Unlike with a gouge or a skew, the bevel on a scraper doesn't lay against the workpiece to support the wood fibers as they are cut. So tear-out is more likely when turning spindles with a scraper.

Despite this, a scraper offers an advantage for turning spindles: The blade end can be formed to any shape, and will produce the exact pattern repeatedly, as in the case of beading scrapers, shown *right*. And a round-nose scraper is an effective, easy-to-use tool for hollowing end-grain turnings.

Beading scrapers

Round-nose scraper

Square-nose scraper

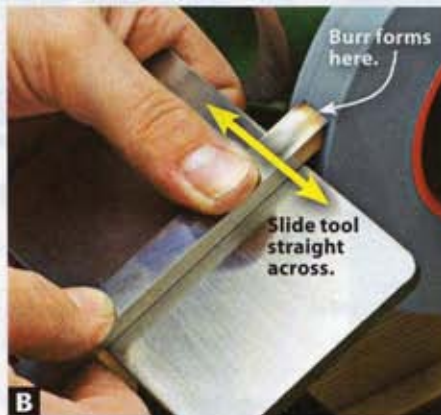
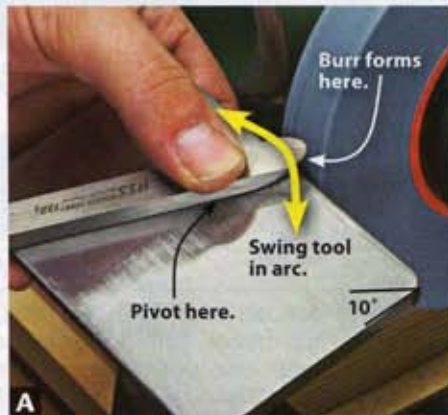


## For best results, start with a sharp scraper

Sharpen square- or round-nose scrapers on a bench grinder. Position the tool rest 10° from horizontal to grind an 80° bevel on the blade. Lightly touch the tool to the wheel, and then swing a

round-nose tool [Photo A], or slide a square-edge one [Photo B], against the wheel, maintaining the end contour. Some turners burnish the resulting burr with a special device for a smoother cut.

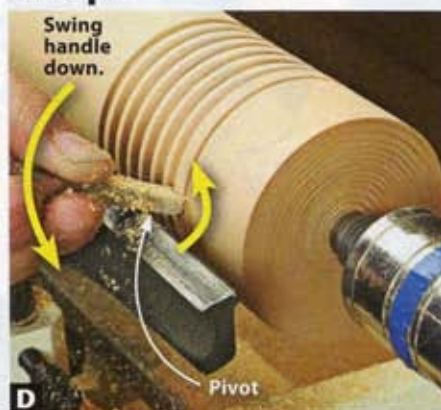
To sharpen a beading scraper, hone flat across the top on a bench stone [Photo C]. Although scrapers cut better when sharpened on a grinding wheel, grinding the bevel could distort the contour.



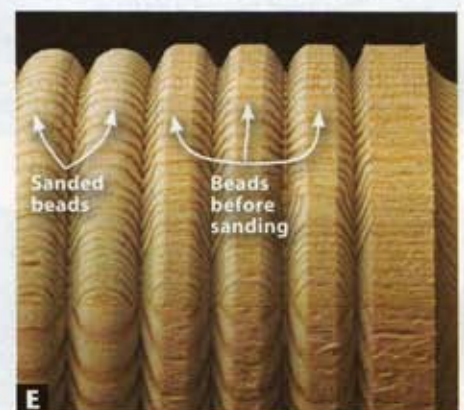
## Take a turn on a spindle with a scraper

Start by positioning the tool rest parallel to the lathe axis, slightly above the centerline. Lay the scraper blade flat on the tool rest, perpendicular to the axis of the workpiece. Raise the handle higher than the tip so the tip contacts the workpiece below the centerline [Photo D]. Then lower the handle in a smooth motion, raising the tip to make a shallow cut. Do not, however, let the handle go lower than the tip. Repeat until you reach the desired profile on the spindle.

When using a beading scraper, turn the blank (or the area on it that will be beaded) to the diameter of the top of the beads. As you form the beads, leave a



small flat at the top center to be sanded away later [Photo E]. Cutting to full



depth with a beading scraper almost always causes significant tear-out.

## Scrape out end grain to make hollow vessels the easy way

It's hard to beat a 1/2" round-nose scraper for hollowing endgrain vessels such as weed pots or goblets. The scraper is both effective and easy to control.

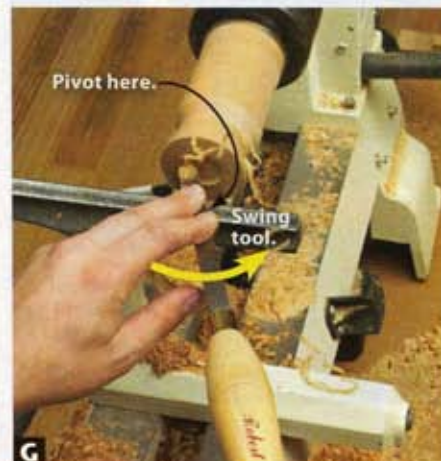
Chuck the workpiece and position the tool rest across the end of the piece, slightly above center. With the scraper flat on the tool rest, raise the handle

enough to bring the tool tip to the centerline on the workpiece [Photo F]. Push the tool into the center of the revolving workpiece, and then swing the handle toward the back of the lathe [Photo G].

Keep the handle of the tool raised so the tip stays on the centerline. Repeat cutting from the center toward the rim

until you reach the desired shape and depth. Adjust the cavity shape by sliding the tool on the rest and varying the rate at which you swing the handle.

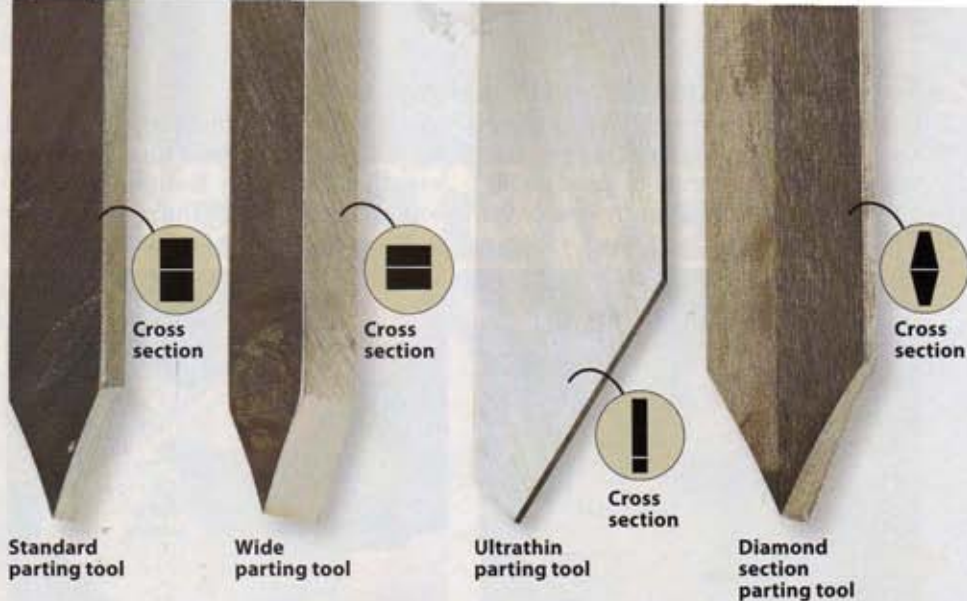
To reduce tear-out by tilting the tool at a 45° angle on the tool rest while you swing the handle [Photo H]. Cutting at this angle is called "shear scraping."



## You'll like this part

Grab a parting tool to form tenons or grooves, cut in to specific diameters for reference points, or, of course, separate (or part) a turning into multiple pieces. Restrict the parting tool to work where the grain runs parallel to the lathe axis.

Parting tools come with either flat or diamond-section blades, shown *right*. A standard  $\frac{1}{8}$ "-wide flat-blade parting tool fills the bill for most turners. Wider ( $\frac{1}{4}$ " or  $\frac{3}{8}$ ") flat-blade tools excel at tenons, but prove more difficult to control in deep cuts. A knifelike  $\frac{1}{16}$ " ultrathin flat blade minimizes grain interruption for jobs such as parting off a box lid. A diamond-section blade (typically  $\frac{3}{16}$ " wide at the point) binds less in deep cuts.



## Make it a point to part well

Sharpen a parting tool to a 45–80° total bevel angle at the tip [Photo I]. The exact angle isn't critical: A smaller angle cuts more aggressively, but a larger angle stays sharp longer. Experiment to find an angle that works best for you.

To sharpen the tool, adjust the grinder rest so the bevel rests on the wheel, stand the blade on edge on the rest, and slide it side to side. Flip the tool over and sharpen the opposite bevel until the bevels meet to form a sharp edge straight across the end. On a diamond-section tool, the bevels must meet at the widest part of the blade.



## The bedazzling bedan: It scrapes! It parts!

The French bedan can perform in much the same way as a skew. (See *WOOD* magazine, May 2008, pages 70–73). "But I often use a  $\frac{3}{8}$ " bedan as both a parting tool and a square-nose scraper," says woodturning expert Brian Simmons.

"By maintaining a 60–70° bevel, I can use it like a parting tool to produce  $\frac{3}{8}$ "-wide parts and tenons—it makes long tenons really quickly—and as a square-nose scraper to cut recesses to hold bowls in a chuck," Brian says.

The trapezoidal blade section reduces friction in parting cuts, and provides clearance at the bottom left corner when scraping recesses. It's less likely to catch on the work than a  $\frac{1}{2}$ " square-nose scraper and, because it's  $\frac{1}{8}$ " thicker than most scrapers, reduces vibration.

But don't try to replace your parting tools with a bedan, Brian warns. "When making lidded boxes, for instance, a narrower part minimizes waste, and the grain lines up better," he says.

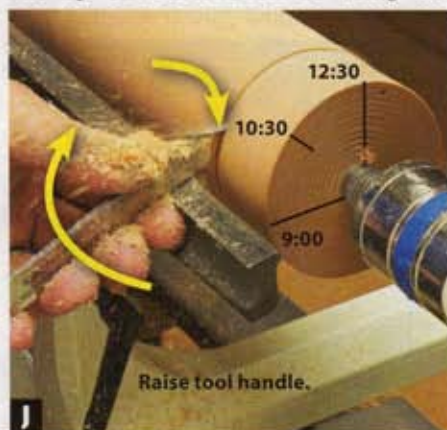
Written by **Larry Johnston**  
with **Brian Simmons**

## Here's the important part

With any parting tool, start by placing the tool rest parallel to the workpiece and slightly below its centerline. Stand the tool on edge on the tool rest, with its blade at a 90° angle to the workpiece. Touch the tip of the tool to the workpiece at the 10:30 position (when viewed from the tailstock) [Photo J]. Raise the handle, pivoting the tool on the rest, so the tip of the tool moves along the

10:30-to-center arc [Photo K]. Pull the tool straight back to remove it.

Continue this way until you reach the desired depth. You may have to widen the kerf to reduce friction in deep cuts. To do that, place the tool one-half its width to the waste side of your initial cut, then follow the 10:30-to-center arc as before. Alternate cuts on the left and right until you reach the desired depth.



Better Homes and Gardens®

# WOOD PATTERNS®

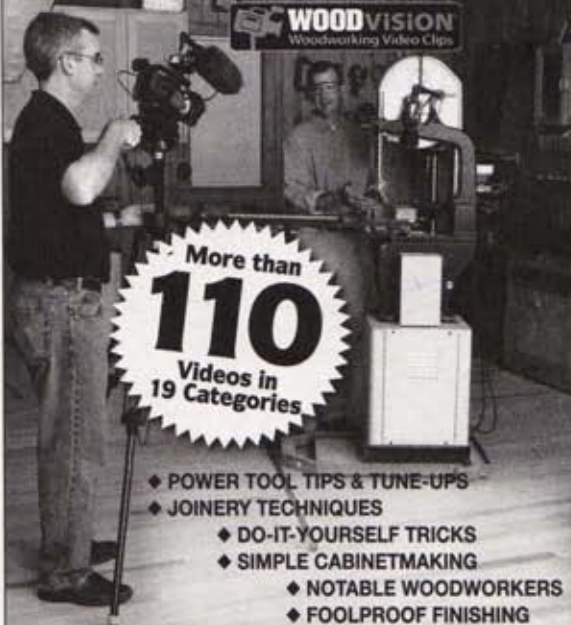
March 2009

Issue 189

Dear Reader: As a service to you, we've included full-size patterns on this insert for irregular shaped and intricate project parts. You can machine all other project parts using the Materials List and the drawings accompanying the project you're building.

© Copyright Meredith Corporation, 2009. All rights reserved. Printed in the U.S.A. Meredith Corp., the publisher of WOOD Patterns®, allows the purchaser of this pattern insert to photocopy these patterns solely for personal use. Any other reproduction of these patterns is strictly prohibited.

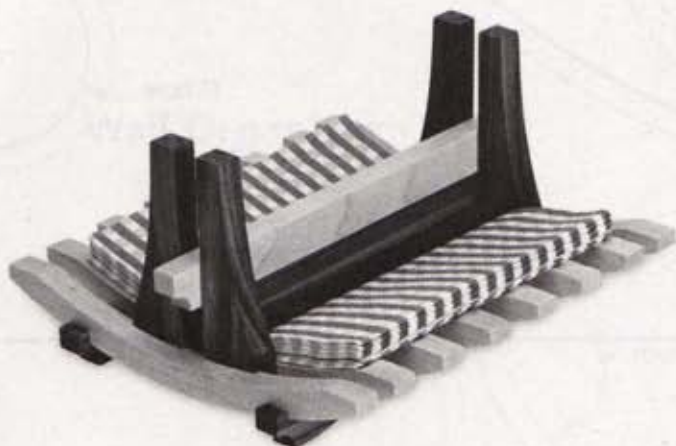
**OUR MOTTO: BETTER WOODWORKING THROUGH FREE VIDEO!**



**More than 110 Videos in 19 Categories**

- ◆ POWER TOOL TIPS & TUNE-UPS
- ◆ JOINERY TECHNIQUES
- ◆ DO-IT-YOURSELF TRICKS
- ◆ SIMPLE CABINETMAKING
- ◆ NOTABLE WOODWORKERS
- ◆ FOOLPROOF FINISHING

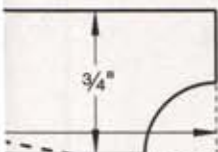
[woodmagazine.com/videos](http://woodmagazine.com/videos)

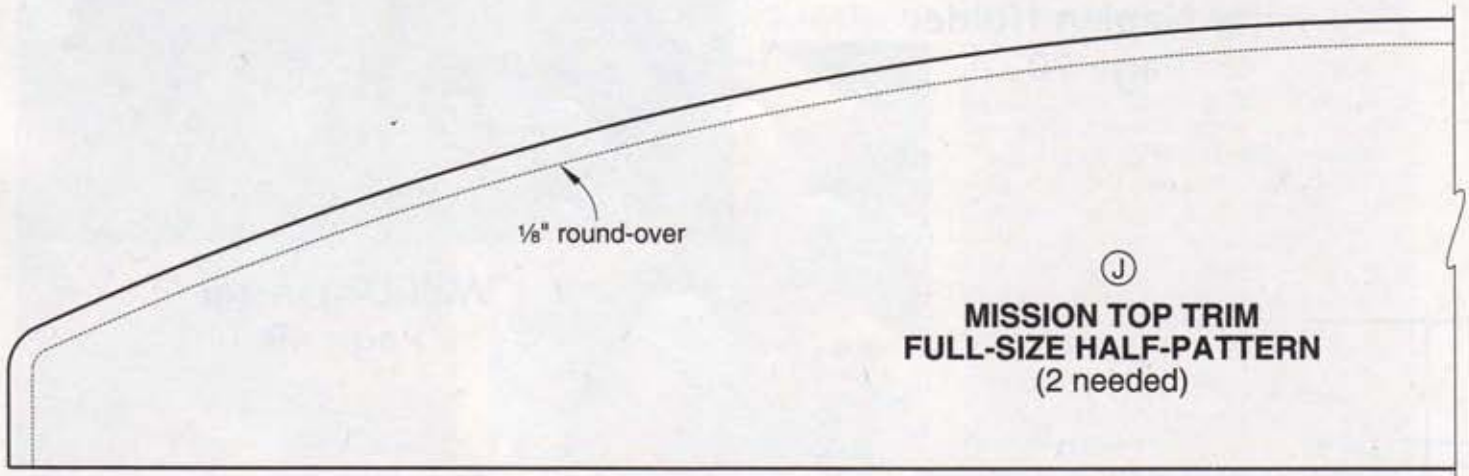
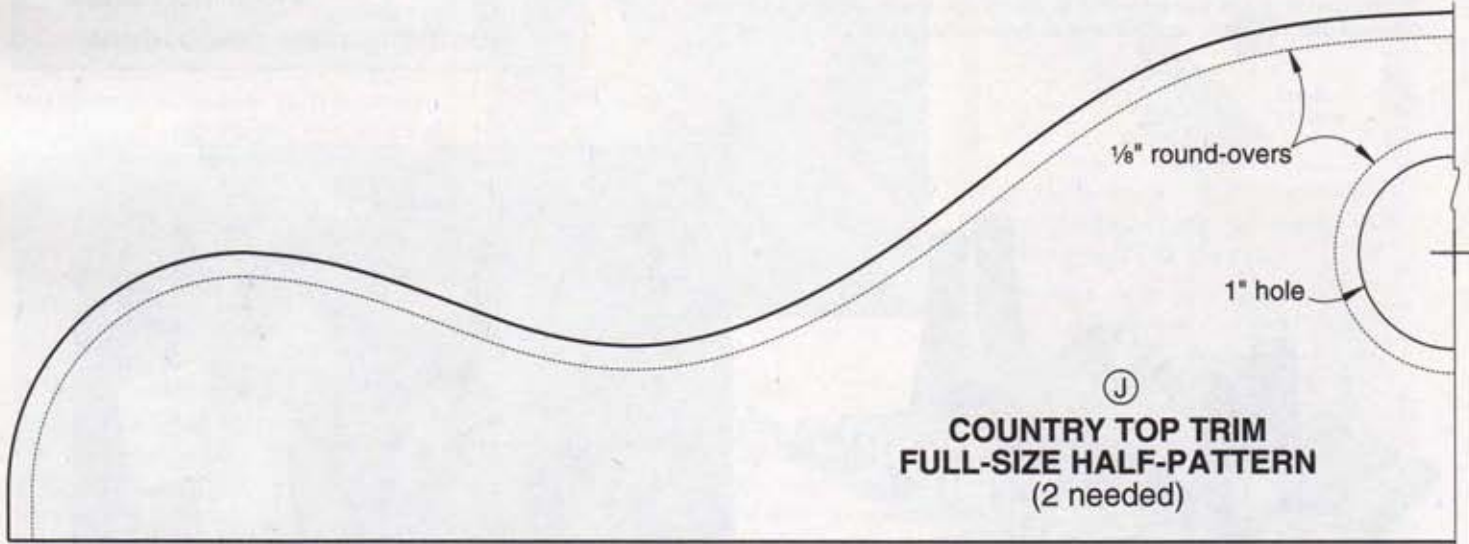
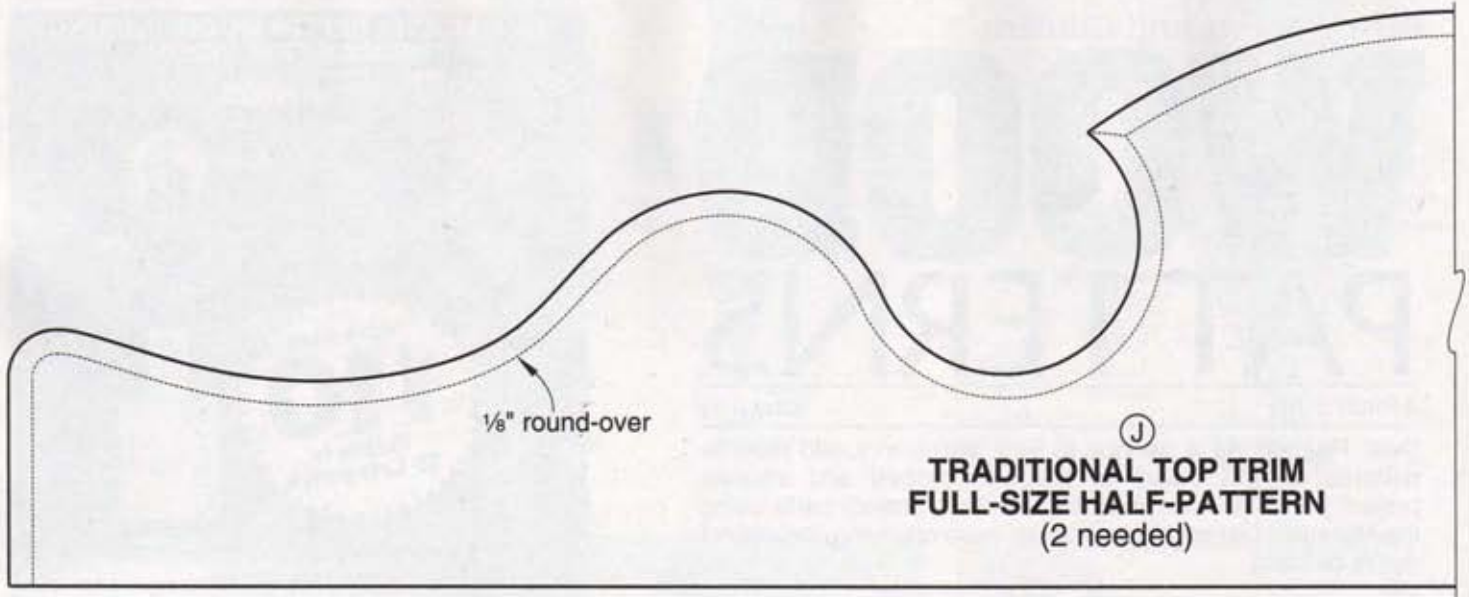


**Nifty Napkin Holder**  
Page 20

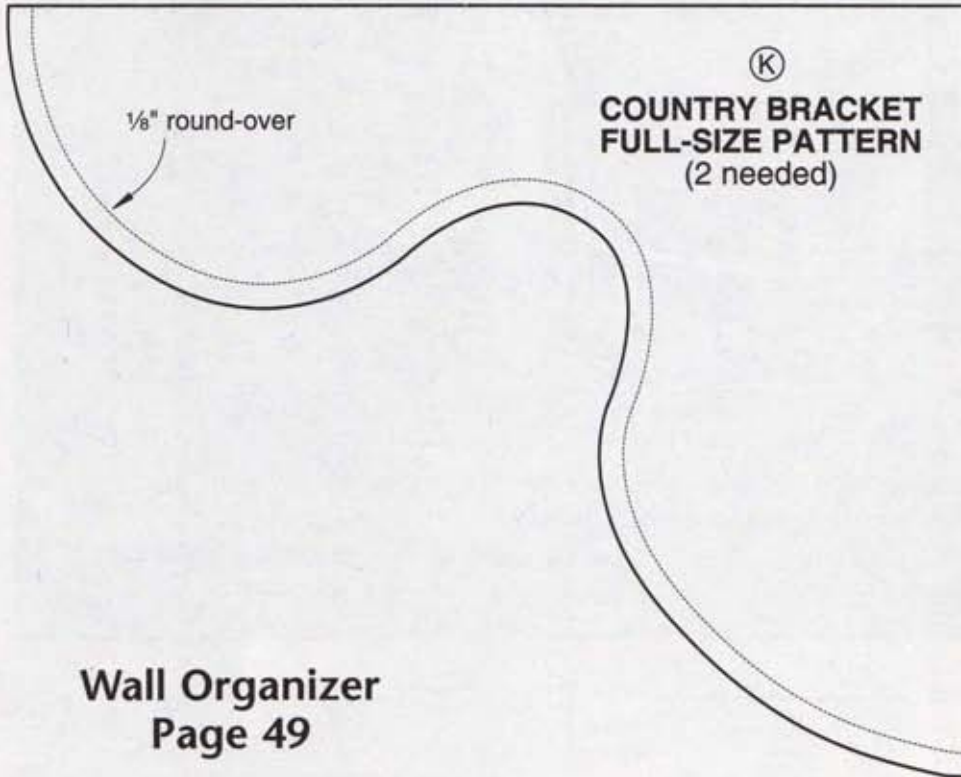
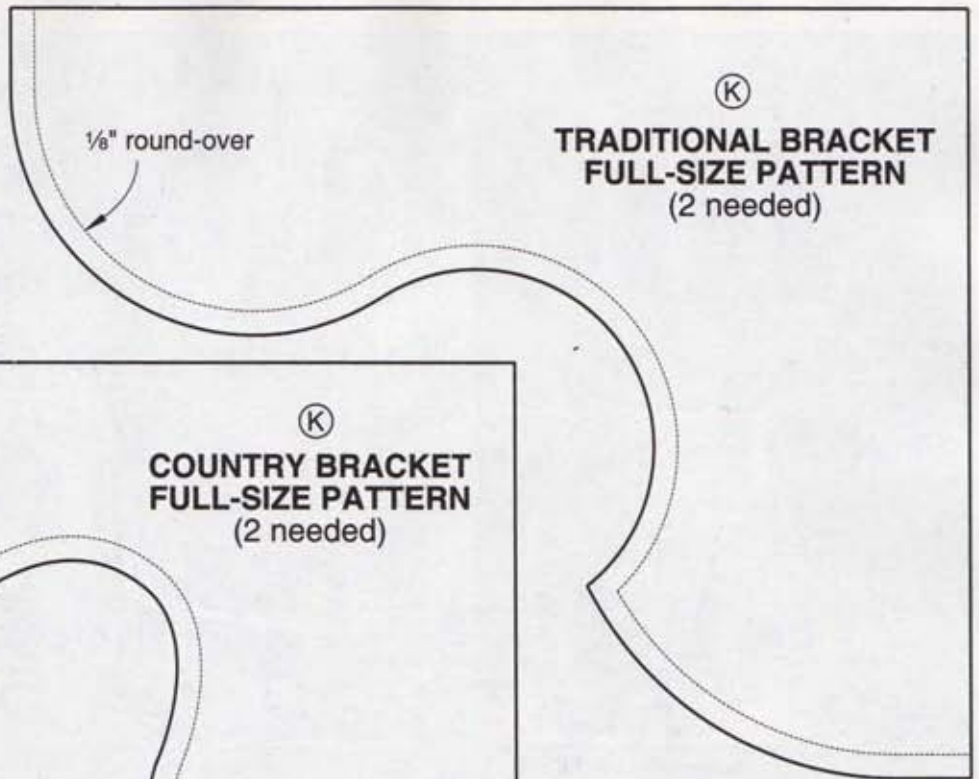


**Wall Organizer**  
Page 49

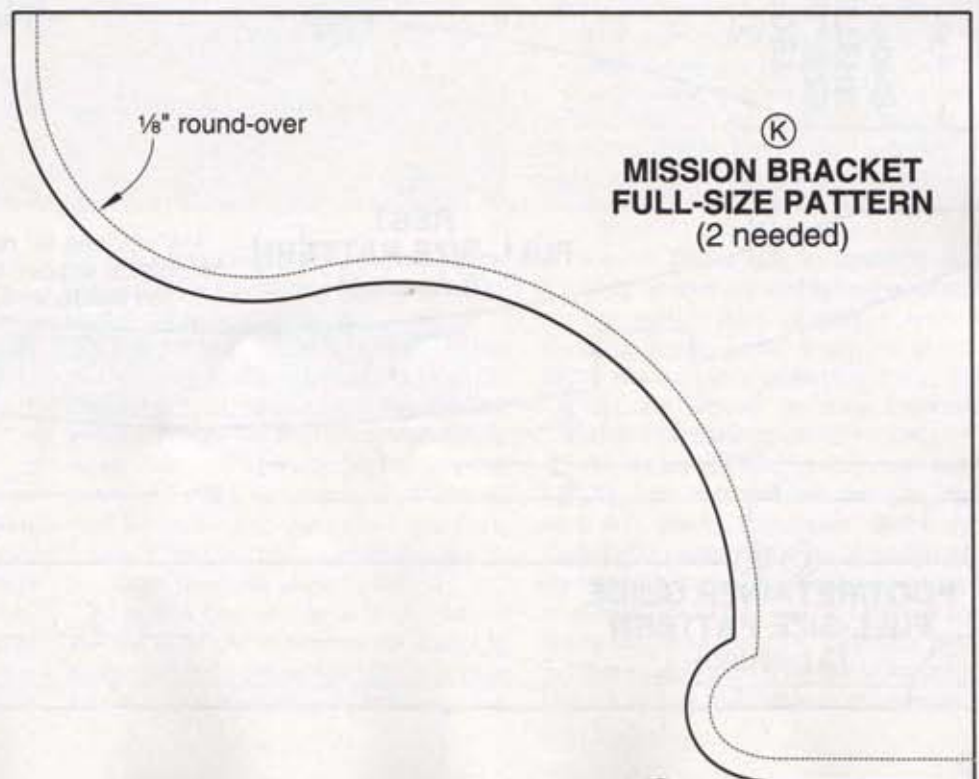








Wall Organizer  
Page 49

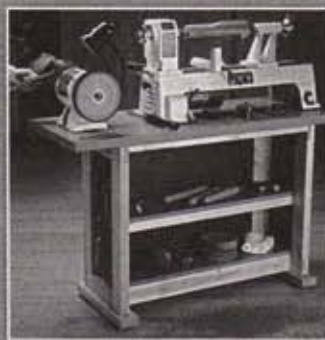


# See more than 1,000 plans

at [woodmagazine.com/plans](http://woodmagazine.com/plans)



Go-Anywhere Tool Caddy  
Plan DP-00426 \$6.95



Simple 'N' Sturdy Tool Stand  
Plan DP-00577 \$4.95



Mobile Sawing & Routing Center  
Plan DP-00271 \$8.95

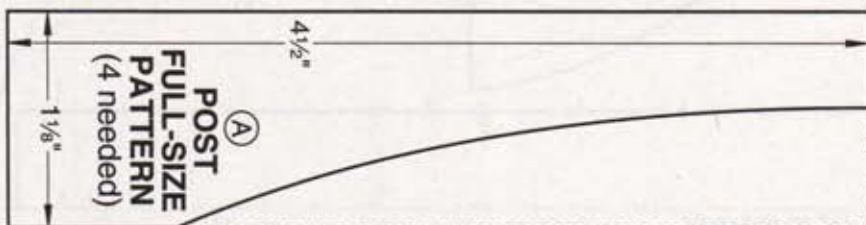
Download any of these woodworking plans for the prices listed, or view a larger image at:

[woodmagazine.com/plans](http://woodmagazine.com/plans)

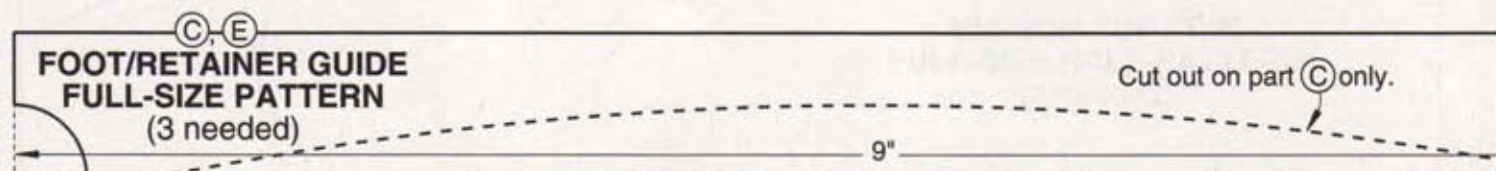
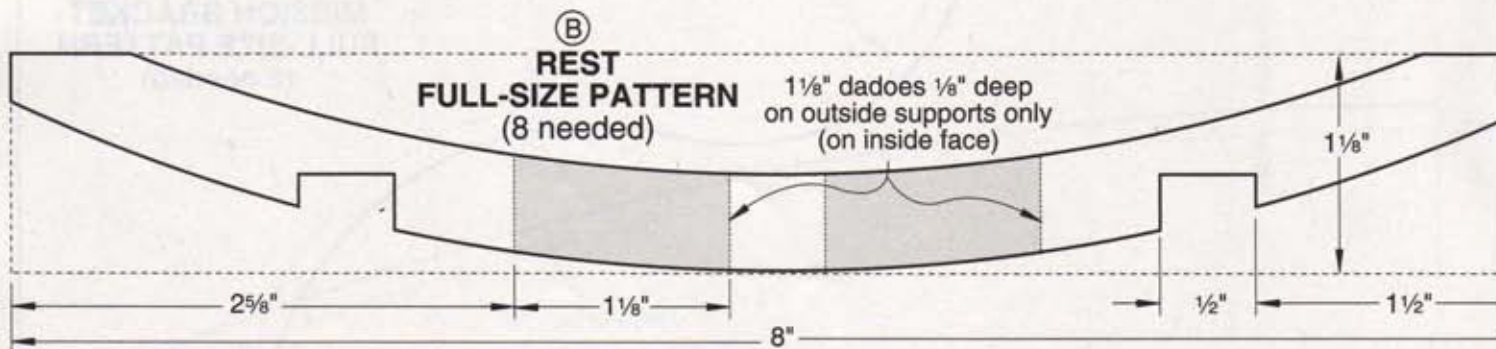
To have paper plans mailed directly to you (add \$3 per plan S+H), call **toll-free: 888-636-4478**.

Please have your credit card available.

WD0309



Nifty Napkin Holder  
Page 20



# Sliding-door Hideaway Wall Organizer



Overall dimensions: 16 $\frac{1}{8}$ " wide x 6 $\frac{1}{16}$ " deep x 19 $\frac{7}{8}$ " high.



Keep your keys, cell phone, and other necessities where you can find them in a hurry.

## AT A GLANCE

■ Materials needed:  $\frac{1}{2}$ " and  $\frac{3}{8}$ " mahogany,  $\frac{1}{4}$ " mahogany plywood. For the country version (see page 52), you could substitute pine; quartersawn white oak or cherry would be appropriate for building the traditional-style organizer (page 52).

**P**lenty of storage behind a sliding bulletin-board door makes this wall-hung organizer practical, while three optional trim styles ensure it will look great in any home. Straight-forward construction seals the deal.

### Construct the case first

**1** Cut the sides (A), case top/bottom (B), and back (C) to size [Materials List, page 53]. Cut blanks for the divider (D), shelves (E), shelf trim (F), hook rails (G), and back support (H) about  $\frac{1}{2}$ " longer than shown. If you can't readily buy  $\frac{3}{8}$ " and  $\frac{1}{2}$ " stock, resaw and plane thicker material. (You can buy an article with

detailed resawing instructions, including plans for a resawing jig, by going to [woodmagazine.com/resaw](http://woodmagazine.com/resaw).)

**2** Cut the groove for the back (C) in the sides (A) and case top and bottom (B) [Drawings 1, 2]. **Quick tip!** Match the groove width to the plywood thickness. Your  $\frac{1}{4}$ " plywood may not be exactly  $\frac{1}{4}$ " thick, so measure its thickness first, and then cut the groove the same width. Place the front edge of the groove  $4\frac{1}{2}$ " from the front of each part.

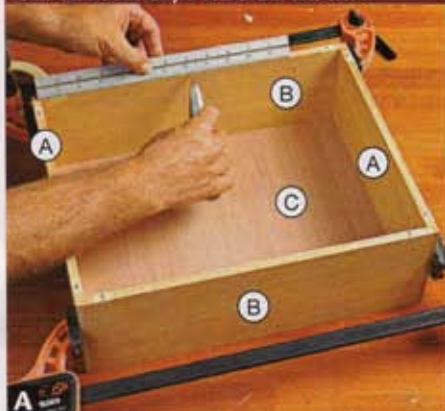
**3** Lay out the rabbets at both ends of the sides (A) to receive the case top and bottom (B) [Drawings 1, 2]. Mark the rabbet width accurately by holding a top

or bottom and a side in position and marking against the inside face of part B on the mating face of part A with a marking knife, crafts knife, or utility knife. Mark all four rabbets.

**4** Cut the rabbets on your tablesaw with a  $\frac{3}{8}$ " dado blade.

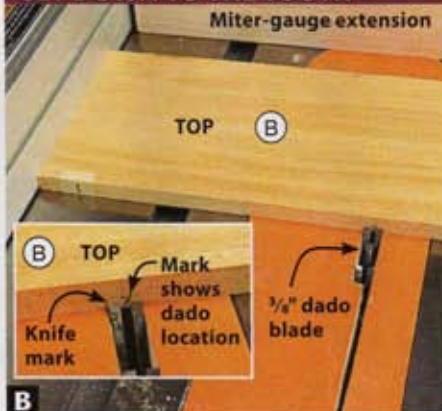
**5** Dry-assemble and clamp the sides (A), case top and bottom (B), and back (C). Check for square. **Quick tip!** Label the corners for easy, accurate assembly. Stick strips of masking tape near the corners on the front edge of the sides, top, and bottom. Number both parts at each corner with the same number. For fitting and final assembly, match

### SLICE A NICE, PRECISE MARK



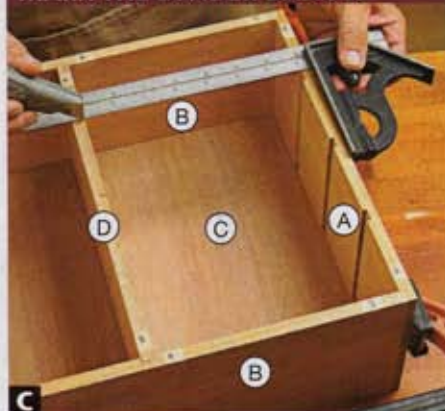
Align the knife point with the measurement on the steel rule, and then press the blade into the wood for a spot-on mark.

### GET DOWN TO THE TOOTH



Align a tooth of the dado blade on the mark (inset), keeping the cut on the correct side. A miter-gauge extension reduces splintering.

### MARK THE DIVIDER DADOES



Align the blade of the combination square with the top of each dado in the sides (A), and mark the locations on the divider (D).

the numbers at each corner to keep the parts in the same relation.

**6** Lay out the dadoes at the middle of the case top and bottom (B) [Drawing 1, Photo A]. You can mark just one side of the dado, but draw an X at the dado location to ensure that you make the cut on the correct side of the mark.

**7** Unclamp the assembly. Then cut the dadoes in the case top and bottom (B) [Photo B].

### Add the divider and shelves

**1** Dry-assemble and clamp the sides (A), case top and bottom (B), and back (C). Check for square.

**2** Cut the divider (D) to fit snugly in the case top and bottom (B) dadoes. The **Skill Builder**, opposite, explains a method for accurately determining the length of the divider. Number the joints, as you did the corners.

**3** Disassemble the case. Then lay out and cut the dadoes on the sides (A), three on the right side and one on the left side [Drawings 1, 2].

**4** Dry-assemble the case (A-D). Check for square. Then, transfer the dado locations from the sides to the divider, using a combination square and marking knife [Photo C]. Disassemble the case. Cut the dadoes in the divider (D) [Drawing 3].

**5** Dry-assemble and clamp the case (A-D). Check for square. Fit the four shelves (E) as you did the divider, and cut them to length. Disassemble the case and finish-sand parts A-E to 220 grit.

**6** Glue the case together in two stages. First, glue and clamp the right side (A), case bottom (B), back (C), divider

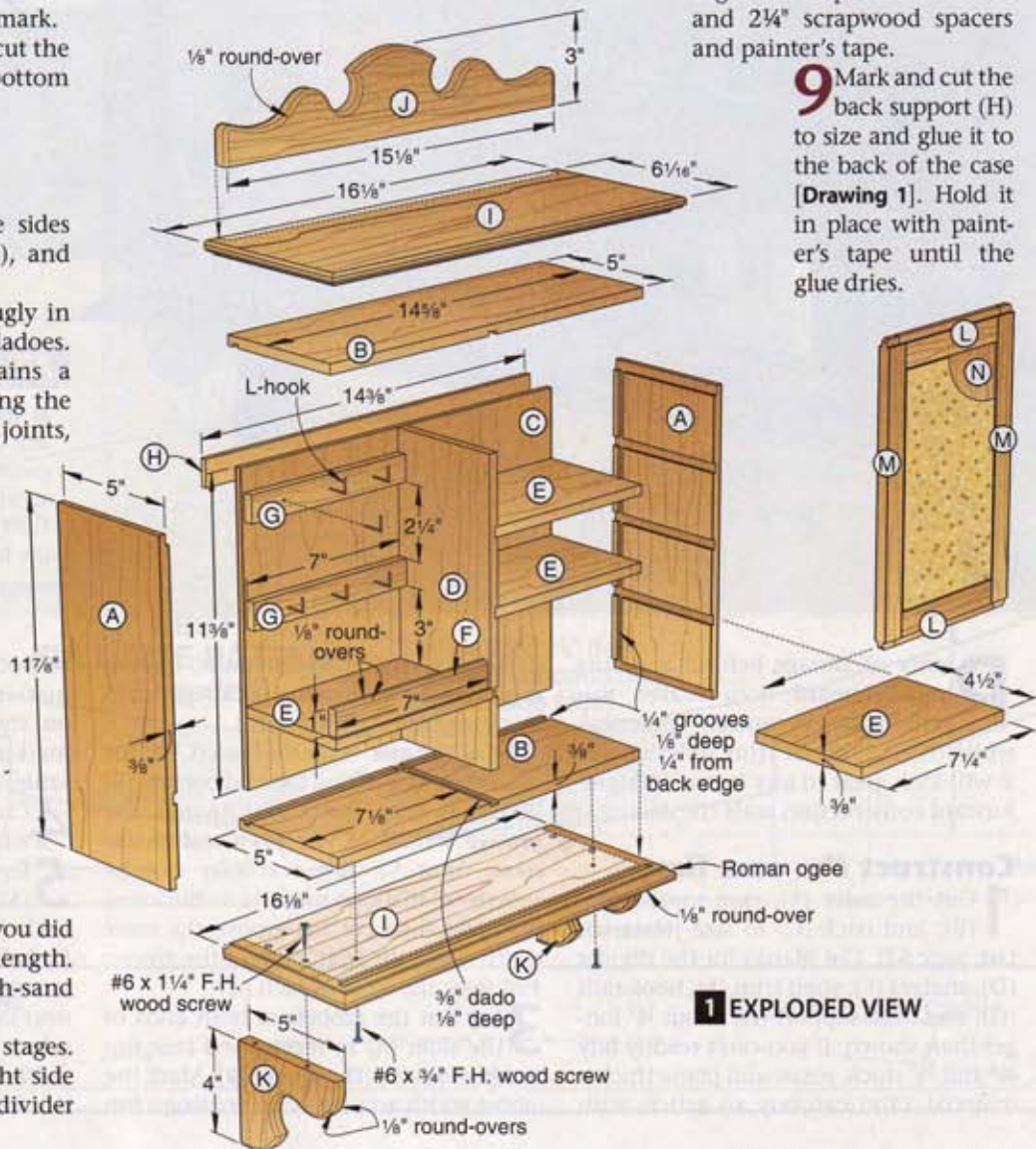
(D), and three right-side shelves (E) [Photo D]. After that assembly dries, add the left shelf, left side, and case top.

**7** With a 1/8" round-over bit in a table-mounted router, round over the top edges of the blank for the shelf trim (F).

Mark and cut to length and sand it to 220 grit. Glue and clamp it to the shelf (E), 1/8" from the edge [Drawing 1].

**8** Mark and cut the hook rails (G) to length, and finish-sand them. Glue them to the back (C) [Drawing 1], holding them in position with 3" and 2 1/4" scrapwood spacers and painter's tape.

**9** Mark and cut the back support (H) to size and glue it to the back of the case [Drawing 1]. Hold it in place with painter's tape until the glue dries.



**1** EXPLODED VIEW

## SKILL BUILDER

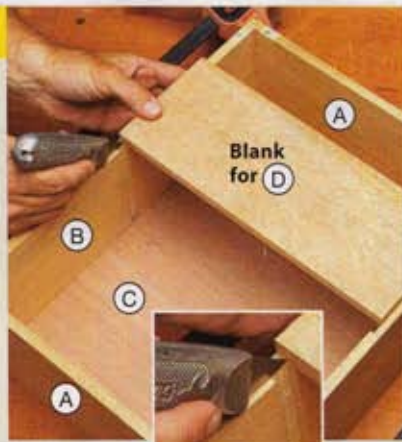
### When precision matters, mark instead of measuring

Cutting a part to size by measuring and marking can achieve a tolerance of  $\frac{1}{16}$ " or, perhaps,  $\frac{1}{32}$ ". But even a  $\frac{1}{32}$ " gap could be glaringly evident on a project the size of this wall organizer.

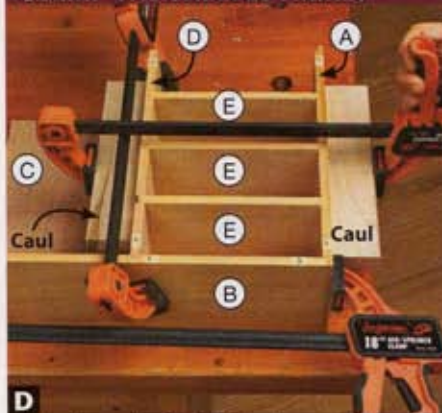
To make sure parts like the divider (D) and shelves (E) fit precisely, lay down your tape measure and pencil and pick up a marking knife, crafts knife, or utility knife with a fresh, sharp blade.

To fit the divider, for example, lay the divider blank on the front edge of the dry-assembled case, aligning one end of the blank with the bottom of the lower dado, as shown. Then, with the knife, mark the other end of the blank at the bottom of the upper dado (inset).

Align the mark with a tooth on the saw blade, as you did for cutting the dados, to cut the part to exact length.



### CLAMP THE SHELVES FIRMLY



When clamping the first subassembly, spread the clamp pressure across the three right-side shelves (E) with scrapwood cauls.

### Put on the top and bottom

**1** Cut the top and bottom (I) and the blanks for the top trim (J) and brackets (K) to size.

**2** Set up your table-mounted router, as shown in Step 1 of **Drawing 4**, to form the sliding-door grooves in the top and bottom [Drawings 1, 5]. Mark stop lines

on the fence  $\frac{5}{8}$ " on each side of the bit centerline [Photo E].

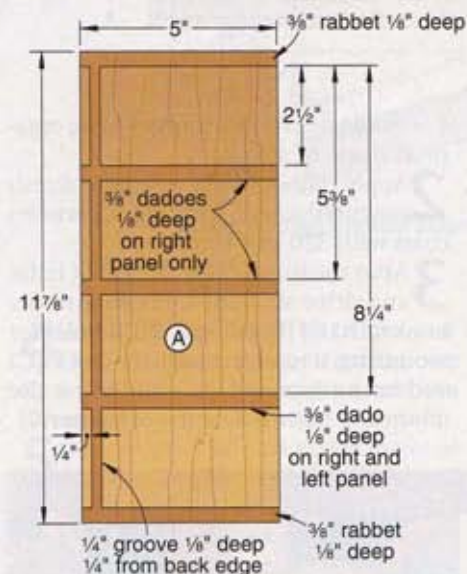
**3** To rout the groove, place the front edge of the bottom (I) against the router-table fence, with the left end raised above the bit and on the mark at the left of the bit [Photo E]. With the router running, lower the part onto the

bit and feed it toward the left until the right end meets the mark at the right of the bit. Then, stop and lift the part straight up. Repeat for the top. Square the ends of the grooves with a chisel.

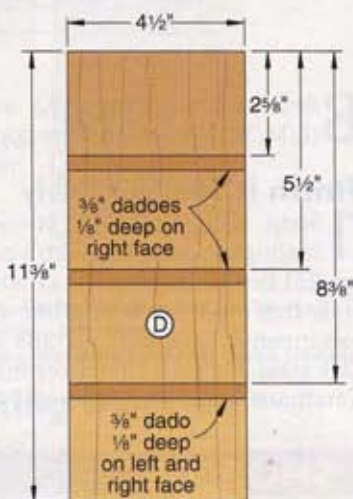
**4** Set up the table-mounted router with a Classic Roman ogee bit, as shown in Step 2 of **Drawing 4**. Rout the profile along the front edge and ends on the grooved side of the top and bottom (I).

**5** Change to a  $\frac{1}{8}$ " round-over bit, as shown in Step 3 of **Drawing 4**. Rout the front edge and ends on the ungrooved side of the top and bottom (I). Keep the set up. Finish-sand the top and bottom.

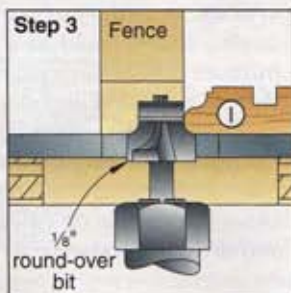
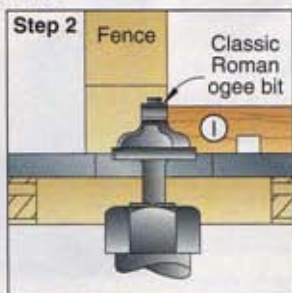
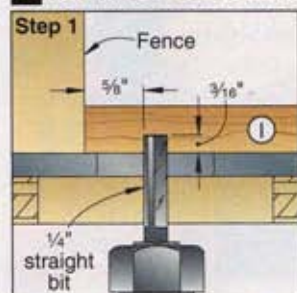
### 2 SIDE (Inside face of right panel shown)



### 3 DIVIDER (Right face shown)



### 4 TOP AND BOTTOM ROUTING



### Give the case some style

**1** Make two copies of the top trim half-pattern and bracket patterns you want to use (**Designer's Notebook**, page 52.) Cut them out with a knife or scissors and adhere them to the blanks for the top trim (J) and brackets (K) with spray adhesive.

**2** Bandsaw the top trim (J) and brackets (K) [Photo F]. Saw slightly outside the pattern lines and sand to the line. Rout a  $\frac{1}{8}$ " round-over along the edges indicated on the patterns. Finish-sand the top trim and brackets.

**3** Glue and clamp the top trim (J) centered on the top (I) [Drawings 1, 5].

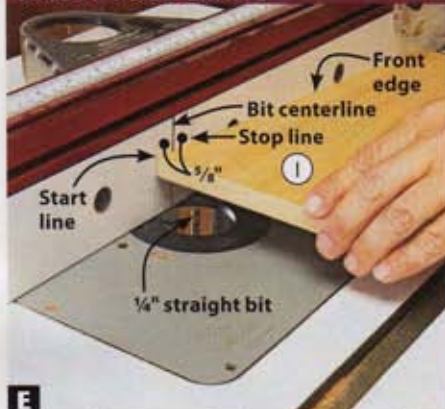
**4** Glue and screw the bottom brackets (K) to the bottom (I) [Drawings 1, 5]. (We added screws to the bottom brackets because they are glued on the end grain. See the **Shop Tip**, page 52. For #6 screws, drill  $\frac{3}{32}$ " pilot holes,  $\frac{3}{64}$ " in pine.)

**5** Glue and clamp the top (I/J) to the top of the case (A-H), flush at the back and centered side-to-side [Drawing 1].

### Slide over to the door

**1** Cut the door rails (L), stiles (M), and panel (N) to size.

## KNOW YOUR LIMITS



**E**

To stop the grooves  $\frac{1}{2}$ " from each end of the top and bottom (I), mark the fence  $\frac{5}{8}$ " from the bit centerline on each side.

**2** Center a  $\frac{1}{4}$ "-deep groove the same width as the thickness of the panel (N) on one edge of each rail (L) and stile (M) [Drawings 6, 6a].

**3** Rabbet the ends of the rails (L) to form stub tenons that fit into the grooves in the stiles (M) [Photo G, Drawings 6, 6a]. **Quick tip! Adjust rabbet depth to make the tenon fit.** If the grooves in your rails (L) and stiles (M) are narrower than  $\frac{1}{4}$ " because your plywood panel (N) is thinner than  $\frac{1}{4}$ ", the  $\frac{1}{8}$ " rabbet depth shown will result in a tenon too thick to fit into the groove. Raise the blade slightly and recut the rabbets to fit the tenons to the grooves.

**4** Glue and clamp the rails (L), stiles (M), and panel (N) [Drawing 6]. Check the door for square.

**5** To fit the door (L/M/N), measure the assembled door and cut a piece of  $\frac{1}{2}$ " MDF or plywood the same size to use as a test panel. Cut  $\frac{1}{4}$ " rabbets  $\frac{1}{8}$ " deep on both sides at both ends of the test panel. Fit one end of the test panel into the door groove in the top (I), and then clamp the bottom (I/K) to the case assembly (A-J), trapping the panel in the top and bottom grooves [Photo H]. The test panel should slide smoothly and have an equal reveal at the top and bottom, about  $\frac{1}{16}$ ". If not, adjust the rabbets as necessary.

**6** Cut rabbets on the door (L/M/N), matching those on your test panel. Sand chamfers on the sliding tenons [Drawing 6]. Temporarily install the door as you did the test panel and test it.

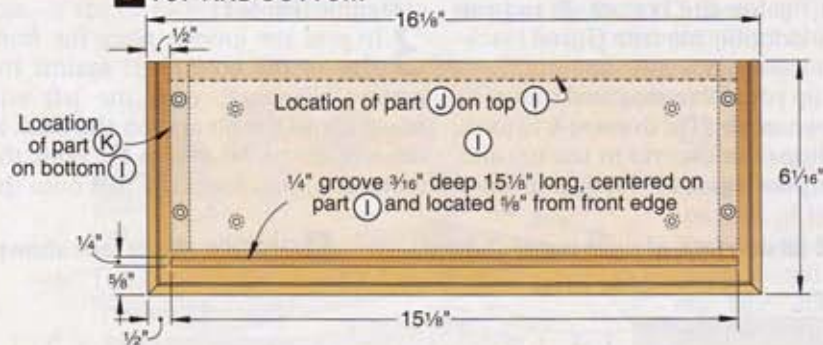
**7** Attach the bottom (I/K) to the case (A-J), trapping the door in the grooves. Screw, but do not glue, the bottom in place [Drawing 1]. When you drill pilot holes, put a stop collar or piece of masking tape on your drill bit to mark the depth so you won't drill through.

## DESIGNER'S NOTEBOOK



By selecting different trim or material options you can build your cabinet to match any of three styles. The opening photo on page 49 shows the classic version in mahogany. You can also choose traditional (above left) or country style (above right). See finishing options for the different versions below.

### 5 TOP AND BOTTOM



**8** Remove the bottom (I/K) and door (L/M/N). Finish-sand the door.

### Finish it for assembly

**1** Stain all parts. (We stained the mahogany organizer with Varathane no. 251 Red Mahogany. For a traditional-style organizer made of white oak, we recommend Varathane no. 263 Mission Oak stain. Or, for a cherry organizer, try Varathane no. 245 Traditional Cherry.

We would not stain a country-style organizer made of pine.)

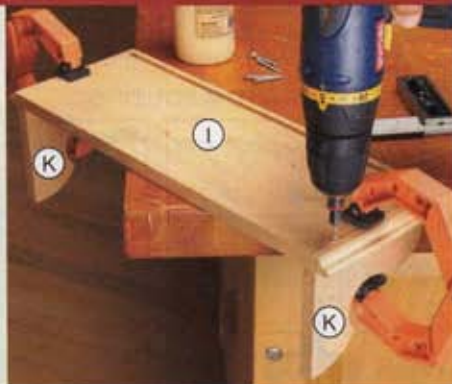
**2** Apply three coats of satin-finish polyurethane, sanding between coats with 320-grit abrasive.

**3** After the finish dries, drill pilot holes and drive six brass L-hooks into the hook rails (G) [Drawing 1]. Drill holes for mounting screws through the back (C) and back support (H). Countersink the mounting holes inside the organizer.

## SHOP TIP

### Drive screws after the glue dries

Trying to hold a just-glued bracket (K) in place while drilling pilot holes and driving screws could be a mightily frustrating task. Save yourself the trouble by gluing and clamping the brackets to the bottom (I), and then letting the glue dry before drilling the holes and driving the screws (right). Leave the clamps on while you drill and drive the screws.

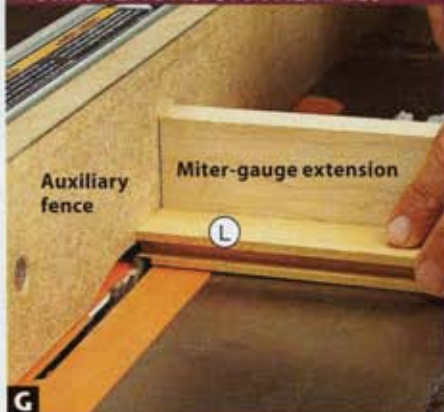


### CUT YOURSELF SOME SLACK



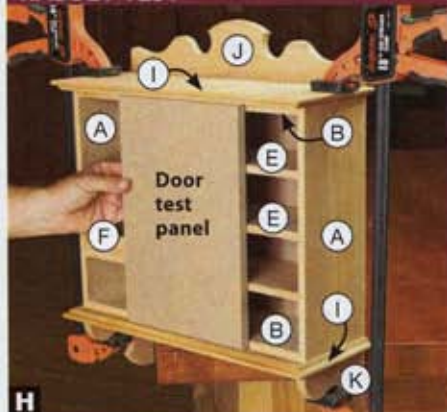
**F** Cut away the large waste, and then make relief cuts into tight curves to bandsaw the top trim and brackets more easily.

### FORM TENONS ON THE RAILS

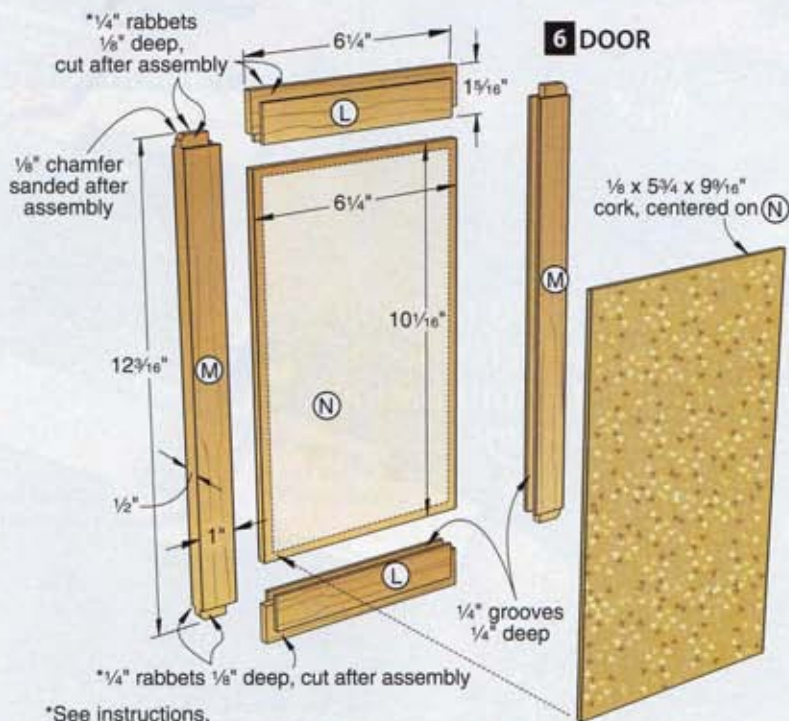


**G** Set the tablesaw fence as a stop for the tenon length and use a miter-gauge extension to minimize tear-out on the door rails (L).

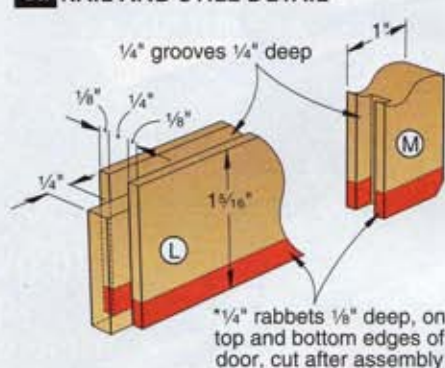
### RABBET TEST



**H** Before rabbeting the door (L/M/N), make a test panel to ensure the tenons will fit the grooves correctly.



### 6a RAIL AND STILE DETAIL



### Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A sides	3/8"	5"	11 7/8"	M	2
B case top/bottom	3/8"	5"	14 5/8"	M	2
C back	1/4"	14 3/8"	11 3/8"	MP	1
D* divider	3/8"	4 1/2"	11 3/8"	M	1
E* shelves	3/8"	4 1/2"	7 1/4"	M	4
F* shelf trim	3/8"	1"	7"	M	2
G* hook rails	3/8"	1"	7"	M	2
H* back support	1/4"	1"	14 3/8"	M	1
I top/bottom	1/2"	6 1/16"	16 1/8"	M	2
J top trim	1/2"	3"	15 1/8"	M	1
K brackets	1/2"	5"	4"	M	2
L door rails	1/2"	15 1/8"	6 1/4"	M	2
M door stiles	1/2"	1"	12 3/16"	M	2
N door panel	1/4"	6 1/4"	10 1/16"	MP	1

\*Parts initially cut oversize. See instructions.

**Materials key:** M—mahogany, MP—mahogany or lauan plywood.

**Supplies:** Spray adhesive, #6x3/4" and 1/4" flathead wood screws, size 112 brass L-hooks (6).

**Blade and bits:** Dado set, 1/8" round-over, 1/4" straight, and Freud 38-402 Classic Roman ogee router bits.

### Source

**Cork:** Adhesive-backed cork gasket, 1/8x12x36" sheet, part no. 9487K53, \$7.21 plus shipping. McMaster-Carr, 630-600-3600 or mcmaster.com.

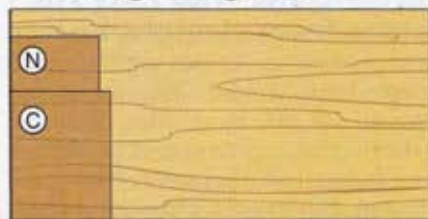
**4** Screw the bottom (I/K) to the case (A-J) (without glue), trapping the door (L/M/N) in the sliding grooves [Drawing 1].

**5** Cut a piece of 1/8" cork gasket material to fit the recess on the door and attach it to the door [Drawing 6]. (We used cork with an adhesive backing.)

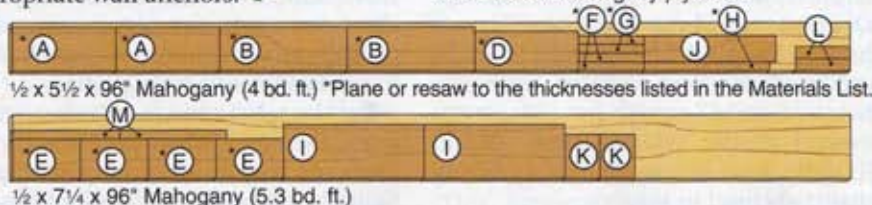
**6** Hang the organizer in the entry hall or near the door you use most often with screws driven through the back (C) and back support (H) into wall studs or appropriate wall anchors.

Written by **Larry Johnston** with **Jeff Mertz**  
Project design: **Jeff Mertz**  
Illustrations: **Roxanne LeMoine; Lorna Johnson**

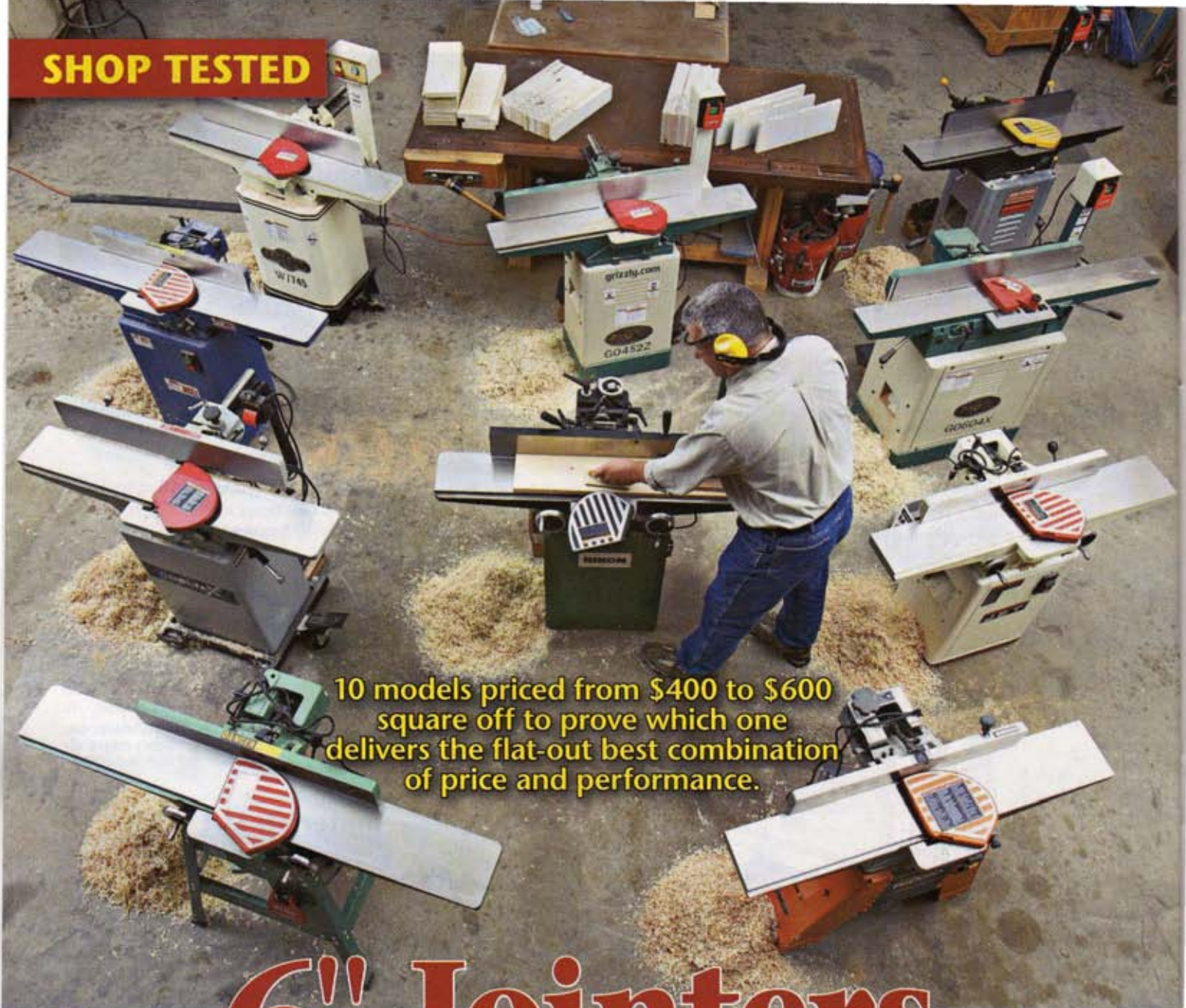
### Cutting Diagram



1/4 x 24 x 48" Mahogany plywood



SHOP TESTED



10 models priced from \$400 to \$600 square off to prove which one delivers the flat-out best combination of price and performance.

# 6" Jointers

Some woodworkers consider a jointer a luxury. Rather, we call any machine that flattens faces and squares the edges of rough, warped, or oversize lumber a godsend. Sure, you can buy larger—and more expensive—jointers, but a machine that face-joints 6"-wide stock will satisfy most of us. With user-friendly options galore in this class, from long tables to spiral cutterheads to built-in mobile bases to power switches mounted on pedestals, buying a jointer can be more rewarding—and confusing—than ever before. Read on as we test and sort out this popular category of jointers.

## Cutterheads: The best cut comes from straight knives

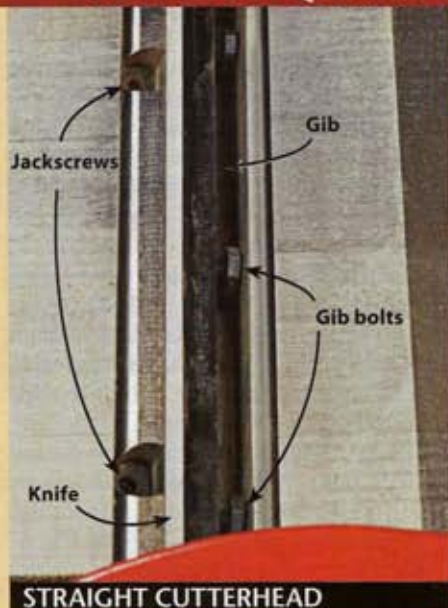
In our testing, those jointers with straight-knife cutterheads, as shown *opposite, top left*, most often delivered perfectly flat, unblemished workpiece faces and edges. Granted, faster feed rates left scallop marks, but these virtually disappeared with slower feed speeds. Of all the tested machines, the General International 80-075L and Jet JJ-6CSX produced the best surfaces, with the Grizzly G0604X (which has four knives instead of the typical three), Ridgid JP0610, and Rikon 20-110 finishing slightly behind in this test.

Sunhill's SM-150 uses thin high-speed-steel knives that conform to grooves in a helical head, as shown *opposite, top right*. But these knives produce shallow grooves down the length of the workpiece rather than a consistently flat surface. And the carbide cutters on Grizzly's G0452Z created a similar pattern. Both of these surfaces required about twice as much planing, scraping, or sanding (compared to straight knives) to remove the linear striations.

But the spiral carbide cutterhead blew away the field when we face-jointed bird's-eye maple. Although this highly figured wood proves difficult to dimen-



# SURFACE QUALITY DEPENDS ON THE TYPE OF CUTTERHEAD



**STRAIGHT CUTTERHEAD**



**SPIRAL CUTTERHEAD**

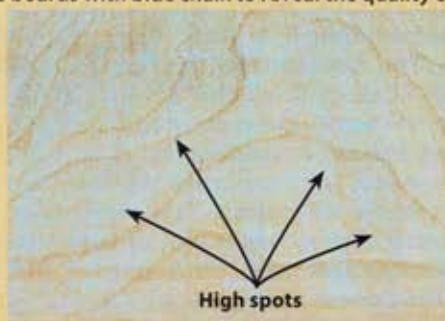


**HELICAL CUTTERHEAD**

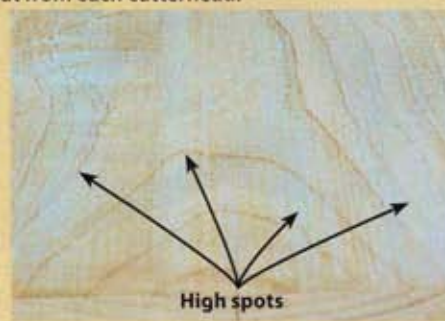
We rubbed the test sample boards with blue chalk to reveal the quality of cut from each cutterhead.



We got a smooth, consistent wood surface from the four straight knives on the Grizzly G0604X cutterhead.



The slightly arced carbide cutters on the Grizzly G0452Z leave linear grooves separated by high spots.



Sunhill's helical cutterhead with flexible knives produced broad grooves separated by high spots.

sion without tearing out the attractive grain and features, the carbide cutters of the Grizzly G0452Z sheared the wood cleanly for a stellar finished surface. The remaining jointers showed at least  $\frac{1}{32}$ "-deep tear-out.

Cut quality aside, the Grizzly G0452Z and Sunhill feature the quickest knife changes in our test. With four cutting edges each, Grizzly's 32 square carbide cutters can be rotated 90° when they become dull. And if you get a nick in one spot, you need to rotate only the nicked cutters to regain a clean cut. The Sunhill single-edge disposable knives self-index with six bolts (similar to benchtop planers), so there's no fuss over setting them to the correct height.

The remaining jointers use the traditional system of jackscrews to adjust the knife height and gibs with bolts to hold the knives in place on the cutterhead. Oddly, only three models come with the specialized knife-setting tool required to accurately set the knives at identical, parallel heights. Changing these knives

can take nearly twice as long as the other two styles if all goes well.

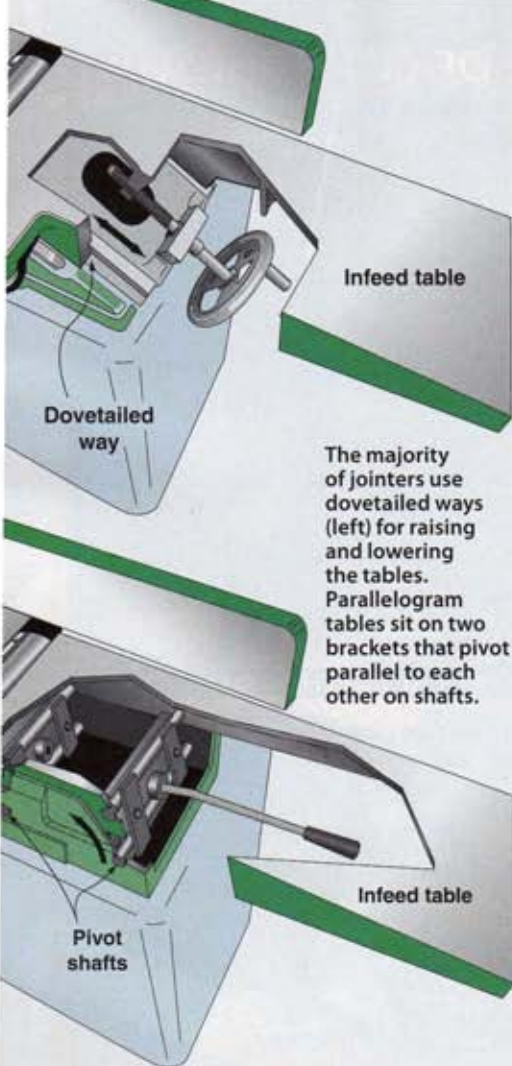
To test the durability of the knives on each machine, we edge-jointed  $\frac{3}{4}$ "-thick, 2'-long medium-density fiberboard (MDF)—typically not a good idea because its high glue content quickly wears down cutting edges. After 30 to 40 passes, all of the high-speed-steel knives began to show wear. But Grizzly's carbide cutters showed no dulling even after 120 passes. Now multiply that by four edges per cutter, and you might go years before replacing the cutters in this machine.

## Some cutterheads need more power than others

In the days when all jointers used straight-knife cutterheads, motor ratings proved a reliable measure of cutting power. No longer: You also have to factor in the cutterhead because spiral models with carbide cutters require greater oomph to power through cuts. (This happens because two to three

cutters are always in contact with the wood; straight knives have intervals—albeit split-second ones—between knife cuts.) For example, four machines with 1-hp-rated motors (General International, Jet, Ridgid, and Sunhill) held their own against two of the leading machines with 1½-hp motors, and all six single-horse models topped Grizzly's 1½-hp G0452Z with the spiral carbide cutterhead.

For a practical test of each jointer's power, we made  $\frac{1}{16}$ "-deep cuts in 6"-wide hard maple, measuring amp draw as the motors responded to the workload. Only the Grizzly G0452Z offered resistance that required a slower feed rate. Next, we made  $\frac{1}{8}$ "-deep cuts, and all but three models handled the cut with little to no problem: We were able to bog down both the Delta 37-275X and Grizzly G0452Z, and the Shop Fox W1745 wanted to kick the workpiece from our hands rather than make the cut. Slowing the feed rate by about half solved these problems for the Delta and Shop



Infeed table

Dovetailed way

The majority of jointers use dovetailed ways (left) for raising and lowering the tables. Parallelogram tables sit on two brackets that pivot parallel to each other on shafts.

Infeed table

Pivot shafts

Fox, but the Grizzly continued to struggle with that deep cut.

Ultimately, it becomes a question of which matters most to you: cut quality or time. With a jointer you can compensate for a lack of power with shallow cuts and slower feed rates. But you can't compensate for average to poor cut quality; all you can do is smooth it afterward with other tools.

## A flat bed and fence are crucial; a long bed is a plus

To create flat surfaces on hardwood and softwood, a jointer must have dead-flat tables that are parallel with the knives (front to back). We checked each model's infeed and outfeed tables (together they're called beds) with a straightedge and feeler gauges, and found all within .0025" of perfectly flat. So, no problems there.

Setting the height of these tables proves critical, especially on the outfeed end. For that reason, we prefer a handwheel on the outfeed table for its ability to make finer adjustments. An outfeed table set lower than the knives results in snipe, a scooped cut on the last inch or two of the workpiece. Levers and handwheels work equally as well on the infeed table, where adjustments determine the depth of cut.

The beds on all but the Grizzly G0604X glide up and down on dovetailed ways, shown at *top left*. The Grizzly features a parallelogram movement, shown at *left*. We like the parallelogram style for its smooth, fluid movement, but it typically adds cost or comes on jointers that have other features that also drive up the price.

If you work often with 6' or longer stock, and have room in your shop, buy a jointer with a long bed. This enables you to work more accurately and safely with longer boards. The beds on the General International, Grizzly G0604X, and Sunhill measure 56" long, besting the other models by 10". That allows you to easily work with boards 2' longer than you could with short-bed models.

Greater length also comes in handy with fences. The tested models measured

between 29" and 35" long. The "worst" three fences measured about .006" out of flat (bowing away from the cutterhead), but again it was no problem. (A fence more than .010" out of flat would need to be machined, if possible, to straighten it.)

The fences on four jointers (Delta, Grizzly G0452Z, Rikon, and Shop Fox) glide effortlessly front to back thanks to rack-and-pinion gears, shown *below left*. The others require a little muscle to slide on a molded keyway, shown *below right*. All proved accurate, but rack-and-pinion makes adjustments easier. However, rack-and-pinion fences make the jointer 3–6" deeper to accommodate the gear.

Each fence tilts at least 45° both sides of perpendicular to the bed, with adjustable stops for 45°, 90°, and 135°. Only the Craftsman and Rikon proved difficult to set consistently at 45° and 135°. The Craftsman's stops had a sloppy fit, and with Rikon's rack-and-pinion crank it was easy to overtighten the fence against the stop because the mating angles don't match perfectly.

## More features to help you decide on a jointer

■ **Power switch.** We like the pedestal-mounted switches on the Craftsman 21705, Delta, both Grizzly models, Rikon, and Shop Fox. They're easier to reach than those mounted at knee level on the cabinets. Bonus points go to the Craftsman, General International, and both Grizzly machines for their large paddle-style "off" switches.

■ **Safety guards.** All the machines have similar cutterhead guards except the Grizzly G0604X. This model's design slightly impedes face-jointing a 6"-wide

### A TALE OF TWO FENCES: RACK-AND-PINION TYPES ADJUST WITH GREATER EASE



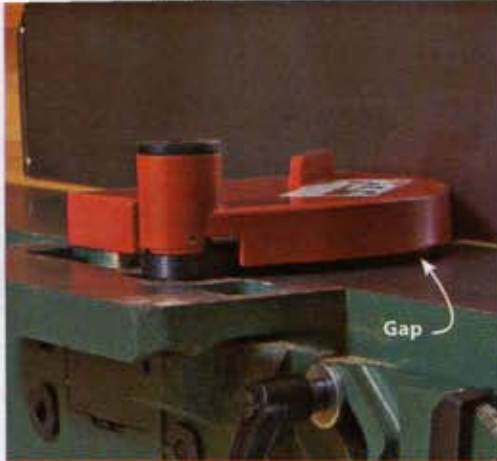
You turn a handwheel to move a rack-and-pinion fence. Rikon's model also has a rack-and-pinion adjustment for tilting the fence.



Jet's fence slides front to back manually, using a keyway slot to keep it aligned with the jointer bed.

board. However, this guard better engages thinner stock (shown at right), whereas the others allow 1/2"-thick boards to slide underneath.

■ **Mobility.** Because these machines weigh 200 lbs or more, built-in mobile bases on the Grizzly and Shop Fox models come in handy when you need to move them. Adding an aftermarket mobile base adds \$50 or more to the price of other jointers.



#### THIN-STOCK USERS BEWARE OF SAFETY-GUARD GAPS

The Grizzly G0604X's guard (left) features a 1/4" gap from the bed, while the other models have a gap just over 1/2".

## The straight (and spiral) lowdown on 6" jointers

### Craftsman 21705, \$580

800-383-4814, [craftsman.com](http://craftsman.com)

The infeed table features a lever adjustment and easy-to-read depth scale, but the outfeed table's hand-wheel showed 1/8 turn of backlash (play in the threads without table movement when changing directions), making precise adjustments difficult. The fence tilt adjustment also proved unreliable, and this jointer was the loudest of the test at 101 decibels. It took us nearly three hours to assemble, longest in the test. There's a built-in shelf to hold the push pads.



### Delta 37-275X, \$600

800-223-7278, [deltaportercable.com](http://deltaportercable.com)

One of two models in the test with a perfectly flat fence and bed, its 46 1/4"-long bed is almost matched by its 35"-long rack-and-pinion fence. You must bypass the lever-operated infeed table's depth stop for cuts deeper than 1/32", and the depth scale proved difficult to use accurately. We stalled its cutterhead easily with a 1/8"-deep cut, and the cut quality lacks the crisp cleanness of the leaders.



### General International 80-075L M1, \$600

888-949-1161, [general.ca](http://general.ca)

The legs on this model's open stand have enough angle to give it a solid feel, and it's still one of the quietest in the test. There's a lot to like about this jointer: one of the most powerful machines in the test; long tables; easy-to-adjust, front-mounted handwheels; exceptional cut quality; and a large "off" switch (although we'd prefer that it were mounted on a pedestal).



### Grizzly G0604X, \$575

800-523-4777, [grizzly.com](http://grizzly.com)

This unit has nearly everything we like in a jointer: Long bed and fence, pedestal-mounted switch with large "off" paddle, easy-to-adjust parallelogram tables with locks on the front, and a built-in mobile base. Add to that plenty of power and a four-knife cutterhead that delivers a quality finish. Our only gripes are a cutterhead guard that pinches against boards on 6"-wide cuts, a depth scale with confusing increments (five marks between zero and 1/2" rather than four or eight), and a dust chute that clogs easily.



### Grizzly G0452Z, \$575

800-523-4777, [grizzly.com](http://grizzly.com)

This is one of two models with a perfectly flat bed and fence. The spiral cutterhead proved both a blessing and a curse. Its durable carbide cutters performed exceptionally on figured wood, might last for years, and create small chips—even when face-jointing—which won't clog a dust chute. But its cutterhead bogs down easily in cuts 1/16" or deeper, and jointed surfaces require additional smoothing.



### Jet JJ-6CSX, \$600

800-274-6848, [jettools.com](http://jettools.com)

It took only 23 minutes to assemble this no-frills jointer. The cut quality was among the best, in spite of a slight power drop-off when making deep cuts. Its front-mounted handwheels showed no backlash and proved accurate and easy to use. We'd prefer a longer bed and a pedestal-mounted power switch.



## Ridgid JP0610, \$430

866-539-1710, [ridgid.com](http://ridgid.com)

This model shows surprising power and produces good cuts that need little cleanup. The depth scale proves the easiest to read and use, but the tiny table locks on the rear of the machine are tough to use. The large rubber-coated knob on the fence makes lateral adjustments easy, but we banged our knuckles on it when edge-jointing stock.



You can't buy this jointer; it's a photo montage of our favorite components from various machines.

## Rikon 20-110, \$575

877-884-5167, [rikontools.com](http://rikontools.com)

This model's power tops the test, and it has two speed settings. (We got cleaner cuts with the faster one.) We also like its turnbuckle-style belt tensioner above the other models for quick, easy adjustments. Front-mounted handwheels make table adjustments easy, and the pedestal power switch can be located on either end of the machine. The fence has rack-and-pinion adjustments for both lateral movement and tilting, but it's confusing and seems overengineered.



## Shop Fox W1745, \$530

800-840-8420, [shopfox.biz](http://shopfox.biz)

With a long, tall fence with two handles, pedestal-mounted power switch, smooth fence and table adjustments, and a built-in mobile base, you'd think this jointer has it all. But it lacks power, and we had to force the fence to its back-most position to get a full 6"-wide cut. Jointed surfaces also require more sanding than most others.



## Sunhill SM-150, \$550

800-929-4321, [sunhillmachinery.com](http://sunhillmachinery.com)

In spite of a long bed, the fence is one of the shortest in both length and height. The SM-150 has ample power, and knife changes proved quick and easy, but those flexible knives produced linear grooves that would show under a finish if not sanded out. Its fence was the most out-of-flat, although still acceptable.



## 6" JOINTERS: WHEN

BRAND	MODEL	RATED HORSEPOWER	CUTTERHEAD			OVERALL DIMENSIONS HxLxD, INCHES
			DESIGN (1)	MAX. WIDTH OF CUT, INCHES	SPEED, RPM	
CRAFTSMAN	21705	1½	3	6½	4,800	52x46x22
DELTA	37-275X	1	3	6½	4,800	48x46¼x28
GENERAL INTERNATIONAL	80-075L	1	3	6	4,800	38x56x20
GRIZZLY	G0604X	1½	4	6	4,850	48x55½x22
	G0452Z	1½	C	6	4,800	48x46¼x28
JET	JJ-6CSX	1	3	6½	4,800	36x45¼x20
RIDGID	JP0610	1	3	6½	3,450	36x45¼x20
RIKON	20-110	1½	3	6	4,500 / 5,500	51x46x23
SHOP FOX	W1745	1	3	6	4,800	50x46¼x28
SUNHILL	SM-150	1	H	6	6,000	39x56x20½

- (3) Three high-speed-steel straight knives  
(4) Four high-speed-steel straight knives  
(C) Carbide inserts in spiral configuration  
(H) Helical high-speed-steel knives
- (K) Keyway slide  
(R) Rack-and-pinion gear
- (F) Front-mounted handwheel  
(L) Lever  
(S) Side-mounted handwheel

## Here's where we'd spend our money

Truth is, no jointer in this test fulfills our "dream list" of features and performance. So let's shop a la carte for a minute and build a fantasy 6" jointer. Here's what we want in our "Frankenjointer":

- The pedestal power switch and built-in mobile base of the Grizzly G0604X;
- The long bed and superb cut quality of the General International;
- The long, tall, rack-and-pinion fence of the Delta;
- The precise handwheels of the Jet;
- The power and belt-tensioning system of the Rikon;
- The Ridgid's depth scale;

- The durability and changing ease of the Grizzly G0452's carbide cutters;
- And the quiet performance of the Sunhill.

Because no manufacturer delivers all that within this price range, our pick for Top Tool is the Grizzly G0604X. It wasn't the best at everything, but it has the best combination of cut quality, power, and ease-of-use features, with a reasonable price.

The Ridgid JP0610 surprised us with its power and cut quality, earning the Top Value award. For a modest \$430 we can live with its few quirks. 🌲

Written by **Bob Hunter** with **Bob Baker**  
Illustrations: **Tim Cahill**

## THE CHIPS ARE DOWN, YOUR BOARDS ARE FLAT AND SQUARE

TABLES		FENCE				TABLE ADJUSTMENT (3)		PERFORMANCE RATINGS (5)								ACCESSORIES (7)												
INFEED TABLE LENGTH, INCHES	OUTFEED TABLE LENGTH, INCHES	HEIGHT x LENGTH, INCHES	BEVEL STOPS, DEGREES	FRONT-TO-REAR ADJUSTMENT (2)	INFEED	OUTFEED	POWER SWITCH LOCATION (4)	PRIMARY				SECONDARY				STANDARD	OPTIONAL	NOISE LEVEL, DECIBELS (6)	WEIGHT, LBS	CORD LENGTH	WARRANTY, YEARS	COUNTRY OF ASSEMBLY (8)	SELLING PRICE (9)					
								POWER (6)	CUT QUALITY	FLATNESS OF TABLES	FLATNESS OF FENCE	EASE OF CHANGING KNIVES	EASE OF USING POWER SWITCH	EASE OF ELIMINATING SWIPE	CUTTER DURABILITY									EASE OF ADJUSTING TABLE HEIGHT	EASE OF ADJUSTING FENCE	ACCURACY OF BEVEL STOPS	EASE OF READING DEPTH SCALE	
21 1/2	22 1/2	4 1/2 x 29 1/4	45, 90, 135	K	L	S	P	B+	B-	B+	B+	b	a	a-	b	a	b-	c+	b	D,P		101	225	9'10"	1	C	\$580	
21 1/2	22 1/2	5 x 35	45, 90, 135	R	L	S	P	B	B-	A	A	b-	a-	b	b	a	a	a	a	c	D,P	T	93	225	7'7"	5	C	\$600
27 1/4	27 1/4	4 x 29 1/4	45, 90, 135	K	F	F	F	A	A	B+	B+	b-	a-	b	b	a	b-	a	b	D,P	C,T	94	260	8'1"	2	C	\$600	
30	24	4 7/8 x 35 1/4	45, 90, 135	K	L	L	P	A	A-	A	B+	b	a	a	b-	a	a	a	a	c-	D,M,P,T	C	98	320	7'6"	1	C	\$575
22	22 1/4	5 x 35	45, 90, 135	R	L	S	P	C	B-	A	A	a	a	a	a	a	a	a	a	c	D,M,P		91	163	7'6"	1	C	\$575
22	22 1/4	4 x 29 1/4	45, 90, 135	K	F	F	F	A-	A	B+	A-	b+	b-	a	b	a	b-	a	b	D,P	T	95	215	6'3"	5	C	\$600	
22	22 1/2	4 x 29 1/4	45, 90, 135	K	S	S	F	A-	A-	B	B	b	b-	a-	b	b	a-	a	a	A,D,P		97	208	9'10"	3	T	\$430	
22 1/4	22 1/2	4 3/4 x 29	45, 90, 135	R	F	F	P	A	A-	A-	A	b+	a-	a	b	a-	b-	b	a	D,P,T		99	258	5'10"	2	C	\$575	
22	22 1/4	4 7/8 x 35	45, 90, 135	R	L	S	P	B	B-	A	A-	b-	a	b	b	a	a	a	a	c	D,M,P,T	C	97	163	5'10"	2	C	\$530
27 1/4	27 1/4	4 x 29 1/4	45, 90, 135	K	L	S	F	A-	B-	A	B-	a-	b-	a	b-	a-	b-	a	b	D,P	C,S,T	91	198	6'8"	1	T	\$550	

4. (F) Front of jointer base  
(P) Pedestal mount

5. **A** Excellent  
**B** Good  
**C** Fair

6. Measured while face-jointing 6"-wide hard maple 1/8" and 1/16" deep.

7. (A) Fence angle-setting gauge  
(C) Spiral carbide cutterhead  
(D) 4" dust hood  
(M) Built-in mobile base  
(P) Push pads  
(S) Straight-knife cutterhead  
(T) Knife-setting tool

8. (C) China  
(T) Taiwan

9. Prices current at time of article production and do not include shipping, where applicable.



# No-Fail Routines For Jointing and Planing

Here's the straight skinny on truing up stock for use in your projects.

**B**ecause they work in a similar fashion to remove stock from the face or edge of a board, the roles of the jointer and planer often cause confusion. Both help flatten and square up lumber, but they have distinct and different jobs. A jointer flattens one face of a board and squares up an adjacent

edge—but it can't bring that board to consistent thickness. That's the planer's job. So a jointer and planer work together, much like love and marriage in the old song: You shouldn't have one without the other.

Flat, square stock begins on the jointer, so let's start there.

# Jointing: a fundamental step for woodworking success

## How a jointer works

As you can see in the Jointer Cutaway [Drawing 1], infeed and outfeed tables straddle a cylindrical cutterhead. The infeed table sits just lower than the top arc of the knives; the outfeed table sits flush with the top arc.

As you feed a workpiece into the cutterhead, the knives remove any portion of the board below the plane of the outfeed table. The jointed surface then passes smoothly onto the outfeed table. Each successive pass removes more wood until the cutterhead flattens the entire surface of the board.

## First, joint a face

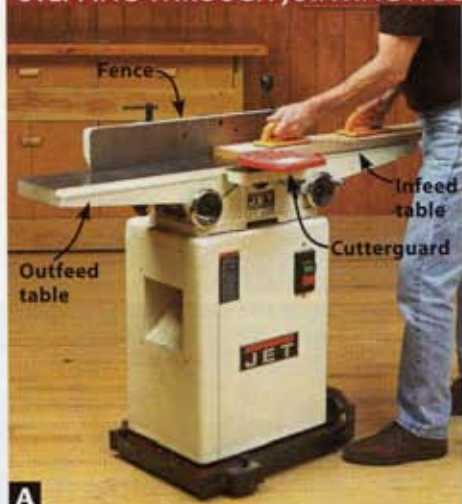
Before jointing a board, sight along an edge to spot any bow or cup [Drawing 2] and to determine the grain direction. For the best results, feed the board across the jointer with the bow up so the board rides on its ends, cup facing down, and the grain running downhill from left to right [Drawing 1]. If the grain runs uphill, the cutting motion may follow the grain up into the board until small pieces break off. That's chip-out.

To face-joint the workpiece, set the infeed table for a cut of  $\frac{1}{16}$ " deep or less. Rest the board on the infeed table,

behind the cutterguard. Using pushblocks, move the board forward with just enough downward pressure to keep it in contact with the infeed table [Photo A]. Too much pressure flattens the cup or bow from the workpiece, only to have it return as soon as you lighten up.

After about 6" crosses the cutterhead, move your left hand—and pressure—to the outfeed end of the workpiece [Photo B]. As the board reaches the end of the cut, move your right hand to the outfeed side and keep pushing the workpiece through to complete the cut [Photo C].

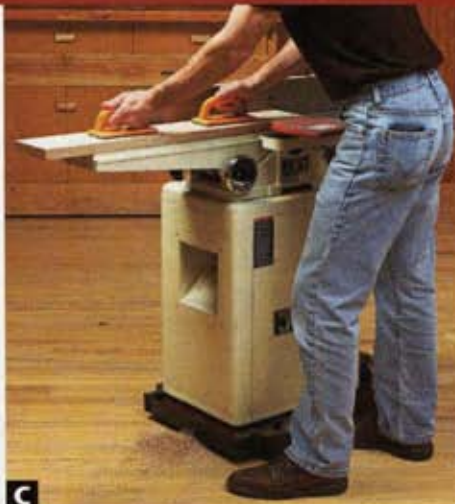
### STEPPING THROUGH JOINTING A BOARD



**A** Grip the workpiece with pushblocks. Use most of your force to feed the board forward, not press it downward.

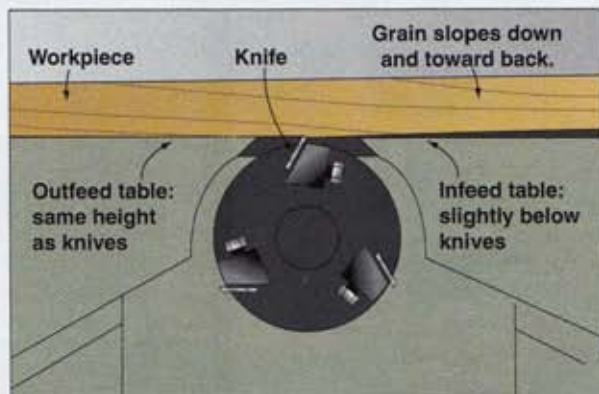


**B** Apply light pressure to keep the jointed portion in contact with the outfeed table. Move the piece forward with both hands.

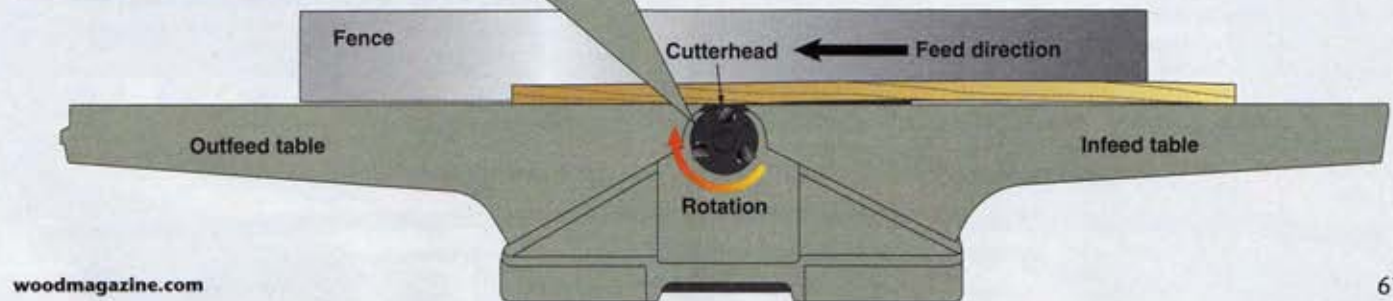
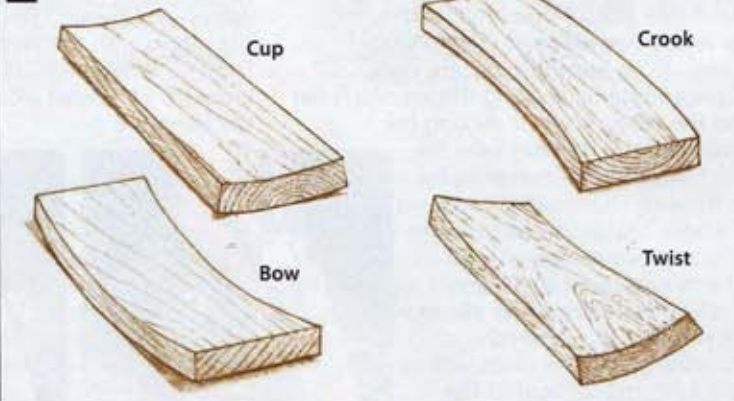


**C** Reposition your hands as needed to press the jointed portions of the board onto the outfeed table. Feed the board past the cutterguard.

### 1 JOINTER CUTAWAY



### 2 TYPES OF WARP



You don't want to remove any more stock than necessary, so to track your progress, scribble a chalk line across the face to be jointed. If a piece has a pronounced cup or bow, the knives won't remove much material on the first pass [Photo D]. With repeated passes, though, the board gets flatter as the jointed surface grows larger. When the chalk line disappears, the face is flat.

Once a face is jointed flat, mark it as shown in the **Shop Tip** above right.

### Next, square up an edge

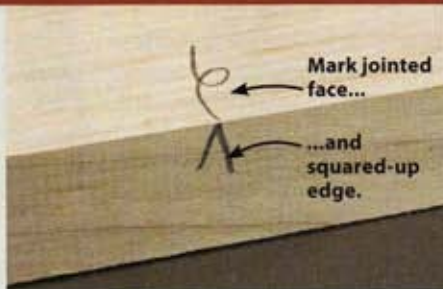
After flattening one face, the jointer makes easy work of squaring up an adjacent edge. Follow the same procedure as for jointing a face, with one addition: Firmly press the jointed face against the fence while feeding the board as before [Photo E]. If possible, orient the grain direction down and away from the cutterhead rotation to prevent chip-out [Drawing 1].

Mark the squared-up edge as shown in the **Shop Tip** above right. Then, with one face flat and one edge square, move on to the planer.

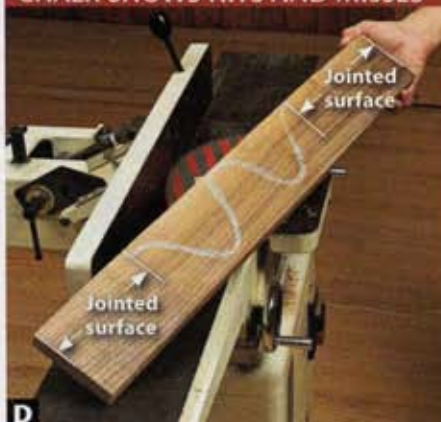
## SHOP TIP

### Marks keep things straight

As you machine stock, it can be hard to keep track of which face is flat and square to which edge. So after your last pass, mark the newly machined surface. Traditionally, cabinetmakers draw a curlicue on the jointed face, and a caret, or inverted "V", on the adjacent squared-up edge, with the point directed to the flattened face.



### CHALK SHOWS HITS AND MISSES



Scribble a chalk line along the length and width of a board to help track your progress. When the mark is gone, the face is flat.

### TAKE THE EDGE OFF



Apply pressure in two directions: against the fence and forward across the cutterhead. For boards narrower than 4", use push blocks.

## Jointer Pointers

■ **Reduce waste and increase yield** by cutting boards to rough length and width before jointing. Less bow on the shorter, narrower pieces means fewer passes to flatten the board, as shown at *bottom*.

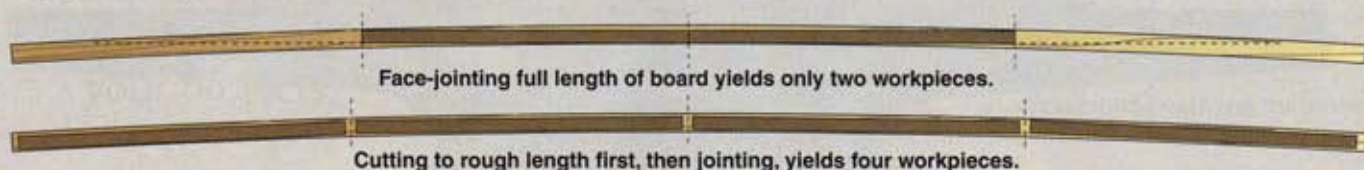
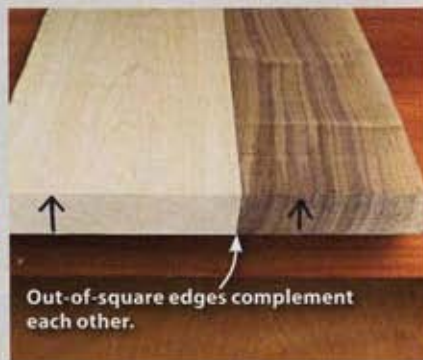
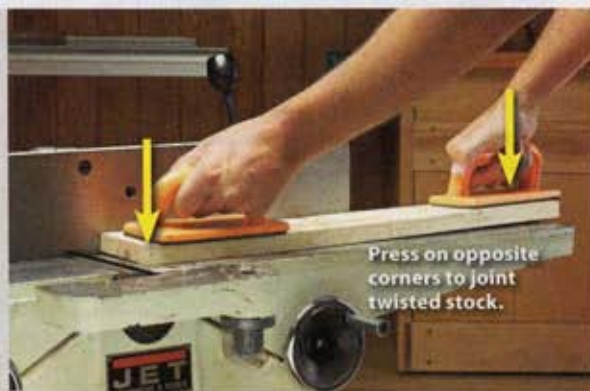
■ **Get a smoother face and reduce chip-out** by removing  $\frac{1}{32}$ " or less per pass. A slower feed rate gives a smoother surface, too.

■ **Joint a twisted piece** by applying pressure on opposite corners, *right*. Concentrate on keeping those corners flat on the tables and not rocking the workpiece as it passes over the cutterhead. After making a few passes, the flattened corners provide a stable surface for the piece to ride on as you joint the remainder of the face.

■ **When jointing two pieces that will be edge-glued** together, joint one piece with the bottom face against the fence, *near right*, and the other with the top face against the fence, *middle right*. If the fence is slightly out of square to the

table, the two angles offset each other, and the glued-up panel will be flat, *below far right*.

■ **Face-joint stock wider than your jointer bed** by ripping the board in half, jointing each piece, including the ripped edges, and then edge-gluing the pieces with the jointed faces flush. Rip badly cupped, crooked, or twisted stock on the bandsaw.





# Planing: Create stock of any thickness

## How a planer works

Unlike a jointer, a planer's cutterhead sits above the workpiece parallel to the table [Drawing 3]. Lowering the cutterhead between passes reduces the board to a uniform thickness.

At the planer, you don't control the workpiece during the cut. Instead, feed rollers on either side of the cutterhead push down on the workpiece while pulling it through the machine. That's why it's important to joint one face first: Without a flat face to ride against the planer tables, the feed rollers simply press the board flat against the tables while the knives plane the top face. Any cup, bow, or twist springs back once the board exits the planer.

## Plane truths

Again, consider grain direction when feeding stock into the planer. But remember that the planer cuts from the top, so the rules are reversed. To reduce chip-out, orient boards with the grain

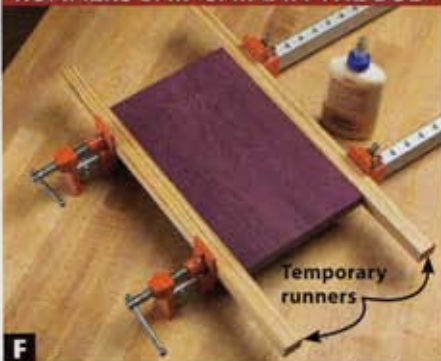
running uphill toward the back end [Drawing 3].

Removing  $\frac{1}{32}$ " of material or less per pass also reduces chip-out. If you have a two-speed planer, shift to the slower feed rate for final passes to get a smoother surface. Set the depth of cut for a  $\frac{1}{64}$ "-or-less "skimming cut" on the final pass for the same reason.

Lighter passes also decrease snipe—a divot at the start or end of a cut. To further decrease or even eliminate snipe, use your hands or support stands to keep a long board flat to the tables at the beginning and end of the cut. For short boards, glue on temporary runners, and rip them away after planing [Photo F].

For boards that require removing  $\frac{1}{8}$ " or more to reach final thickness, after planing the top face flat, flip the board, and plane the jointed face. Continue alternating sides until reaching final thickness because removing similar amounts of stock from each face keeps the board stable, reducing warping.

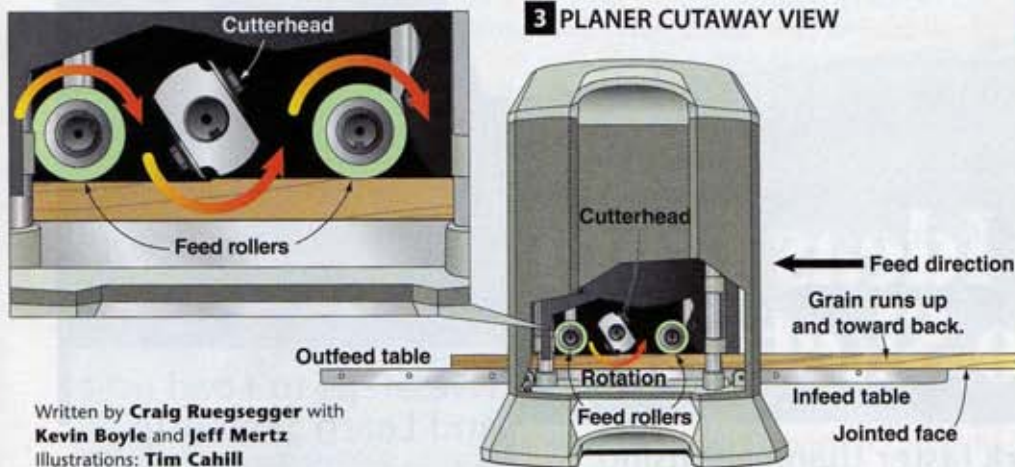
## RUNNERS SNIP SNIPE IN THE BUD



Glue temporary runners to a short board before feeding it through the planer. Any snipe will occur on the runners.

## Still having problems? You might need to adjust

If you religiously follow all of the pointers in this article, yet still don't see good results when jointing or planing, your machine may be out of adjustment. All of the proper technique in the world won't fix that. If you suspect something's amiss with either machine, we have some solutions in a free online article at [woodmagazine.com/tooltuneup](http://woodmagazine.com/tooltuneup).



3 PLANER CUTAWAY VIEW

Written by **Craig Ruegsegger** with **Kevin Boyle** and **Jeff Mertz**  
Illustrations: **Tim Cahill**

## MORE RESOURCES

### FREE VIDEO

- "Prepping Stock With a Jointer and Planer" at [woodmagazine.com/stockprepvid](http://woodmagazine.com/stockprepvid)

### FREE PLANS

- Jointer knife adjustment jig, jointer pushstick, auxiliary planer bed, edge-planing jigs, and more at [woodmagazine.com/jointing](http://woodmagazine.com/jointing)

### RELATED ARTICLES

- "Adjusting Jointer Knives," Issue 165 (Oct. 2005)
- "Troubleshooting Jointers," Issue 168 (Feb./Mar. 2008) \$
- "Ten Tune-up Tips for Perfect Planing," Issue 173 (Nov. 2006) \$
- "Get the Most From Your Planer," Issue 173 \$

(\$ = Download this article from [woodmagazine.com/plans](http://woodmagazine.com/plans) for a small fee. Type "jointer" or "planer" in the Search box.)

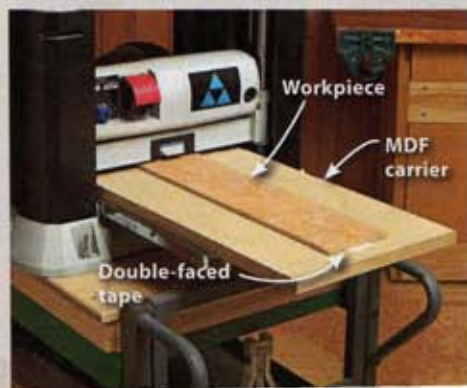
## Planer Pointers

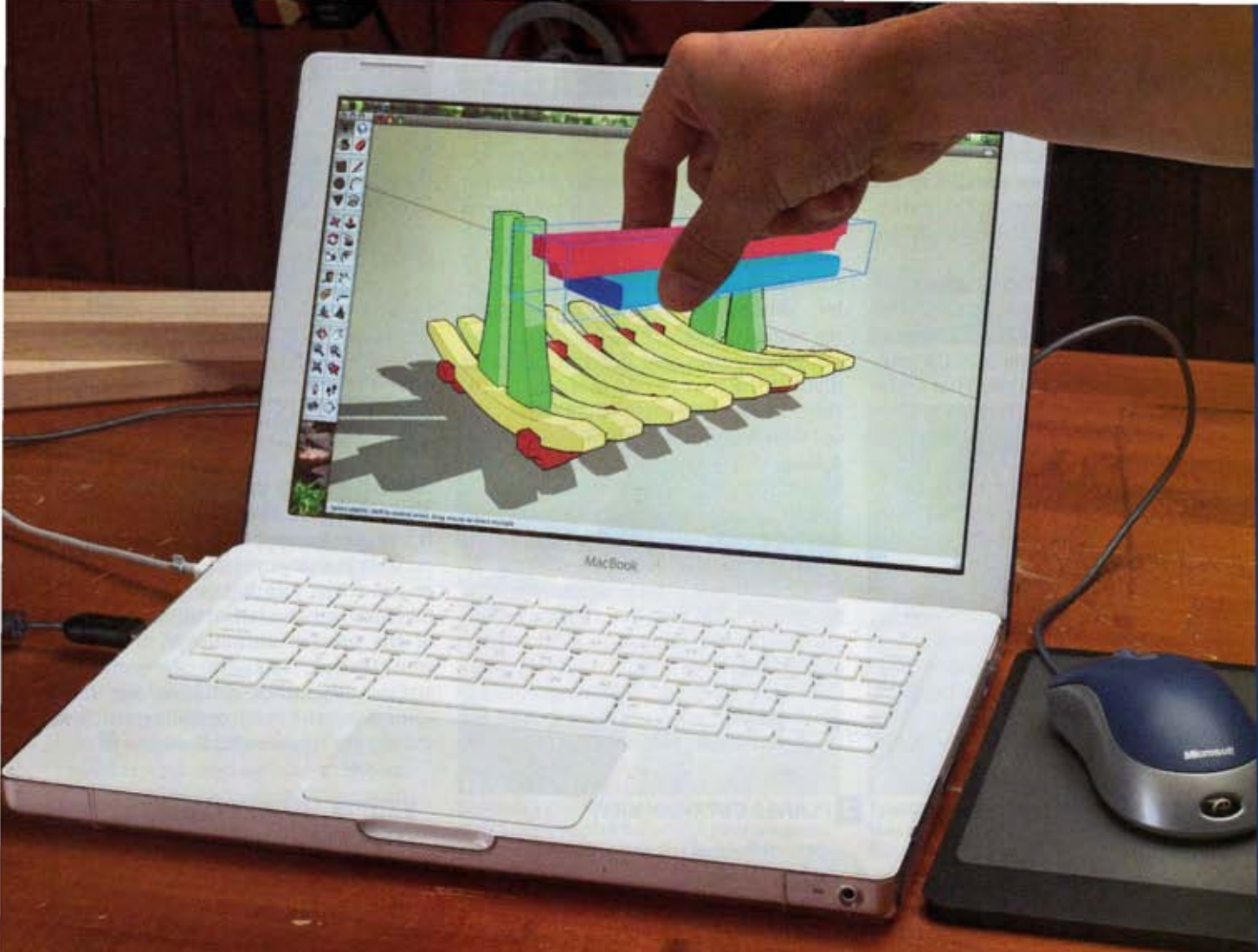
- Use a dust collector to remove waste from the planer. Chips or debris caught between the workpiece and the feed rollers or tables can dimple the board.
- Grain patterns sometimes change direction, and some species (such as maple) are just prone to chip-out. To

reduce chip-out, feed the stock at a slight angle, *below left*. This also evens out wear across the length of the knives.

- To plane stock less than  $\frac{1}{4}$ " thick, double-faced-tape it to an MDF carrier, *below*. But don't plane stock to less than  $\frac{1}{8}$ " thick. The knives can splinter the piece and shoot debris back at you.

- To bring several boards to identical width, without the blade marks you might get from a tablesaw, stack several pieces face-to-face on their jointed edges; then feed the stack through the planer, *below*. Use this method only with stock thicker than  $\frac{3}{4}$ " and a stack that is thicker than it is wide.





# Take Your Ideas from Sketches to SketchUp

Capture your creative spark faster than ever using this powerful, easy-to-use (and free!) software.

*I'd rather be working with wood—and I don't mean a pencil—than making drawings. But it's frustrating and wasteful to start a project without working drawings to guide me. Recently, I found something better than smudgy paper and guesswork. A free program called Google SketchUp has been getting lots of positive buzz on Internet software forums (including our own at [woodmagazine.com/softwareforum](http://woodmagazine.com/softwareforum)). People with all levels of computer skills download SketchUp and put it to work the same day.*

*So I downloaded the program and gave myself a crash course in woodworking project design using an existing project—the napkin holder on page 18—to practice my skills. Sure, there were some frustrating moments (though not as many as my first experience with a dovetail jig). But within a day, everything clicked (literally) and I moved on to create a book rack and a nightstand. Here's what I learned, and what you'll need to know to get great results of your own.*

*Bob Wilson*  
—Techniques Editor

## Five Steps to Load and Learn SketchUp

- 1 Go to [sketchup.google.com](http://sketchup.google.com), and click on "Downloads." Follow the instructions to download the free version of SketchUp. Then install the download.
- 2 Print the "Quick Reference" card found under the Help menu for an overview on how to activate each tool.
- 3 Open the Video Tutorials section and the "New to Google SketchUp" link. Watch the videos there to see the program in action.
- 4 Now it's time to learn by doing. At your own pace, complete the "Introduction to SketchUp" tutorial. Then, in that same section, complete the three "Start a Drawing" tutorials.
- 5 After that, spend a few hours simply exploring the program before you begin designing woodworking projects.

## A new way of designing

SketchUp was meant for users who would rather design things than learn software. For example, a single mouse click pulls a two-dimensional shape into a three-dimensional object that can be copied with another click or two. You can even apply different wood grains to your model to decide whether it looks better in walnut or maple.

Sometimes, SketchUp seems to read your mind. When you're searching for the midpoint of a line, for example, the software's "inference engine" flashes a notice as your cursor nears that position and others within a drawing.

But in reality, no software will think for you. No warning bells go off if tenons in a joint measure  $\frac{1}{4}$ " too long, and it won't critique the proportions of a 1' wide by 8' tall bookcase. Also, a SketchUp drawing needs to be precise and detailed if you plan to build from it.

## Master the SketchUp basics

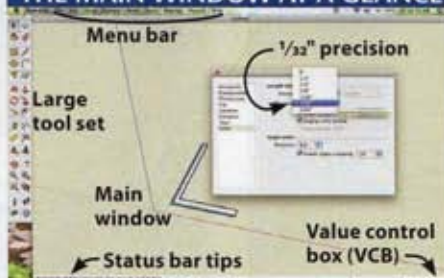
Use the instructions *opposite* to download and install Google SketchUp\* onto your PC or Mac. On-screen instructions will guide you through the process.

When you first run the program, it asks you to select the program's default settings. Choose **perspective view**, and set the **units** menu to read **Inches (Woodworking)-3D**. You can change settings later at **SketchUp**  $\circlearrowright$  **Preferences** in the menu bar. (Refer to the screen image shown *above center* if you're unfamiliar with these terms.)

Next learn the basics of SketchUp by mining Google's how-to library. Open

\* SketchUp version 6 created the screen images shown. Version 7 released in November may look different. Both versions work with Windows or a Mac. To see if your machine can run version 7, check the system requirements on the downloads page at [sketchup.google.com](http://sketchup.google.com).

## THE MAIN WINDOW AT A GLANCE



When you first open Google SketchUp, take a minute to familiarize yourself with different elements of the main window.

**Help**  $\circlearrowright$  **Self-Paced Tutorials** and **Help**  $\circlearrowright$  **Video Tutorials**, and work through the lessons starting with *New to Google SketchUp*. The tutorials guide you in easy steps from introducing the program to making complex designs. For this article, you'll only need to complete the tutorials up through *Familiar with Google SketchUp*. If you'd like on-going reminders of what each tool does, activate **Window**  $\circlearrowright$  **Instructor**.

From the start, make it a habit to use time-saving mouse and keyboard shortcuts, shown at *right*. After you've learned to create a 3-D object and navigate around it, you're ready to apply these skills to a woodworking project.

## Learn by doing

To show you how SketchUp models an actual woodworking project, we'll use the napkin holder on *page 18* as a SketchUp model. That means we've already assigned dimensions to the parts. For a project designed from scratch, first work out the overall dimensions either on paper or on a rough model you can modify later.

Now it's time to fire up your computer, open SketchUp, and begin designing.

## Stretch Out Your SketchUp Skills

To learn more software tricks, share your designs, or to see what others are designing, visit *WOOD*® magazine's online software forum at [woodmagazine.com/softwareforum](http://woodmagazine.com/softwareforum).

Other sites also worth a visit include:

■ [SketchUp.google.com/3dwarehouse](http://SketchUp.google.com/3dwarehouse) for a look at downloadable models that include furnishings.

■ [YouTube.com](http://YouTube.com) hosts various how-to videos. Search "SketchUp, woodworking" for the latest.

■ [Google.com/sketchup/download/bonuspacks.html](http://Google.com/sketchup/download/bonuspacks.html) offers various collections of bonus materials.

■ [IDX-design.com](http://IDX-design.com) provides a free program that creates photo-realistic models like the one shown *below left*.

■ [Turnedoutright.com](http://Turnedoutright.com) supplies information on how to model turning projects with SketchUp.

## SketchUp Keyboard Shortcuts

Eraser .....	E
Move .....	M
Offset .....	O
Paint Bucket .....	B
Push/Pull .....	P
Rotate .....	Q
Scale .....	S
Select .....	Space bar
Tape Measure .....	T
Zoom Extents .....	$\uparrow\downarrow$ Z
Arc .....	A
Circle .....	C
Line .....	L
Rectangle .....	R

## And on the mouse...

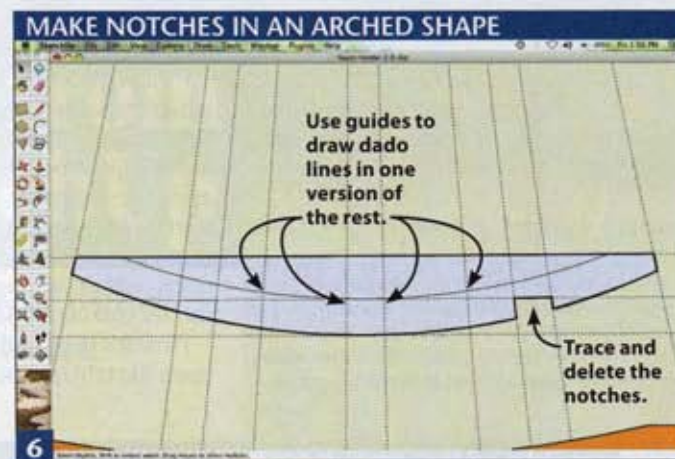
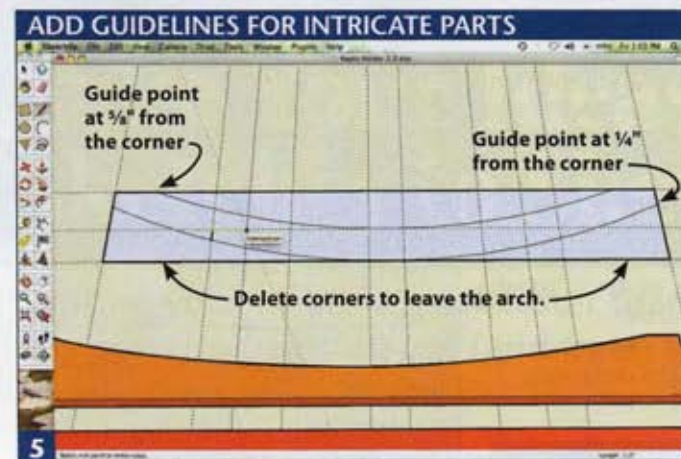
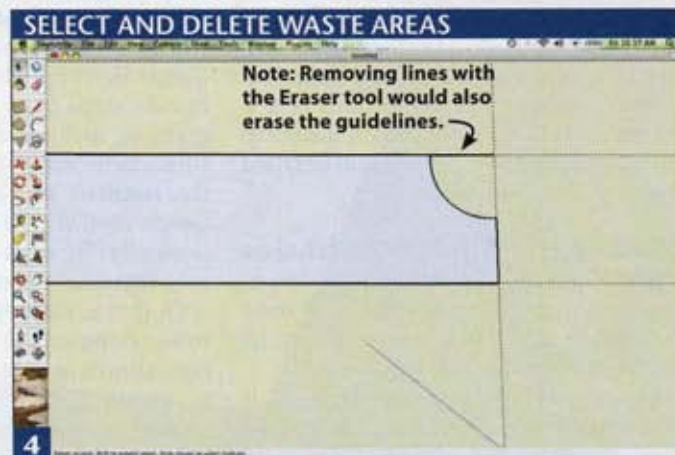
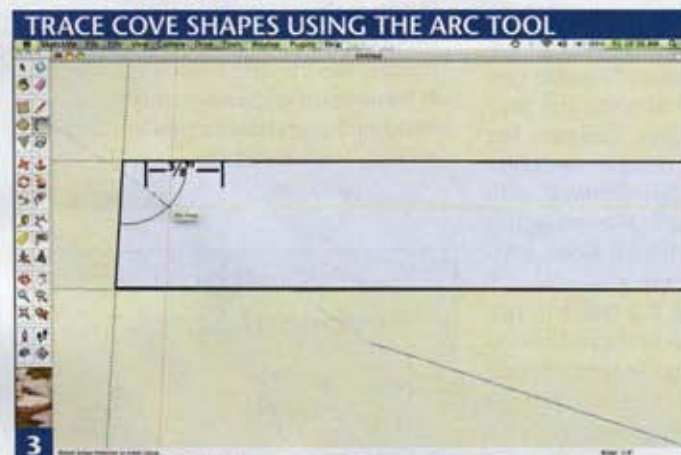
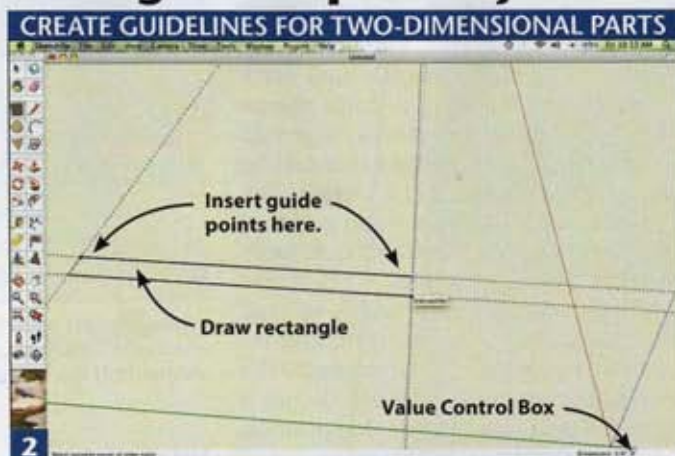
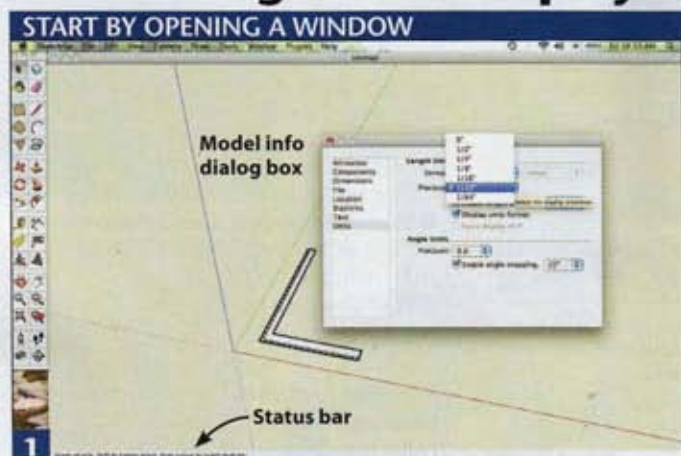


## GIVE SKETCHES AN ADDED TOUCH OF REALISM



A free add-on called **IDX Renditioner Express** ([idx-design.com](http://idx-design.com)) takes SketchUp colors and textures a step further. It enhances their realism and allows you to add natural or artificial light to visualize how a furniture project will look on display, all without leaving SketchUp.

# Learn Google SketchUp by Modeling a Sample Project



**1** To model the napkin holder, first create a new modeling window under the "Woodworking" template. Use the **Window** > **Model Info** dialog box to set the precision to  $\frac{1}{32}$ ". Then select and delete the square. Notice how the status bar tips change with each tool you select.

**2** Measure from the red and green axes with the Tape Measure tool to create guides for the feet and retainer guide. (Or type the distances inside the Value Control Box.) Draw a rectangle within the guides with the Rectangle tool.

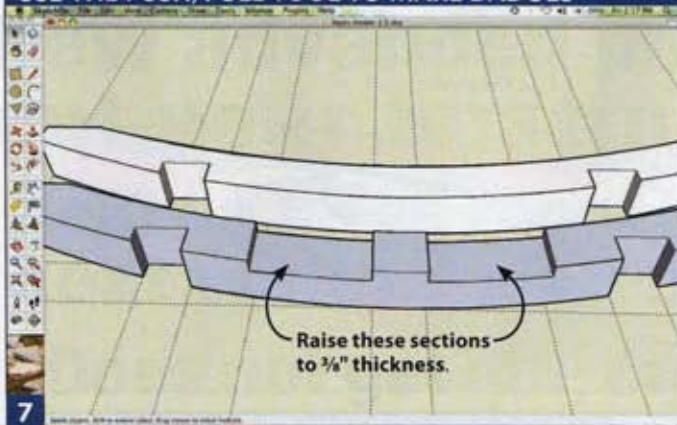
**3** With the Tape Measure tool, insert guide points  $\frac{3}{8}$ " from the corners on one long side. (Zoom in, if necessary.) Using the Arc tool, click on the guide points and move the mouse slowly until the arc snaps into position as a quarter circle.

**4** Use the Select tool to highlight one straight edge of a quarter circle. Use Delete—not the Eraser—to remove it and the face; then delete the other line. To duplicate this shape for the feet, select the rectangle and use the Move tool and Control key (Option on a Mac). After you complete the shapes of both the foot and retainer guide, Push/Pull them to  $\frac{1}{2}$ " thick.

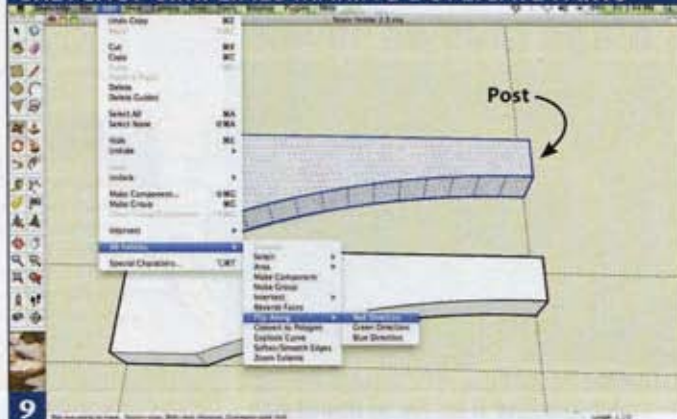
**5** After drawing new guidelines and a rectangle for the rest, lay out parallel curves using guide points and the Arc tool. Select and delete the corners to create the arch shape.

**6** Use the Line tool to trace where the rectangles forming the notches overlap the arch, and delete those lines. Then finish the arch shape and make a duplicate. Use guidelines and the Line tool to draw dado line positions on one part.

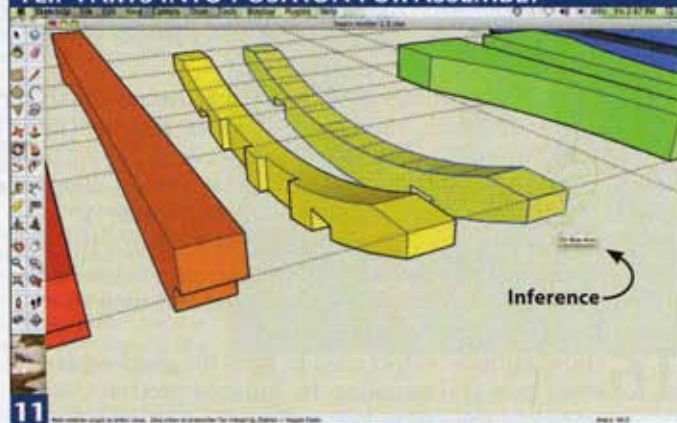
## USE THE PUSH/PULL TOOL TO MAKE DADOES



## SKETCHUP SIMPLIFIES MAKING DUPLICATE PARTS



## FLIP PARTS INTO POSITION FOR ASSEMBLY



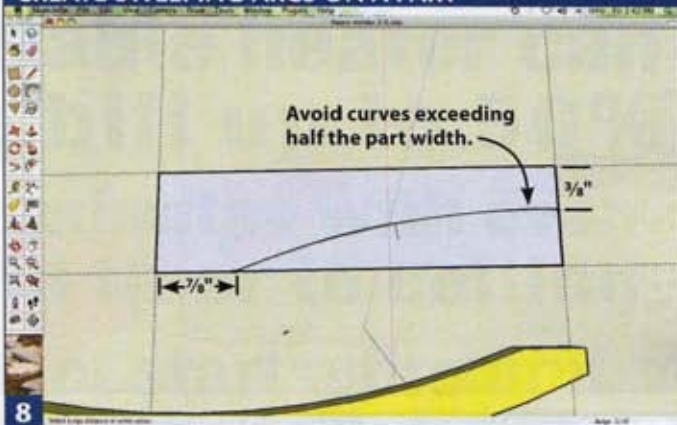
**7** Use the Push/Pull tool to raise both rests to their  $\frac{1}{2}$ " thickness. To create dadoes on the rests that will hold the posts, lower the sections between the lines drawn in **Step 6** by  $\frac{1}{8}$ ". With the parts completed, delete the guides.

**8** SketchUp doesn't draw parabolic curves, only circular ones. To draw this arc, add guide points where shown, and use the Arc tool to slowly pull the curve to the correct shape. Erase the waste area and pull the part to  $\frac{1}{2}$ " thick.

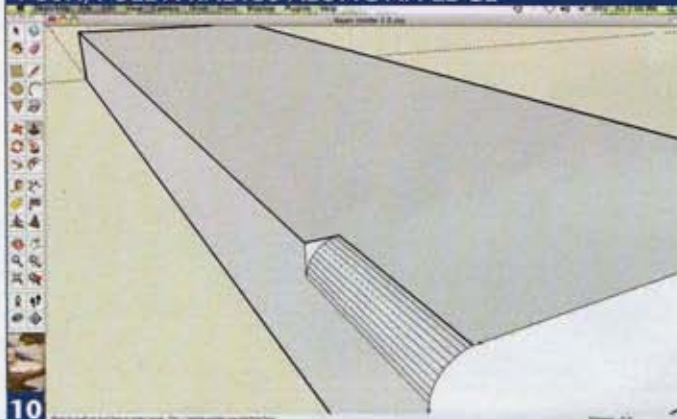
**9** Sometimes you need to make mirror copies of a part, such as the post here. With the Move tool and Control key (Option on a Mac), duplicate the post and leave the copy highlighted. At **Edit** > (number) **Entities**, choose **Flip Along** and **Red Direction** (in this case) to make a mirror version.

**10** To round over edges, insert guide points on two adjoining end lines  $\frac{1}{8}$ " from the corner. Draw a quarter circle

## CREATE SWEEPING ARCS ON A PART



## PUSH/PULL A RADIUS ALONG AN EDGE



## DIMENSIONS ON DRAWINGS HELP IN THE SHOP

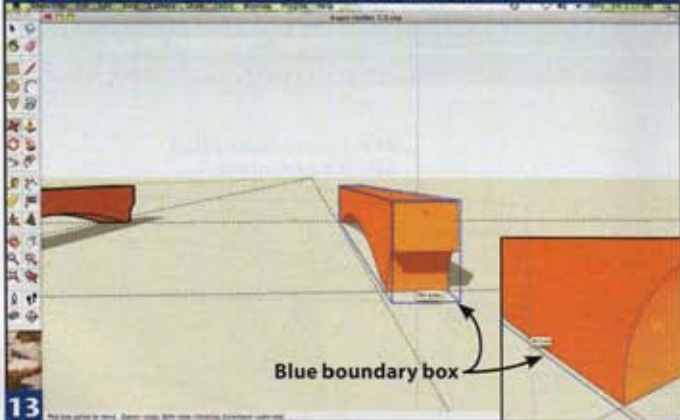


at the corner between the guide points. Zoom in to ensure the arc doesn't extend beyond the end lines. Highlight the corner, and use the Push/Pull tool to drag the corner down to the opposite end where it will disappear. You'll see a series of closely-spaced parallel lines because SketchUp creates facets with flat faces, not true curves.

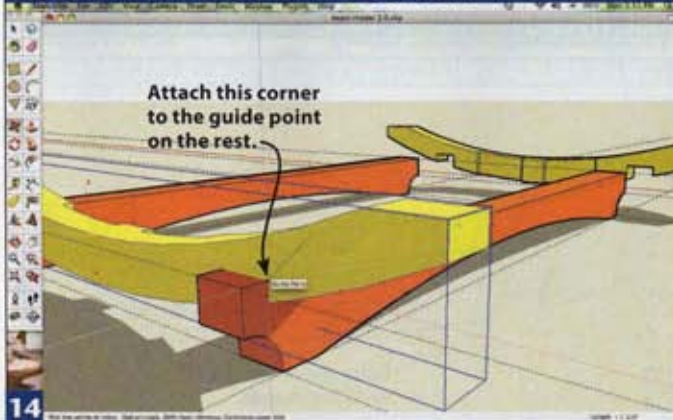
**11** To prepare parts for assembly, first rotate them into position with the Rotate tool. As you rotate a part, check that it lines up with the correct axis, in this case the blue one. An inference appears when the angle matches the axis.

**12** Because you'll eventually want to refer to these drawings when cutting actual parts, use the Dimension tool to add measurements. (Copies of parts won't include the dimensions.) To group the faces and lines forming each part, triple-click on one part face and click **Edit** > **Make Group**.

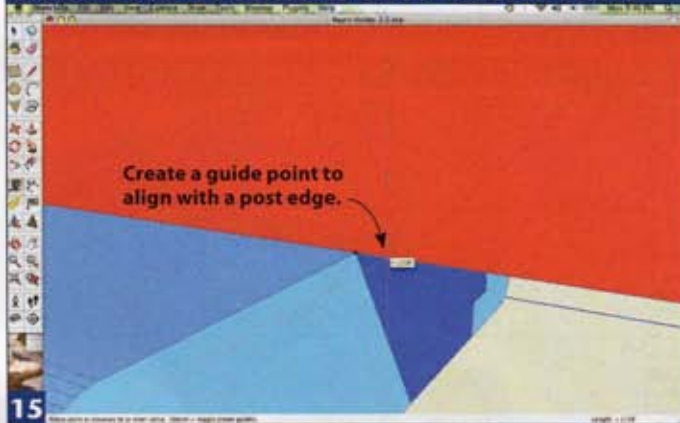
### USE GUIDELINES TO ALIGN PARALLEL PARTS



### PLACE PARTS PRECISELY IN POSITION



### A GUIDE POINT POSITIONS UNCONNECTED PARTS



### ADD WOOD GRAIN TO VISUALIZE YOUR OPTIONS



### SO REALISTIC, YOU'LL BE TEMPTED TO USE IT



With the cursor on a corner of the notch, move the rest until the corner attaches itself to the guide point. Check the placement of the rest on the opposite foot. You can use a similar trick to attach the guides to the end rest.

**15** When you want two parts to stay together, group them as we did with the napkin holder retainer using **Edit > Make Group**. To allow a  $\frac{1}{16}$ " gap between the retainer and the posts on both ends, use the Tape Measure tool to add a guide point to the lower edge of the retainer guide  $\frac{1}{16}$ " from the end of the retainer. Slide the guide point against the post edge as you insert the retainer/guide assembly between the guides on each end. Now use the Orbit and Pan tools to view your completed model from every angle.

**16** Those rainbow colors used to keep the parts separated won't help you visualize the finished project. Use the wood samples in the Colors box or download our assortment of wood grains from [woodmagazine.com/woodgrain](http://woodmagazine.com/woodgrain). Right click on each grouped part and choose **Explode**. Immediately assign a wood tone using the Paint tool, and regroup it.

**17** Using maple and walnut wood grains, where listed in the napkin holder story, give the model a more realistic look. For a more detailed look at assembling this napkin holder model, go to [woodmagazine.com/napkinholder](http://woodmagazine.com/napkinholder) for an online slide show. 🌲

**13** Now let's virtually build the project. The napkin-holder feet are 4" apart, so create two parallel guidelines 4" apart and one perpendicular guideline to align the feet. When aligning grouped part faces or edges, ignore the blue boundary boxes (inset) identifying the part—they can't be aligned with a guide. Zoom in on the guides, and slide the edge of the foot to one guide and the end of the foot to the perpendicular intersecting guide. Double-check their placement with the Tape Measure. **Measurements preceded by a tilde (~) means the distance is approximate; you may have a misaligned part.**

**14** To precisely position one part on another, use guide points and intersecting lines of grouped parts. For example, the rests on the napkin holder start  $\frac{1}{4}$ " from the ends of the feet. So, use the Tape Measure tool to insert a guide point  $\frac{1}{4}$ " from the end of the foot. Using the Move tool, lift and slide a copy of the end rest into approximate position.

### Sources

**SketchUp:** Free version from [sketchup.google.com](http://sketchup.google.com); Google SketchUp Pro 6, \$495.  
**Instruction guide:** *Google SketchUp for Dummies* by Aidan Chopra, \$16.49 from Amazon.com.

Written by **Bob Wilson** with **Michael Burns**

## AS HEARD ON PAUL HARVEY NEWS

# New advanced portable heater can cut your heating bill up to 50%

## Heats a large room in minutes with even heat wall to wall and floor to ceiling

## Does not get hot, cannot start a fire and will not reduce humidity or oxygen

### Never be cold again

A new advanced quartz infrared portable heater, the EdenPURE™, can cut your heating bills by up to 50%.

You have probably heard about the remarkable EdenPURE™ as heard on Paul Harvey News and on television features across the nation.

The EdenPURE™ can pay for itself in a matter of weeks and then start putting a great deal of extra money in your pocket after that.

A major cause of residential fires in the United States is portable heaters. But the EdenPURE™ cannot cause a fire. That is because the quartz infrared heating element never gets to a temperature that can ignite anything.

The outside of the EdenPURE™ only gets warm to the touch so that it will not burn children or pets. Pets can sleep on it when it is operating without harm.

The advanced space-age EdenPURE™ Quartz Infrared Portable Heater also heats the room evenly, wall-to-wall and floor-to-ceiling. And, as you know, portable heaters only heat an area a few feet around the heater.

Unlike other heating sources, the EdenPURE™ cannot put poisonous carbon monoxide into a room or any type of fumes or any type of harmful radiation.

**Q. What is the origin of this amazing heating element in the EdenPURE™?**

A. This advanced heating element was discovered accidentally by a man named John Jones.

**Q. What advantages does infrared quartz tube heating source have over other heating source products?**

A. John Jones designed his heating source around the three most important consumer benefits: economy, comfort, and safety.

In the EdenPURE™ system, electricity is used to generate infrared light which, in turn, creates a very safe heat.



**Cannot start a fire; a child or animal can touch or sit on it without harm**



After a great deal of research and development, very efficient infrared heat chambers were developed that utilize three unique patented solid copper heat exchangers in one EdenPURE™ heater.

**Q. How can a person cut their heating bill by up to 50% with the EdenPURE™?**

A. The EdenPURE™ will heat a room in minutes. Therefore, you can turn the heat down in your house to as low as 50 degrees, but the room you are occupying, which has the EdenPURE™, will be warm and comfortable. The EdenPURE™ is portable. When you move to another room, it will quickly heat that room also. This can drastically cut heating bills, in some instances, by up to 50%.

The EdenPURE™ comes in 2 models. GEN3 Model

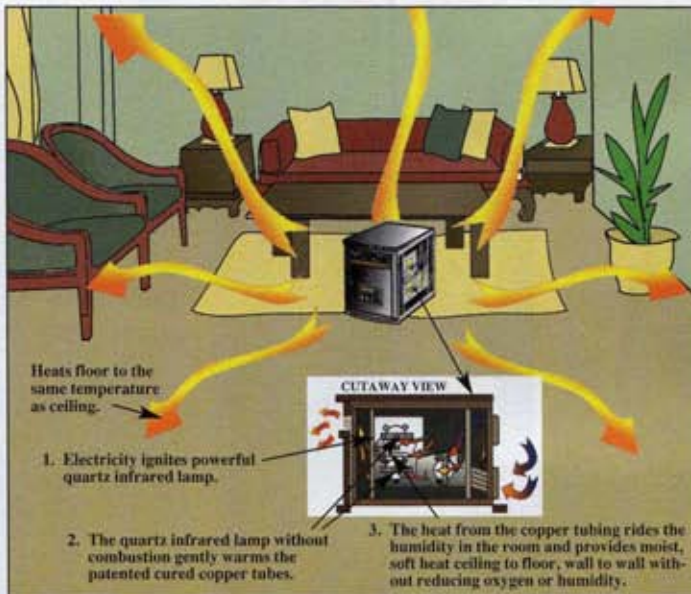
500 heats a room up to 300 square feet and GEN3 Model 1000 heats a room up to 1,000 square feet.

**End of interview.**

The EdenPURE™ will pay for itself in weeks. It will put a great deal of extra money in a users pocket. Because of today's spiraling gas, oil, propane, and other energy costs, the EdenPURE™ will provide even greater savings as the time goes by.

Readers who wish can obtain the EdenPURE™ Quartz Infrared Portable Heater at a \$75 discount if they order in the next 10 days. Please see the Special Readers Discount Coupon on this page. For those readers ordering after 10 days from the date of this publication, we reserve the right to either accept or reject order requests at the discounted price.

### How it works:



### SPECIAL READER'S DISCOUNT COUPON

The price of the EdenPURE™ GEN3 Model 500 is \$372 plus \$17 shipping for a total of \$389 delivered. The GEN3 Model 1000 is \$472 plus \$27 shipping and handling for a total of \$499 delivered. People reading this publication get a \$75 discount with this coupon and pay only \$297 delivered for the GEN3 Model 500 and \$397 delivered for the GEN3 Model 1000 if you order within 10 days. The EdenPURE™ comes in the decorator color of black with burl wood accent which goes with any decor. There is a strict limit of 3 units at the discount price - no exceptions please.

Check below which model and number you want:

- GEN3 Model 500, number \_\_\_\_\_  GEN3 Model 1000, number \_\_\_\_\_
  - To order by phone, call TOLL FREE 1-800-588-5608 Ext. EPH9507. Place your order by using your credit card. Operators are on duty 24 hours, 7 days.
  - To order online, log on to [www.epheater.com](http://www.epheater.com)
  - To order by mail, by check or credit card, fill out and mail in this coupon.
- This product carries a 60-day satisfaction guarantee. If you are not totally satisfied, your purchase price will be refunded. No questions asked. There is also a three year warranty.

NAME \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

Check below to get discount:  
 I am ordering within 10 days of the date of this publication, therefore I get a \$75 discount and my price is only \$297 for GEN3 Model 500 and \$397 for GEN3 Model 1000 delivered.  
 I am ordering past 10 days of the date of this publication, therefore I pay shipping and handling and full price totaling \$389 for GEN3 Model 500 and \$499 for GEN3 Model 1000.  
 Enclosed is \$ \_\_\_\_\_ in:  Cash  Check  Money Order  
 (Make check payable to BioTech Research) or charge my:  
 VISA  MasterCard  Am. Exp./Optima  Discover/Novus  
 Account No. \_\_\_\_\_ Exp. Date \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Signature \_\_\_\_\_

**MAIL TO:** BioTech Research Dept. EPH9507  
 7800 Whipple Ave. N.W.  
 Canton, OH 44767

# Faux Walnut Stacking Shelves

Family room, dorm room, *any* room:  
These easy-to-build shelves work wherever  
you need versatile, customizable storage.



Dimensions of one unit:  
31 $\frac{3}{4}$ " wide x 36 $\frac{3}{4}$ " high x 15 $\frac{1}{4}$ " deep

**BASIC-BUILT™**

**GREAT PROJECTS MADE SIMPLE.**

**H**ere's a project as easy to customize as it is to construct. Movable shelves rest at your choice of five heights. Stack two units, as shown *above*, for a lot of storage or display area in a little floor space. Add another unit to create a workspace. When your needs change, just rearrange the set for a new custom solution, *opposite*.

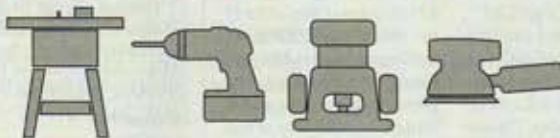
The quantities mentioned in the instructions are for one unit with three shelves;

adjust as needed for the number of shelves and units you plan to build, and then cut all the like pieces at the same time.

## Hit the rails

**1** Cut four  $\frac{3}{4}$ " x  $6\frac{1}{2}$ " x 12" blanks for the rails (A). Chuck a  $\frac{1}{4}$ " rabbeting bit

## WHAT YOU'LL NEED



■ **Materials:** 1 $\frac{1}{2}$ " poplar,  $\frac{3}{4}$ " poplar;  $\frac{3}{4}$ ",  $\frac{1}{4}$ " birch plywood;  $\frac{1}{4}$ " rabbeting, 45° chamfer router bits.





A set of shelves placed side-by-side creates display space that doubles as a home entertainment center. Create your own arrangement by building as many units as you want, and then customizing each one by varying the number of shelves and the shelf positions.



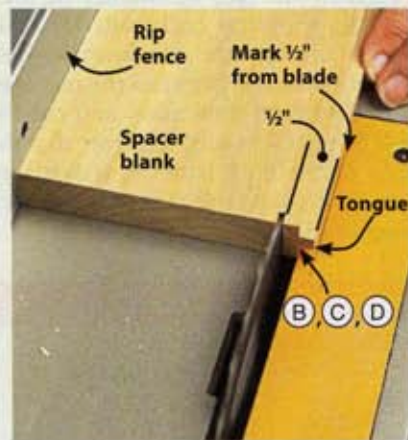
**RABBETS MAKE A STUB TENON**  
Clamp a rail blank to the bench. Rout a  $\frac{1}{4} \times \frac{1}{4}$ " rabbet along each face at both ends to create  $\frac{1}{4}$ "-thick stub tenons.

## SHOP TIP

### Rip thin strips safely

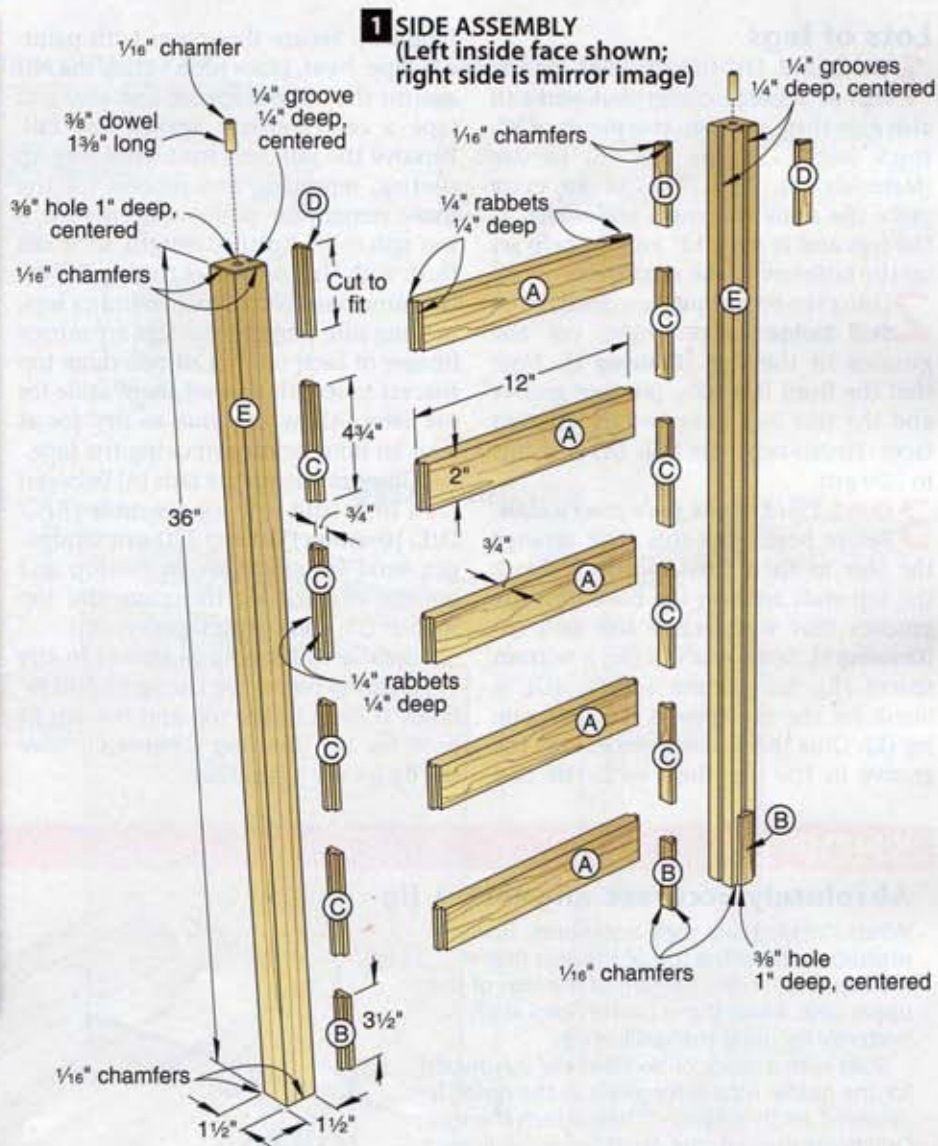
Ripping thin strips between the blade and fence begs for trouble in the form of strips kicking back at you. Instead, rip the spacer blank so the good piece falls to the outside of the blade.

First, make a mark on the table  $\frac{1}{2}$ " from the outside edge of the blade. Extend the mark beyond the front of the blade. Align the edge of the tongue with this mark, slide the rip fence against the opposite edge of the stock, and rip a blank free. Readjust the fence to cut away the next blank.



into your router, and rout stub tenons on both ends of each blank [Drawing 1, Photo A]. (Save the router setup for use in the next step.) Rip ten 2"-wide rails (A) from the blanks.

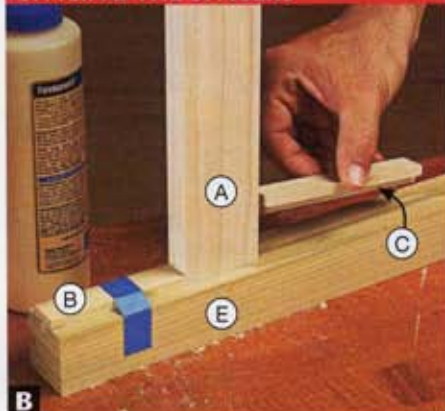
**2** Prepare a  $\frac{3}{4} \times 4\frac{1}{2} \times 28$ " blank for the bottom spacers (B), center spacers (C), and top spacers (D) [Drawing 1]. Using the router setup you saved, rout rabbets on each face to create a tongue along each long edge of the blank. Then



rip a  $\frac{1}{2}$ "-wide strip from each edge [Shop Tip, above left]. Form tongues on the blank edges again and repeat the process until you have six  $\frac{1}{2}$ "-wide blanks. (Save the router setup for use later.) Finish-sand these blanks to 220 grit.

**3** From the blanks, cut the bottom spacers (B) and center spacers (C) to finished length [Drawing 1]. Set the spacers and the unused blanks aside. The top spacers (D) will be cut from the remaining blanks later.

## SPACING THE SPACERS



**B** Painter's tape secures the spacers (B, C, D) while the glue dries. Don't nudge the spacers as you place and remove the rail (A).

## SKILL BUILDER

### Cut precisely centered grooves

Forget tedious measuring and layout. These simple steps guarantee grooves perfectly centered on a workpiece.

First, mount a rip blade in the tablesaw and position the rip fence to roughly center the blade on the width of a leg (E). Raise the blade  $\frac{1}{4}$ " above the table, and cut a groove along the length of the test scrap. Rotate the scrap end for end to put the opposite face against the fence, and make a second pass to widen the groove (photo).

Check the fit of the tongue into the groove on a spacer (B, C). Nudge the fence as needed and repeat the process until the stub tenon fits snugly in the groove.



## Lots of legs

**1** We found  $1\frac{1}{2}$ "-thick poplar for the legs at a home center, but you can also glue them up from two pieces of  $\frac{3}{4}$ "-thick stock. Cut the legs (E) to size [Materials List, page 74]. Cut an extra piece the same thickness and width as the legs and at least 12" long to help set up the tablesaw in the next step.

**2** Using the technique described in the Skill Builder, above right, cut the grooves in the legs [Drawing 1]. Note that the front legs have just one groove and the rear legs have two in adjacent faces. Finish-sand the rails (A) and legs to 220 grit.

**3 Quick Tip! Labels save confusion.** Before beginning this step, arrange the legs in their final locations. Mark the top ends and, on the back legs, the grooves that will receive the rails (A) [Drawing 1]. Retrieve a rail (A), a bottom spacer (B), four center spacers (C), a blank for the top spacers (D), and one leg (E). Glue the bottom spacer into the groove in the leg, flush with the end

[Photo B]. Secure the spacer with painter's tape. Next, place (don't glue) the rail against the bottom spacer, and glue and tape a center spacer against the rail. Remove the rail, and work your way up the leg, repeating this process for the three remaining center spacers. Cut a top spacer to finished length so it sits flush with the top end of the leg. Follow the same routine for the remaining legs, making sure that the rear legs are mirror images of each other. Cut two more top spacers to length and set them aside for use later. Allow the glue to dry for at least an hour before removing the tape.

**4** Glue and clamp the rails (A) between a front and rear leg assembly (B/C/D/E) [Drawing 1]. Using 220-grit sandpaper, sand  $\frac{1}{16}$ " chamfers on the top and bottom of each leg including the top spacers (D) and bottom spacers (B).

**5** Build a drilling jig as shown in the Shop Tip below. Use the jig to drill  $\frac{3}{8}$ " holes 1" deep in the top and bottom of each leg (E) [Drawing 1, Photo C]. Save the jig for use again later.

## Back it up

**1** Cut a  $\frac{3}{4} \times 4\frac{1}{4} \times 28\frac{1}{2}$ " blank for the back rails (F). Retrieve the router and rabbeting bit from earlier, and rout stub tenons on each end of the blank [Drawing 2a]. Move to the tablesaw and rip the back rails from the blank [Drawing 2].

**2** Using the same procedure used to cut the grooves in the legs (E), cut a groove in one edge of each back rail (F) to accept the  $\frac{3}{4}$ " plywood back panel (G) [Drawing 2a].

**3** Retrieve the two extra top spacers (D) and two bottom spacers (B). Glue them into each rear leg (E), flush at the ends. Tape them in place and allow the glue to dry.

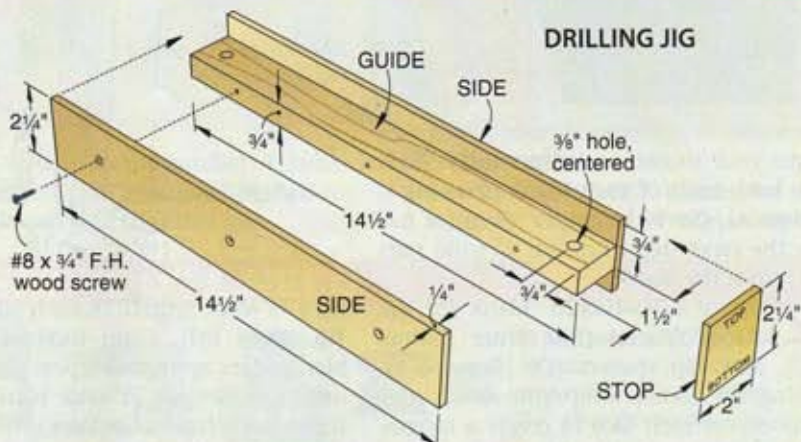
**4** Dry-fit the side assemblies (A/B/C/D/E) with the back rails (F) snug against the spacers. Measure between the back rails and between the rear legs. Add  $\frac{3}{8}$ " to each dimension and cut the back panel (G) to this size. Note that the grain of the back panel runs horizontally. Finish-sand the back rails and back panel to 220 grit.

## SHOP TIP

### Absolutely-accurate alignment jig

When stacking two shelf assemblies, dowels protruding from the top of the legs fit into mating holes in the bottom of the legs of the upper unit. Make those dowel holes align perfectly by using this drilling jig.

Start with a piece of  $\frac{3}{4} \times 1\frac{1}{2} \times 14\frac{1}{2}$ " hardwood for the guide. Attach the sides so the guide is centered on their width. Then attach the stop. Drill holes through the guide where indicated. Mark one edge of the stop as the top and the other as the bottom. When drilling the tops of the legs, place the edge labeled "top" over the legs. When drilling the bottom ends, place the edge labeled "bottom" over the legs. This ensures the holes will line up between units.

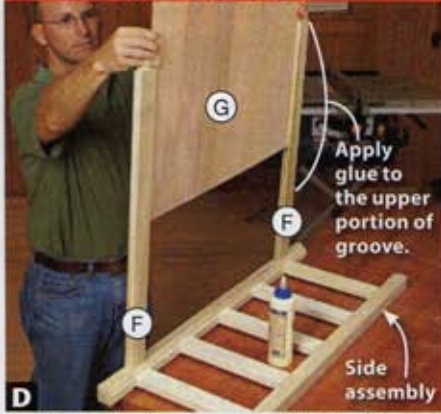


### MATCH HOLES PERFECTLY



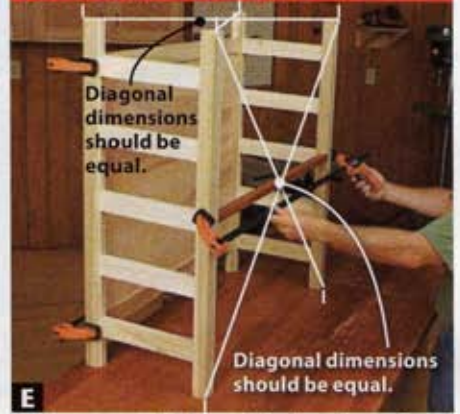
Wrap a tape flag  $1\frac{3}{4}$ " above the tip of the drill bit to indicate the hole's final depth. Drill straight into the leg (E).

### ASSEMBLING THE BACK



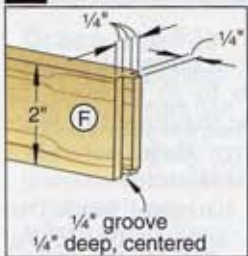
Apply glue to the upper two-thirds of the grooves in the back rails (F). The back panel (G) will spread it down as it slides into place.

### ASSEMBLING THE BASE

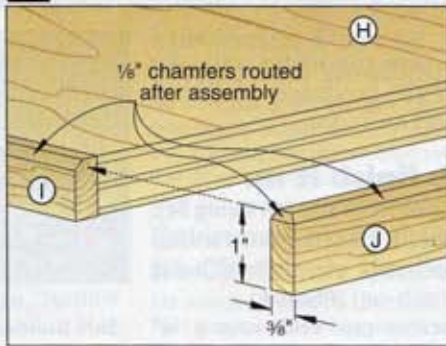


Clamp a spacer between the front legs; then check for square by measuring diagonally across the top and the front.

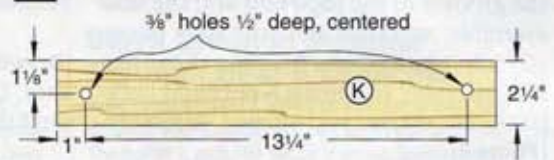
### 2a TENON DETAIL



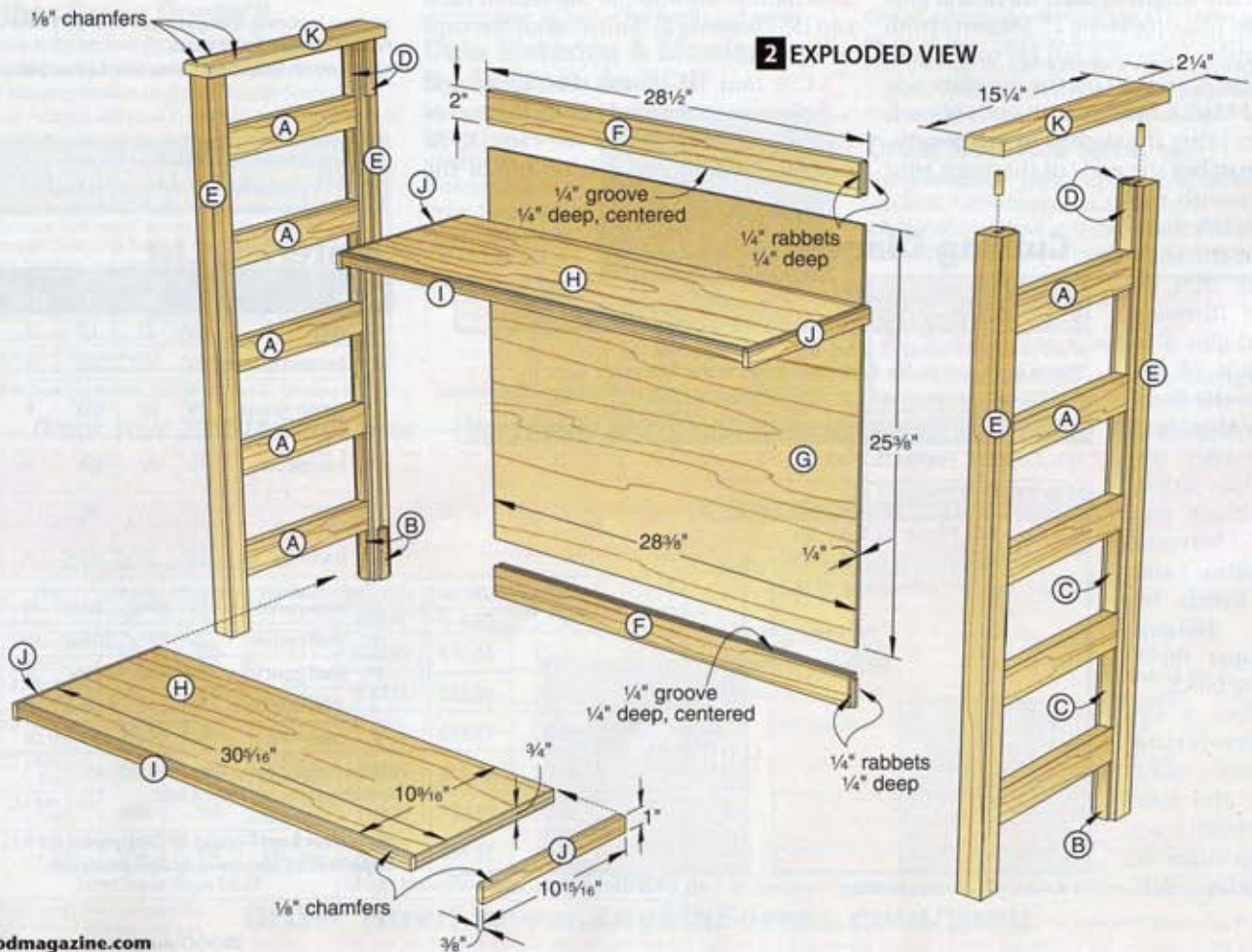
### 2b SHELF TRIM DETAIL



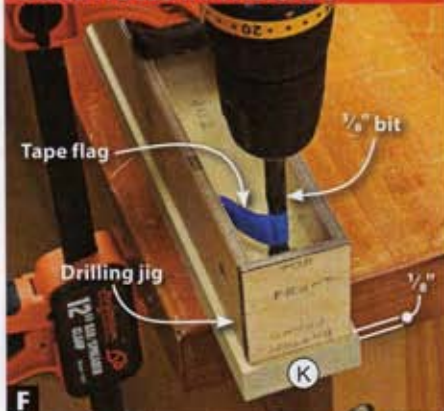
### 2c CAP BOTTOM VIEW



### 2 EXPLODED VIEW



## DRILL HOLES IN THE CAPS



Center the drilling jig on the cap's (K) width with the stop  $\frac{1}{8}$ " from the end. Clamp the jig and cap to the bench before drilling the holes.

**5** Glue the back rails (F) into one side assembly (A/B/C/D/E). Apply glue to the grooves in the back rails and the side assembly, and then slide the back panel (G) into place [Photo D]. Glue the other side assembly to the back rails and back panel to create a U-shaped assembly [Photo E].

## Shelves lock it together

**1** Cut three shelf panels (H) from  $\frac{3}{4}$ " plywood to  $10\frac{1}{16} \times 30\frac{1}{2}$ ". (The shelves will be trimmed to final length later.) Cut the shelf front trim pieces (I) to match the length of each shelf, and glue them in place [Drawing 2]. Measure from the outside edge of a rail (A) to the outside edge of the rail on the opposite side and add  $\frac{1}{16}$ ". Crosscut both ends of each shelf to bring the shelves to this length. This matches the ends of the front trim exactly with the ends of the shelf.

**2** Cut the shelf side trim (J) to size [Drawing 2], and glue it to the ends of the shelves (H) flush at the top and front. After the glue has dried, smooth out any ridges between the trim and shelf panels by using 150-grit sandpaper on a sanding block.

**3** Chuck a 45° chamfering bit into your router, and rout  $\frac{1}{8}$ " chamfers on the top edges of the trim (I/J)

## SKILL BUILDER

### The "Rit" touch creates the look of walnut

On poplar, stain alone looks blotchy and doesn't have the rich look of walnut. A base coat of inexpensive fabric dye fixes the problem.

First, wet the surface of the wood with a damp sponge or rag. Sand lightly with 220-grit sandpaper to remove the raised grain.

Following the directions on the package, mix one envelope of Rit Dark Brown dye. Use a foam brush to apply an even coat of the dye to all pieces. The dyed wood may have a purple hue, but this will change during staining (photo).

Let the dye dry completely, at least overnight. Then apply a stain. We used Minwax Dark Walnut no. 2716. Allow the stain to dry thoroughly. Lastly, apply two coats of a wipe-on polyurethane, sanding lightly with a 320-grit sanding sponge between coats.



[Drawing 2b]. Save the router setup for later. Use 220-grit sandpaper to finish-sand the shelves and trim.

## Cap it off, finish it up

**1** Cut two caps (K) to size [Drawing 2c]. Position the drilling jig on the bottom face of each cap, and drill  $\frac{3}{8}$ " holes  $\frac{1}{2}$ " deep into each cap [Photo F].

**2** Starting across one end, rout a  $\frac{1}{8}$ " chamfer around the top face of each cap (K) [Drawing 2]. Finish-sand the caps to 220 grit.

**3** Cut four  $\frac{3}{8}$ " dowels  $1\frac{3}{8}$ " long, and place one in each hole in the top of each leg (E). Check that the caps (K) fit onto the dowels and rest on top of the

legs. To stack one unit on top of another, cut 2"-long dowels to go between the units. **Do not** glue the dowels in place so you can change them out when reconfiguring the shelf units.

**4** Make sure all parts are sanded to 220-grit; then apply a finish. We turned our poplar shelves into "faux walnut" using the method shown in the Skill Builder above. 🌲

Written by **Craig Ruegsegger** with **Jeff Mertz**  
Project design: **Jeff Mertz**  
Illustrations: **Roxanne LeMoine; Lorna Johnson**

## Cutting Diagram



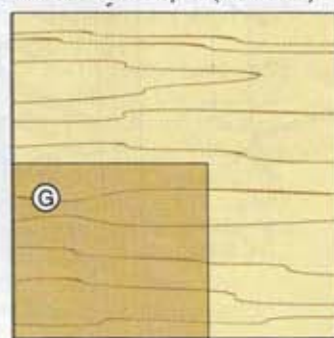
$\frac{3}{4}$  x  $7\frac{1}{4}$  x 96" Poplar (5.3 bd. ft.)  
\*Plane or resaw to the thickness listed in the Materials List.



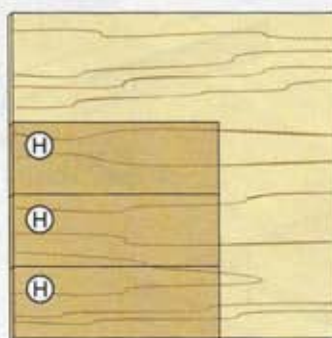
$\frac{3}{4}$  x  $7\frac{1}{4}$  x 96" Poplar (5.3 bd. ft.)



$\frac{3}{4}$  x  $5\frac{1}{2}$  x 60" Poplar (2.5 bd. ft.)



$\frac{1}{4}$  x 48 x 48" Birch plywood



$\frac{3}{4}$  x 48 x 48" Birch plywood

## Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A* rails	$\frac{3}{4}$ "	2"	12"	P	10
B* bottom spacers	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$3\frac{1}{2}$ "	P	6
C* center spacers	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$4\frac{3}{4}$ "	P	16
D* top spacers	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$3\frac{1}{2}$ "	P	6
E legs	$1\frac{1}{2}$ "	$1\frac{1}{2}$ "	36"	P	4
F* back rails	$\frac{3}{4}$ "	2"	$28\frac{1}{2}$ "	P	2
G back panel	$\frac{1}{4}$ "	$25\frac{3}{8}$ "	$28\frac{3}{8}$ "	BP	1
H* shelf panels	$\frac{3}{4}$ "	$10\frac{9}{16}$ "	$30\frac{9}{16}$ "	BP	3
I* shelf front trim	$\frac{3}{8}$ "	$\frac{3}{4}$ "	$30\frac{5}{16}$ "	P	3
J shelf side trim	$\frac{3}{8}$ "	1"	$10\frac{5}{16}$ "	P	6
K caps	$\frac{3}{4}$ "	$2\frac{1}{4}$ "	$15\frac{1}{4}$ "	P	2

\*Parts initially cut oversize. See the instructions. Quantities are for one shelving unit.

**Materials key:** P-poplar, BP-birch plywood.  
**Supplies:**  $\frac{3}{8}$ "-dia. dowel, Rit Dark Brown dye.

# SAVE When You Grow A Zoysia Lawn From Plugs!

From Plugs

To A Fabulous Lawn

**ZOYSIA FARM NURSERIES**  
Improving America's Lawns Since 1953

Zoysia Lawns are thick, dense and lush!

**GRASS SEED WILL NEVER GROW A LAWN LIKE THIS!**

**Save Water! Save Time! Save Work! Save Money!**

### Grass Seed Is For The Birds!

Stop wasting money, time and work sowing new grass seed each spring, only to see birds eat the seed – or rain wash it away – before it can root. Plant a genuine Amazoy™ Zoysia lawn from our living Plugs only once... and never plant a new lawn again!



Zoysia thrives in partial shade to full sun!

### Zoysia Grows Where Other Grass Doesn't!

Zoysia is the perfect choice for hard-to-cover spots, areas that are play-worn or have partial shade, and for stopping erosion on slopes. North, South, East, West – Zoysia will grow in any soil, no ifs, ands or buts!

### Eliminates Endless Weeds And Weeding!

No more pulling out weeds by hand or weeds sprouting up all over your lawn. Zoysia Plugs spread into a dense, plush, deep-rooted, established lawn that drives out unwanted growth and stops crab-grass and summer weeds from germinating.

### Environmentally Friendly, No Chemicals Needed!

No weeding means no chemicals. You'll never have to spray poisonous pesticides and weed killers again! Zoysia lawns are safer for the environment, as well as for family and pets!

### Cuts Watering & Mowing By As Much As 2/3!

Many established Zoysia lawns only need to be mowed once or twice a season. Watering is rarely, if ever, needed – even in summer!



We ship at the best planting time for you!

### Stays Green In Summer Through Heat & Drought!

When ordinary lawns brown up in summer heat and drought, your Zoysia lawn stays green and beautiful. The hotter it gets, the better it grows. Zoysia thrives in blistering heat (120°), yet it won't winter-kill to 30° below zero. It only goes off its green color after killing frosts, but color returns with consistent spring warmth. Zoysia is the perfect choice for water restrictions and drought areas!

### Our Customers Love Their Zoysia Lawns!

One of our typical customers, Mrs. M.R. Mitter of PA, wrote how "I've never watered it, only when I put the Plugs in... Last summer we had it mowed 2 times... When everybody's lawns here are brown from drought, ours just stays as green as ever!"

### Order Now And Save!

The more Amazoy™ Zoysia Plugs you order, the more you SAVE! And remember, once your Zoysia lawn is established, you'll have an endless supply of new Plugs for planting wherever you need them. Order now!

Each Zoysia Plug You Plant In Your Soil Is **GUARANTEED TO GROW** Within 45 Days Or We'll Replace It FREE!

To ensure best results, we ship you living sheets of genuine Amazoy™ Zoysia Grass, harvested direct from our farms. Plugs are not cut all the way through. Before planting, simply finish the separation by cutting 1" sq. Plugs with shears or knife. Then follow the included easy instructions to plant Plugs into small plug holes about a foot apart. Our guarantee and planting method are your assurance of lawn success backed by more than 5 decades of specialized lawn experience.

Meyer Zoysia Grass was perfected by the U.S. Gov't, released in cooperation with the U.S. Golf Association as a superior grass.

**FREE! PLANTING TOOL** With Order of 400 Plugs or More!  
Saves time, work and effort when making holes for Plugs!

©2009 Zoysia Farm Nurseries, 3617 Old Taneytown Rd, Taneytown, MD 21787

[www.ZoysiaFarms.com/mag](http://www.ZoysiaFarms.com/mag)

**Order Your ZOYSIA Plugs Now — Harvested Daily From Our Farms And Shipped To You Direct!**

**ZOYSIA GRASS SUPER SALE — SAVE OVER 50%! PLUS Get Up To 900 Plugs — FREE!**

Please send me guaranteed Amazoy as checked:

PACK	# PLUGS	# Free Bonus	Free Bonus	Retail Value	Your PRICE	+ Shipping	SAVINGS
<input type="checkbox"/> Basic	100	—	—	\$ 8.95	\$ 8.95	\$ 2.50	—
<input type="checkbox"/> 2 Basic Packs + 1 FREE	200	100	—	\$ 26.85	\$17.90	\$ 5.00	30%
<input type="checkbox"/> 4 Basic Packs + 2 FREE	400	200	Free Step-on Plugger	\$ 62.65	\$35.80	\$ 7.50	40%
<input type="checkbox"/> 5 Basic Packs + 3 FREE	500	300	Free Step-on Plugger	\$ 80.55	\$44.75	\$10.00	42%
<input type="checkbox"/> 6 Basic Packs + 4 FREE	600	400	Free Step-on Plugger	\$ 98.45	\$53.70	\$12.50	44%
<input type="checkbox"/> 9 Basic Packs + 7 FREE	900	700	Free Amazoy Power Auger	\$168.15	\$80.55	\$15.00	50%
<input type="checkbox"/> 10 Basic Packs + 9 FREE	1000	900	Free Amazoy Power Auger	\$195.00	\$89.50	\$17.50	54%
<input type="checkbox"/> Extra Step-on Plugger				\$8.95	<input type="checkbox"/> Extra Amazoy Power Auger™ for 3/8" Drill		\$24.95

Mail to: ZOYSIA FARM NURSERIES  
3617 Old Taneytown Road, Taneytown, MD 21787

Dept. 5240

Write price of order here \$ \_\_\_\_\_  
Md. residents add 6% tax \$ \_\_\_\_\_  
Shipping \$ \_\_\_\_\_  
ENCLOSED TOTAL \$ \_\_\_\_\_

Payment method (check one)  
 Check  MO  
 MasterCard  
 Visa

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_ Phone \_\_\_\_\_

We ship all orders the same day plugs are packed at earliest correct planting time in your area.

Amazoy is the trademark registered U.S. Patent Office for our Meyer Zoysia grass.

**Order Now! [www.ZoysiaFarms.com/mag](http://www.ZoysiaFarms.com/mag)**

Not shipped outside the USA or into WA or OR

# Ask WOOD

Answers to your questions from letters, e-mails, and WOOD Online\*

## HAVE A QUESTION?

For an answer to your woodworking question, write to **ASK WOOD**, 1716 Locust St., LS-221, Des Moines, IA 50309-3023 or e-mail us at [askwood@woodmagazine.com](mailto:askwood@woodmagazine.com). For immediate feedback from your fellow woodworkers, post your questions on one of our woodworking forums at [woodmagazine.com/forums](http://woodmagazine.com/forums).

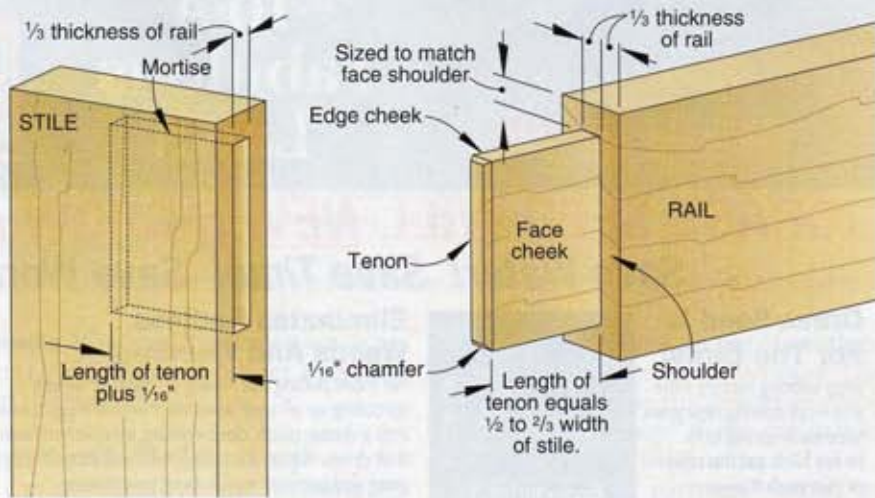
## Mortise methods and tenon tenets

**Q:** Is there a rule of thumb for sizing a mortise-and-tenon joint?

—Michael Halloran, Richmond, Ky.

**A:** Of course, the specific mortise-and-tenon size will vary by application, Michael. But as a general guideline, make the tenon about  $\frac{1}{3}$  the total thickness of the tenoned workpiece, and about  $\frac{1}{2}$ – $\frac{2}{3}$  as long as the width of the mortised workpiece. Though it's not structurally necessary, cutting a shoulder adjacent to the rail's edge as well as the face allows you to completely hide the mortise. To save setup time, size the edge shoulder the same as the face shoulder.

So, for example, for a matching  $\frac{3}{4} \times 2$ " stile and rail, first make the stile's mortise  $1\frac{1}{2}$ " long,  $\frac{1}{4}$ " wide, and  $1$ "– $1\frac{3}{8}$ "



deep; then make a tenon sized for a snug fit without forcing, leaving it

about  $\frac{1}{16}$ " short of the mortise depth to allow for glue.

## A pattern for preservation

**Q:** I was planning on storing the MDF templates for an Adirondack chair in my garage attic, but realized the humidity may warp them. How do you preserve your templates? These have photocopied patterns glued to one side.

—James Kahl, Edgewood, Md.

**A:** Because MDF has no grain, it is largely unaffected by changes in humidity, Jim. Unless you fear that water will drip directly on the templates, simply store them flat or drill a hole and hang them from a rafter. This prevents them from distorting under their own weight.

Sealing the patterns with a clear finish provides some protection from wear and tear, but the photocopied patterns may smear photocopier toner when you brush a finish on.

Instead, spray on a clear finish and don't touch the pattern lines or text until the finish is dry.



Photocopier toner doesn't stand up well to finishes. Test finishes on photocopied paper before using a brush to apply them.

continued on page 78

MADE IN USA

zing  
LASER

Laser Technology  
for Your Shop

Starting at \$7,995!

MADE IN USA

Epilog Laser  
1.888.437.4564  
sales@epiloglaser.com  
www.epiloglaser.com/bhg.htm

E  
EPILOG  
LASER

# Refinish Your Future.



## Own your own business.

Let your passion for furniture lead you into a new business with a Furniture Medic franchise. We're a complete on-site repair and restoration-refinishing business servicing homes and companies as well as handling moving and insurance claims. We offer extensive training and support with a low initial investment and manageable overhead. Financing is available to qualified candidates and franchises are offered nationwide. Call today to brush up on the details.



**FURNITURE MEDIC**  
The Franchise For Furniture Care

[www.furnituremedicfranchise.com](http://www.furnituremedicfranchise.com)

1-800-RUN YOURS

Circle No. 895

## PRO VERTICAL PANEL SAW

PANEL



# \$799

Shipping additional

The Panel Pro is a complete panel saw system that will give you safe, fast and accurate cuts every time at a price that won't wipe out your budget.

- Requires Little Floor Space
- Precise Straight and Square Cuts
- Single Person Operation
- Safer Than Most Saws
- Portable and Lightweight
- Minimal Set-Up is Required

800-599-1655



Order Online at  
[www.panelpro.com](http://www.panelpro.com) and Save!



Circle No. 1708

# Changing the way things are done.

## Magswitch Technology Is Revolutionizing Tabletop Workholding!

### The New MagFence Switchable Magnetic Woodworking Guide System

- ▶ Works on all cast-iron tables.
- ▶ Includes precision roller bearings.
- ▶ Featuring Magswitch MagJigs with up to 150lbs/68kgs of clamping strength.
- ▶ Smooth, secure feed of material for enhanced shop safety!

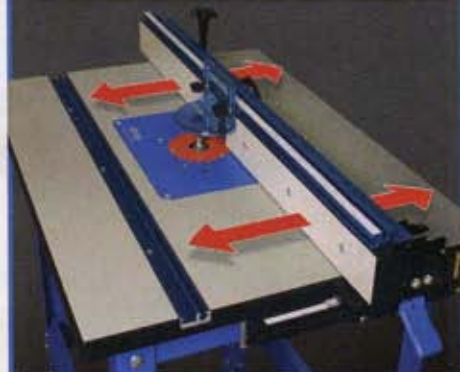
Features: MagFence Universal Mounting Base, two 30mm MagJigs, MagFence Dual Roller Guide, MagFence Resaw Guide, 20mm MagJig adapters and all necessary hardware.



  
**magswitch**  
[www.magswitch.com.au](http://www.magswitch.com.au)

Circle No. 2016

# PRECISION ROUTING. Tablesaw Fundamentals.



Unlike conventional router tables, our innovative Precision Router Table utilizes a self-squaring tablesaw inspired fence which moves perfectly parallel to the miter slot. Because of its unique design, even the most minor adjustment made on the fence's scale translates instantly to the bit.

## OTHER INNOVATIVE FEATURES

### Magnified Precision Lens Cursor

Find the exact mark you need, in no time. Start getting real precision from your router table.

### Ultra-Quiet, Ultra-Strong MDF Top

1-1/8" thick durable MDF top features steel strut reinforcement. Won't sag or bow over time.

### Doubles as a Vertical Jointer

Independently adjustable fence faces lets the table double as a vertical jointer. 1/16" and 1/32" depths.

### Bottom-Up Insert Plate Levelers

Innovative design features 8 individual contact points for a perfectly flat and secure insert plate.

### Heavy-Duty Phenolic Insert Plate

Professional "swiss-cheese" free design mounts easily to any router. Includes dual reducing rings.



See our current promotion at [kregtool.com/precision](http://kregtool.com/precision)

PRS1040  
Kreg Precision Router Table

To learn more, watch a video at [www.kregtool.com/precision](http://www.kregtool.com/precision)

# Kreg

[www.kregtool.com](http://www.kregtool.com) | 800.447.8638

## Ask WOOD

### What the heck is QSWO?

**Q:** I see the abbreviation QSWO in the [woodmagazine.com](http://woodmagazine.com) forums a lot and have no idea what it means. Any help?

—Kent McDonald, Prince George, B.C.

**A:** QSWO stands for quartersawn white oak, Kent. In our fast-food, text-message world, words and phrases are becoming more and more abbreviated—even for woodworking terms. Let's decode some more of the abbreviations you might see tossed around [woodmagazine.com/forums](http://woodmagazine.com/forums):

MDF = medium-density fiberboard

TS = tablesaw

BS = bandsaw

ROS = random-orbit sander

RAS = radial-arm saw

SCMS = sliding compound mitersaw

Even the less technical phrases of conversation get condensed online, such as:

PIP = project in progress

OT = off topic

IMHO = in my humble opinion

IIRC = if I recall correctly

AFAIK = as far as I know

OTOH = on the other hand

BTW = by the way

FWIW = for what it's worth

BORG = big orange retail giant (The Home Depot)

LOL = laughing out loud

ROTFL = rolling on the floor laughing

ROTFLOL = rolling on the floor laughing out loud

LOML = love of my life

...which is interchangeable with...

SWMBO = she who must be obeyed

SWIM (see what I mean), Kent? We sincerely HTH (hope this helps) clear things up. Thx for the ?, and C U L8R.



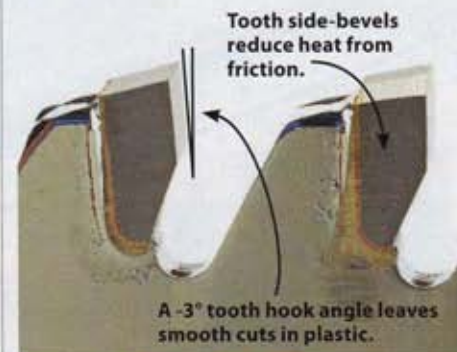
### There's a clear choice for cutting plastics

**Q:** I make a lot of bird feeders with clear acrylic walls. I cut pieces 12" or narrower on my bandsaw, and for wider ones, I use my tablesaw with an 80-tooth veneer blade mounted backwards. This is hard on the blades and doesn't work very well. Is there a better way?

—Dick Webber, East Jordan, Mich.

**A:** For cutting large amounts of acrylic, go with a plastic-cutting specialty blade, Dick. These include 80-tooth, 10" blades, such as the Freud no. LU94M010 shown *below* (\$65.85; 800-472-7307 or [freudtools.com](http://freudtools.com)), the Forrest No-Melt (\$216; 800-733-7111 or [forrestblades.com](http://forrestblades.com)), and the Infinity Cutting Tools Multi Material (\$79.90; 877-872-2487 or [infinitytools.com](http://infinitytools.com)).

The teeth on plastic-cutting blades have a negative hook angle and beveled sides that cut cooler and smoother, especially on the bottom surface. Compare the negative-angle teeth on a plastic-cutting blade to the teeth of tablesaw blades made for woodworking, which usually have a positive hook angle for an aggressive cut. However, that angle leaves a rough edge on plastic, and the sides of the teeth can rub against the plastic enough to melt it. For best results with a plastic-cutting blade, set the height so that just half of the uppermost carbide tooth is above the acrylic, as shown *bottom*.



continued on page 80  
WOOD magazine March 2009



# Do you have diabetes? Are you on Medicare?

If you answered "Yes" to both questions, the cost of your diabetes testing supplies may be covered.\*

**Call 1-866-507-8820**

**Know the facts about Medicare coverage for people with diabetes.** You could be eligible for home delivery of diabetes testing supplies—with free shipping. And the costs may be covered by Medicare.† With many of the new Medicare Prescription drug plans, you can also have Liberty deliver your prescriptions.

**No up-front costs:** With Liberty, you pay no money up front for your diabetes testing supplies. And with qualified supplemental insurance, chances are you'll pay nothing at all.

**No claim forms to fill out.** Liberty takes care of the claim forms and bills Medicare and your insurance company for you.

**Liberty carries most brand-name meters.** Testing your blood sugar can reduce complications by almost half. So Liberty offers a broad selection of brand-name meters and test strips.



Roche  
ACCU-CHEK®



Bayer  
Breeze® 2

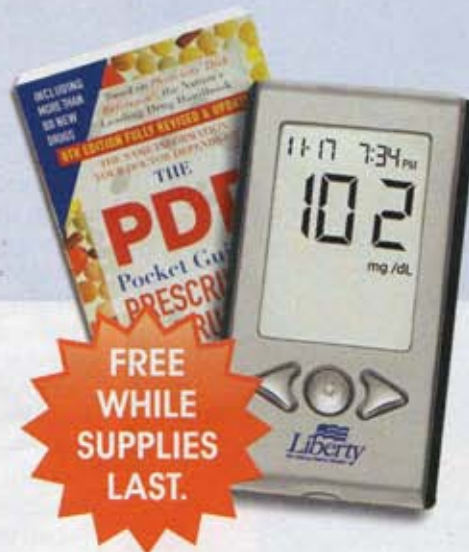


LifeScan  
OneTouch®

**Liberty**

Get your **FREE METER**  
**PLUS** a *Physicians' Desk Reference Pocket Guide to Prescription Drugs*.†

**1-866-507-8820**  
[www.LibertyMedical.com](http://www.LibertyMedical.com)



\* Co-payments, deductibles and some restrictions apply.

† Meter offer available to qualified beneficiaries with diabetes. Not available to current Liberty patients. No purchase necessary. Meter shown for illustrative purposes only. Meter offer not applicable to all brands of meters. *Physicians' Desk Reference Pocket Guide to Prescription Drugs* offer dependent on patient enrollment. Combined offer available while supplies last. Terms and conditions apply.

Liberty Meter is distributed by Liberty Medical Supply, Inc., Port St. Lucie, Florida.

## MODEL 90-200 M1 15" ADJUSTABLE HEIGHT BANDSAW

Adjustable cutting depth 5"-12".

Cast-iron frame & precision-balanced cast-iron wheels with replaceable rubber tires.

0° to 45° handwheel controlled smooth rack and pinion table tilt adjustment.

2 cutting speeds: 1570 & 2660 FPM (480 & 810 MPM).

Laser line marker & work light included.

Powerful 1 1/2 HP motor.



93 1/2" X 3/8" &  
105" X 3/8" blades  
included



Circle No. 1552

For current promotions, complete product info and a list of dealers near you:

WWW.GENERAL.CA

## Ask WOOD

### Is all MDF created equal?

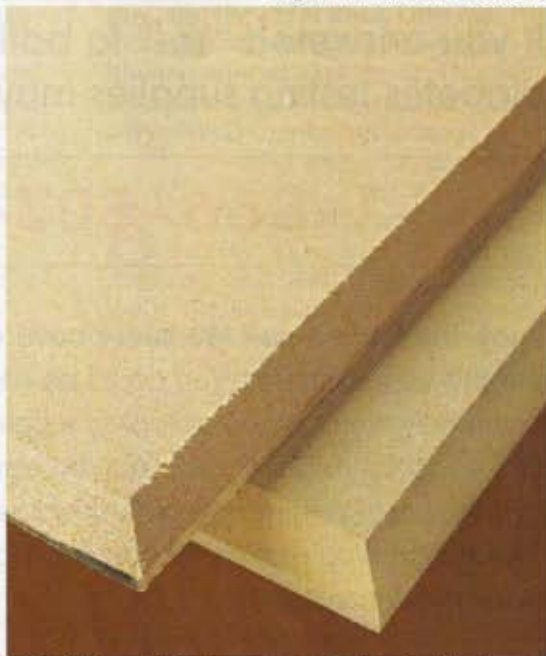
**Q:** I just got some medium-density fiberboard (MDF) from my local home center. It seems coarser than I'm used to and shreds when I cut or rout it. I thought all MDF was the same. What gives?

—Angela Kinast, Delaware, Ohio

**A:** Just like plywood, MDF comes in a variety of grades and compositions, Angela. Most MDF consists of refined Southern yellow-pine wood fibers mixed with resin. MDF made from wood fibers that have been refined to a consistent, small size gives you smooth, shred-free cuts and crisp profiles.

Unfortunately, some retailers get their low-cost sheet goods from overseas manufacturers that may not adhere to high quality standards. As the old saying goes, you get what you pay for.

Ask your local lumberyard or hardwood dealer for its MDF source. Most likely it is one of the many North American MDF manufacturers that have retained high quality control.



Both of these MDF sheets were chamfered with the same router and bit. The low-cost sheet at top yielded visibly coarser cuts with shredded edges.

### Woodworking word of the day: chatoyance

**Q:** What is chatoyance? I read the word in a finishing article online, but my dictionary isn't much help.

—Robert Priboth, Madison, Wis.

**A:** Borrowed from gemology, chatoyance describes the color-changing properties of some woods, Robert. When the wood cells in a tree grow in nonuniform directions, light often reflects off the cells at slightly different angles. So a piece of wood can appear to be one color when viewed from one direction, but will change colors when rotated. The color changes may present as an undulating motion as you turn the wood, especially in figured wood, such as the curly maple tabletop shown [here](#).

Dyes enhance chatoyance, penetrat-

ing deeply into the cell structure and lending an otherwise flat piece a 3D effect.



## Pining for an even finish

**Q:** I use white pine in many projects because it's readily available and inexpensive. But I have problems staining boards a consistent color from one end to the other. What's the best way to stain pine?

—Jim Gray, Madisonville, Texas

**A:** If pine's soft earlywood were as hard as its dense latewood, your staining problems would be over, Jim. However, that soft earlywood acts like a stain sponge, leaving behind a blotchy

surface. To beat the blotch, try this two-pronged approach regardless of how dark you want the wood. First, sand the entire project to 180 grit. Thoroughly wet one surface at a time with a damp cloth so the moisture reaches just beneath the surface. Then immediately wipe the surface dry and apply a dye that's the shade you want. We aimed for a dark finish on the test board below, so we used antique mahogany dye (#40, W.D. Lockwood, 866-293-8913 or [wdlockwood.com](http://wdlockwood.com)).

Allow the dye to dry overnight; then lightly sand the wood with 220 grit to remove nibs. Wipe the surface clean and seal the wood with a ½-lb cut shellac or with varnish that's thinned 75 percent with mineral spirits. Hand-sand the sealed surface evenly with 220 grit, and apply a pigmented sealer over the sealer. Choose a stain that's close in color and darkness to the dye. If you want a still darker surface, repeat the sealer/stain combination. Cover the final coat of stain with a clear finish.



continued on page 82

## Breathe Easier with a One Stop Dust Collection Solution

With 20 years experience and a superior product line, the experts at Penn State Industries will provide you effective solutions for a cleaner shop.



FREE Ductwork Plan

### TEMPEST™ Cyclones

- ▲ 2.5HP - 1450CFM - \$995
- ▲ 3.5HP - 1700CFM - \$1125
- ▲ 5.0HP - 1800CFM - \$1395

### Premium Ductwork

- ▲ Pipe for maximum airflow
- ▲ Fittings and hoods for most applications

### Ductwork Planning Service

- ▲ An accurate layout of your shop to save you hours of planning

### More Collection Solutions

- ▲ High performance bag-style collectors, air cleaners and portable collectors ideal for any size home shop

Call Bill at 1-800-377-7297 x16 to help you plan the best solution for your shop or CNC applications. Mention this ad for information on how to get a FREE ductwork plan and a FREE catalog.

# Penn State Industries

1-800-377-7297 • [www.pennstateind.com/nodustwm](http://www.pennstateind.com/nodustwm)

800-472-6950  
**WOODLINE USA**



**THE CUTTERS YOU NEED**



**QUALITY GUARANTEED**



**WOODLINE.COM**

**6pc Cabinet Set**



- 3-1/4" ogee raised panel
- 2-piece ogee rail & stile
- Reversible glue joint
- Drawer lock
- Door lip

ONLY \$ **119<sup>95</sup>**

WL-2020-1 : 1/2" Shank

**30pc Professional Set**



This 30pc collection of carbide tipped router bits is the perfect size for use on the job site while having everything you need to do the job!

ONLY \$ **109<sup>95</sup>**

WL-2010 : 1/2" Shank

**5pc Moulding Set**



The perfect set for all woodworkers with 5 popular profiles that can be matched together for unlimited options!

ONLY \$ **94<sup>95</sup>**

WL-2011 : 1/2" Shank

Circle No. 310

**Ask WOOD**

**Planer versus pressure-treated**

**Q:** My deck, made of pressure-treated pine, is beginning to look weathered. Is it safe to remove the boards and "freshen them up" by running them through the planer?

—Brent Moore, Jefferson City, Mo.

**A:** Aside from the blade-dulling grime unavoidable in deck wood, there are a couple reasons to avoid power-planing pressure-treated (PT) lumber. PT lumber produced prior to 2003 was treated with Chromated Copper Arsenate (CCA), a preservative containing arsenic. Safety gear, such as gloves, respirators, and proper dust collection, protects you during normal handling. However, the debris created when planing increases your exposure and the chances of introducing the arsenic into the environment.

More recent PT lumber is infused with Alkaline Copper Quaternary (ACQ), which contains no harmful arsenic. However, ACQ has a higher copper content that speeds rust in any ferrous metal it touches—not the type of shavings you want inside your expensive machinery.

For a quicker, easier solution, try removing the deck boards and simply flipping them over. The less-exposed bottom face will not have weathered as much, and a light power-washing will have them looking brand new.



Use "The Yankee Flip" as a thrifty way to revive the look of weathered deck boards.

## Give desert-bound bubinga time to dry

**Q:** To make my future dining-room table, I recently purchased a bubinga board 2" thick, 3' across, and 15' long. I had it shipped from Oregon to Tucson, Arizona, where I cut it into three equal lengths and sealed the ends. How long should it acclimate before I use the boards? I was told it was kiln-dried, but don't have a moisture meter to check for sure.

—Matt Sandoval, Tucson, Ariz.

**A:** Given your dry locale, Matt, even an inexpensive moisture meter would be a good investment. (Grizzly offers the Mini-Ligno no. G1491 for \$100. Call 800-523-4777, or visit [grizzly.com](http://grizzly.com).)

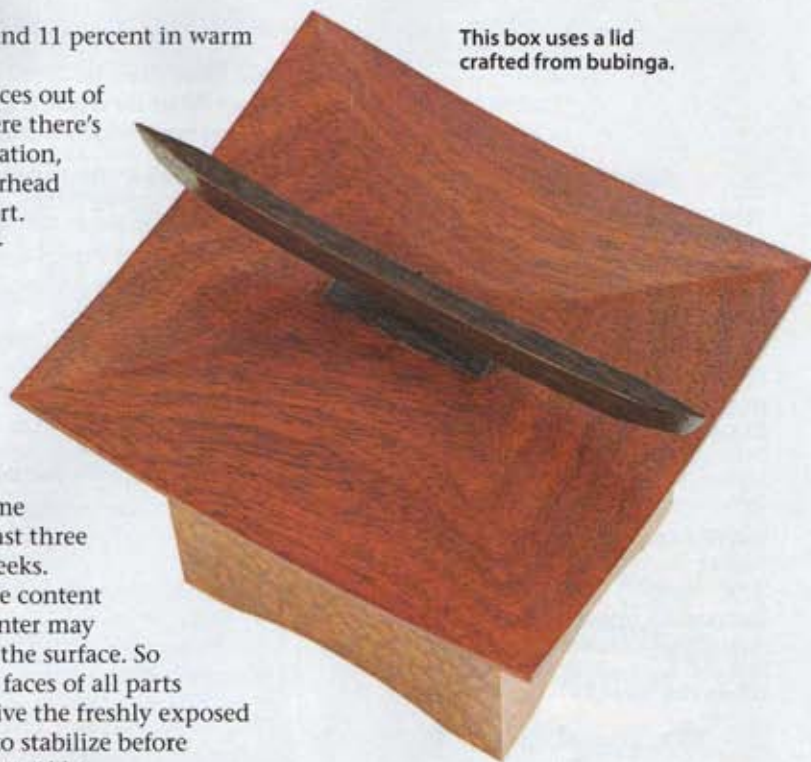
Whether or not the boards were kiln-dried, they face a considerable climate change moving from Oregon to your Arizona home. Wood for indoor projects in the Southwest should average 6 percent moisture, compared with 8 percent throughout most of the

United States and 11 percent in warm coastal areas.

Store the pieces out of direct sun where there's good air circulation, such as an overhead area of a carport. Shim the stickered pieces so the bubinga rests completely flat. Then check the moisture content each week until the readings become stable for at least three consecutive weeks.

The moisture content close to the center may exceed that at the surface. So machine both faces of all parts equally, and give the freshly exposed surfaces time to stabilize before assembling your table.

This box uses a lid crafted from bubinga.



[woodmagazine.com](http://woodmagazine.com)

continued on page 86

83

# Woodturning Passion Within Your Reach

Get More Value at Penn State Industries

Pen Kits, Blanks and Turning Projects

Easy and Fun to Make

Barracuda2™ Lathe Chuck

Only \$179.95 for Complete 12-piece System #CSC3000C

TurncrafterPro™ Variable Speed Lathe

Only \$279.95 #TCLPROVS

PSI Woodworking Products deliver best-in-class price/performance results.

Take fun, creativity and fulfillment to a new level.

Penn State Industries. Turn here to pursue your passion.

Call or go online for a FREE catalog

## Penn State Industries

1-800-377-7297 • [www.pennstateind.com](http://www.pennstateind.com)

Circle No. 2151

## FREE Product Information from Advertisers in This Issue

Looking for FREE product information? Fill out the coupon in this section to receive FREE product info and catalogs. Or, for quicker service and instant access to information, visit us online at [www.woodworkerscenter.com](http://www.woodworkerscenter.com)

### Adhesives & Finishes

**TITEBOND® III ULTIMATE WOOD GLUE**  
Superior bond strength, waterproof, longer open-assembly time. The Best Wood Glue Ever!  
**Circle No. 24.**

**THE GORILLA GLUE COMPANY** Bonds wood, stone, metal, ceramic, and more. Incredibly strong — 100% waterproof. **Circle No. 50.**

**OLD MASTERS: CRAFTSMAN-QUALITY STAINS AND FINISHES** For over 50 years, Old Masters has provided quality stains and finishes to protect and enhance wood's beauty and richness. **Circle No. 95.**

**UNITED GILSONITE LABORATORIES**  
Finishing Touch Brochure — guide for best results using ZAR Wood Stain/Finishes. **Circle No. 128.**

**UNITED GILSONITE LABORATORIES**  
Hardwood Floor Guide — step-by-step finishing instructions using ZAR Wood Stain/Finishes. **Circle No. 154.**

### Bits, Blades, Cutting Tools

**EAGLE AMERICA** Largest selection of professional quality, American-made router bits + 100's of unique accessories. **Circle No. 193.**

**FORREST MFG. CO., INC.** Top quality blades and dados for an ultra smooth finish. **Circle No. 206.**

**FREUD SAW BLADES** This 48-page catalog illustrates the features and benefits for all Freud saw blades. **Circle No. 219.**

**FREUD ROUTER BITS** All Freud router bits are represented in this 84-page catalog, including more than 130 new bits and sets. **Circle No. 232.**

**THE HOLE THING** 3 inch to 7-3/4 inch adjustable cutter. **Circle No. 241.**

**MLCS WOODWORKING** Best quality, huge selection, low prices, superior service. Free Shipping! **Circle No. 245.**

**SAWSTOP** SawStop table saws stop the blade upon contact with skin. **Circle No. 280.**

**WOODLINE USA** Router tables, routers, router bits, clamps, saw blades and more. **Circle No. 310.**

### Books, Plans and Videos

**AMERICAN FURNITURE DESIGN CO.** 150 of America's best furniture plans, comprehensive instruction guide. Catalog. **Circle No. 336.**

**MEISEL HARDWARE SPECIALTIES CATALOG** 2,000+ full-size project plans and hard-to-find hardware. **Circle No. 401.**

**U-BILD WOODWORKING PLANS** Since 1948! Hundreds of full-size plans, downloadable plans, low prices. **Circle No. 435.**

### General Woodworking Catalogs

**ARMOR CRAFTS** Full-size plans to build cradles, rocking horses, clocks and more. Also hardware and wood craft supplies. **Circle No. 556.**

**THE BEALL TOOL COMPANY** Inventive solutions for shop problems: wood threading, buffing & more. **Circle No. 558.**

**CHERRY TREE TOYS** Plans, parts kits, clocks, wood parts, lamp parts and supplies. **Circle No. 563.**

**GRIZZLY INDUSTRIAL, INC.** 12,000 woodworking and metalworking machines, tools and accessories — unbeatable prices! **Circle No. 583.**

**HARTVILLE TOOL CATALOG** Quality woodworking tools and supplies at the best prices around. **Circle No. 596.**

**ROCKLER WOODWORKING & HARDWARE** Our premium tools make woodworking efficient and enjoyable. FREE Catalog. **Circle No. 661.**

**WOODCRAFT SUPPLY CORP.** Over 15,000 top quality woodworking tools, supplies, and accessories. **Circle No. 700.**

**WOODWORKERS HARDWARE** Over 8,000 items stocked. Largest selection of cabinetmakers hardware. Lowest prices. **Circle No. 713.**

### Hand Tools, Jigs & Clamps

**KREG TOOL CO.** Your one stop shop for everything Pocket-Screw related. **Circle No. 802.**

**LOWELL THOMAS TOOLS/ALPHA CLAMPS** New Generation bar clamp does what other clamps can't. **Circle No. 806.**

**DOWELMAX JOINT-MAKING SYSTEM** Dowelmax creates joints which are quick, easy, accurate, and strong. **Circle No. 825.**

**TOOLS FOR WORKING WOOD** Our 100-page catalog has some of the finest woodworking tools available today. **Circle No. 830.**

### Hardwood & Lumber

**STEVE H. WALL LUMBER CO.** Quality hardwoods, plywood, exotic lumber. Ship UPS/ motor freight, wholesale prices. **Circle No. 856.**

**WOODWORKERS SOURCE** Hardwoods from around the world. **Circle No. 869.**

### Income Opportunities & Education

**FURNITURE MEDIC** Offering franchise licenses to qualified individuals to perform mobile, on-site furniture repair & restoration services. **Circle No. 895.**

**MARC ADAMS SCHOOL OF WOODWORKING** Over 125 summer hands-on workshops with the best instructors of modern time. **Circle No. 916.**

**WOODCRAFT RETAIL FRANCHISE** Own a Woodcraft Store — franchises offered for stores across the country. **Circle No. 924.**

### Kits

**DETAILED PLAY SYSTEMS** Wooden swingsets and playground equipment for the backyard. Free catalog. **Circle No. 958.**

**KLOCKIT** The leading supplier of clock-making supplies for over 35 years! **Circle No. 973.**

### Lawn & Garden

**ZOYSIA FARMS NURSERIES** Amazon Zoysia grass saves you time, work and money. **Circle No. 1017.**

### Miscellaneous

**APOLLO SPRAYERS TURBINE SYSTEMS** Quality control, engineering and durability. **Circle No. 1061.**

**AZTEC STEEL CORP.** Quality pre-engineered arch-style steel buildings at the lowest cost anywhere. **Circle No. 1064.**

**DAKOTA ALERT, INC.** An alert sounds in the house when someone enters the drive. **Circle No. 1129.**

**LIBERTY MEDICAL SUPPLY** Diabetic? Start living a better life with Liberty Medical. **Circle No. 1229.**

**RADIANT FLOOR COMPANY** Radiant Heating Systems—design, manufacture and sale for the DIY. **Circle No. 1301.**

### Power Tools

**CARVEWRIGHT WOODWORKING SYSTEM** Computer controlled carving machine. **Circle No. 1463.**

**DRILL DOCTOR** Sharpen your dull and broken drill bits with The Drill Doctor. **Circle No. 1511.**

**EPILOG** Wood engraving and cutting systems — Low Price, High-Quality Laser Systems. **Circle No. 1515.**

**FESTOOL** Superior portable power tools that help tradesmen and craftsmen work faster, easier and smarter. **Circle No. 1526.**

**FREUD POWER TOOLS** 16-page catalog illustrates dependable power tools with traditional Freud quality. **Circle No. 1532.**

**GENERAL, GENERAL INTERNATIONAL AND EXCALIBUR BY GENERAL INTERNATIONAL** A complete line of quality woodworking machinery & accessories. **Circle No. 1552.**

**GRANBERG INTERNATIONAL** Alaskan Saw Mill, chain saw accessories. Made in USA. **Circle No. 1558.**

**PLASMA CAM, INC.** Put metal into your wood projects! Free Demo Video! **Circle No. 1641.**

**WORK SHARP** Sharpen your woodworking tools with the new WORK SHARP. **Circle No. 1665.**

**PANEL PRO VERTICAL PANEL SAW** Economical panel saw makes handling and cutting wood/plastic sheets easy. **Circle No. 1708.**

**SHOPBOT TOOLS INC.** Complete CNC systems for applications in wood, plastic and metal. **Circle No. 1714.**

**TOOLMART INC.** Makita, DeWalt, Porter-Cable, Milwaukee, Bosch, Freud. **Circle No. 1770.**

**WOOD-MIZER PRODUCTS** Eight Portable Sawmills Available starting with the LT10 at \$3995. **Circle No. 1805.**

**WOODMASTER TOOLS** Multi-duty planers that mold, sand & saw. **Circle No. 1820.**

**WOODSTOCK INTERNATIONAL, INC. SHOP** FOX Woodworking Machines offering professional-level quality. Dealer supplied. **Circle No. 1824.**

### Project Parts & Materials

**ADAMS WOOD PRODUCTS** Offers a free catalog of their stock solid wood components. **Circle No. 1831.**

**CABINETWORKS LTD.** Wall Bed Systems—DIY hardware or the complete assembly. **Circle No. 1843.**

**OSBORNE WOOD PRODUCTS, INC.** A free catalog of table legs, corbels, and island legs. **Circle No. 1849.**

**OSBORNE WOOD PRODUCTS, INC.** WOOD CORBELS offer classic corbels in a broad range of styles. **Circle No. 1851.**

**WILDWOOD DESIGNS SCROLLSAW PATTERNS** Up to 74" clocks, 300+ patterns, books, clock parts, saw blades, tools, wood! **Circle No. 1857.**

### Shop Accessories

**AMERICAN FABRIC FILTER CO., INC.** Manufacturers of custom-made filter bags for the wood industry. **Circle No. 1868.**

**EZEE-FEED MANUFACTURING** Set up your tablesaw to cut large sheet goods in a matter of minutes. **Circle No. 1952.**

**THE JDS COMPANY** Specializing in the finest air filtration and dust collection equipment. **Circle No. 1974.**

**LIGNOMAT USA, LTD.** Affordable, reliable, pin and pinless moisture meters for wood. Free catalog. **Circle No. 2013.**

**MAGSWITCH** Magswitch strong switchable magnets offer amazing new capabilities in workholding/clamping. **Circle No. 2016.**

**ONEIDA AIR SYSTEMS, INC.** Free informative catalog contains dust collection systems and complete ductwork. **Circle No. 2039.**

**PENN STATE INDUSTRIES** Award-winning dust collection. Collectors, Cyclones, Ductwork and more. **Circle No. 2045.**

**PHASE-A-MATIC, INC.** Convert 1-phase electric power into 3-phase; run 3-phase equipment anywhere. **Circle No. 2052.**

**RED HILL CORP. SUPERGRIT® ABRASIVES** Industrial quality sanding belts, discs, rolls, sheets at wholesale prices to small consumers. **Circle No. 2065.**

### Woodturning Supplies

**BEREA HARDWOODS** Quality pen kits and other turning kits. **Circle No. 2127.**

**HUT PRODUCTS** Woods, acrylics and supplies for pen and game call turning. **Circle No. 2133.**

**PACKARD WOODWORKS** Free Catalog for WOODTURNERS! — Quality Lathes, Tools and Supplies. **Circle No. 2143.**

**PENN STATE INDUSTRIES** Leading supplier of Turning Products. Pen kits, project, finishes and more. **Circle No. 2151.**

# Make Your Shop Better TODAY



128 pages of shop-proven tips, tricks, and jigs from the editors of WOOD® magazine.

**On Your Newsstand NOW!**

\$6.99 U.S.  
\$8.99 Canada

Order online at [woodmagazine.com/publications](http://woodmagazine.com/publications)

or call toll free **888-636-4478**

WD0309

## WOODWorkersCenter.com

DEPT. WOMA09

### FREE Product Information

CIRCLE THE NUMBERS BELOW CORRESPONDING TO ITEMS IN THIS ISSUE.

24	219	435	713	916	1229	1558	1824	1974	2133
50	232	556	802	924	1301	1641	1831	2013	2143
95	241	558	806	958	1463	1665	1843	2016	2151
128	245	563	825	973	1511	1708	1849	2039	4000
154	280	583	830	1017	1515	1714	1851	2045	
193	310	596	856	1061	1526	1770	1857	2052	
205	336	661	869	1064	1532	1805	1868	2065	
206	401	700	895	1129	1552	1820	1952	2127	

Discover how rewarding woodworking can be! Get one full year of WOOD® for just \$28.00 (7 issues). Simply circle No. 4000. You will be billed later.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
E-MAIL ADDRESS \_\_\_\_\_  
PHONE (OPTIONAL) \_\_\_\_\_

TO ENSURE PROMPT HANDLING OF YOUR ORDER, PLEASE:

- Circle Your Choice(s) in the box above
- Send card to WOOD® Magazine, Dept. WOMA09, P.O. Box 5135, Buffalo, NY 14205-5135
- Allow 4-6 weeks for delivery
- This card expires July 13, 2009

# THIS IS YOUR BODY ON RADIANT HEAT ANY QUESTIONS?

VISIT OUR WEBSITE

CALL FOR A  
FREE QUOTE

# RADIANT

Floor Company

Compatible with any fuel source:

GAS PROPANE SOLAR OIL WOOD ELECTRIC GEOTHERMAL

www.radiantcompany.com

Barton, Vermont

(toll free) 1.866.WARM-TOES (927.6863)

Circle No. 1301

## Ask WOOD

### The state of the state on Presidential gifts

**Q:** I always thought it would be really cool to make the President of the United States a nice wooden gift. How do I make sure he gets it?

—John Morris, San Jacinto, Calif.

**A:** John, in a tradition that is as old as the country, The President of the United States receives about 1,000 gifts per month sent by people ranging from ordinary citizens to visiting sports teams to foreign heads-of-state. These are considered gifts to the Office of the President unless specifically designated in writing as gifts to the first family.

When a President's term ends, the bulk of the gifts get transferred to his Presidential Library to be cataloged and stored or put on display.

The President is free to take items addressed to the first family. However, he pays taxes on any gifts taken, and those valued at \$100 or more must be reported to the Office of Government Ethics. No wonder outgoing Presidents are selective in what gifts they take with them.

Rather than send a gift, some administrations suggest you consider looking for opportunities to assist neighbors in need. However, if you insist, address it to The White House, 1600 Pennsylvania Avenue NW, Washington, DC, 20500. Be sure to include your contact information, a description of the gift, an estimated value, and a note designating it either to the Office of the President or to the first family. 🌿



## Everyday Low Prices

### Air Locker

Roofing Coil Nailer

**RN45AB**

Sequential / Bump Fire Trigger  
Magazine Angle : 15 to 18  
Fastener Length : 3/4" to 1-3/4"



**\$159.99**

### Air Locker

22 Ga Long Nose Upholstery Stapler

**U630L** with extra long nose  
Automatically adjust for fastener lengths between 3/8" - 1/2"



**\$49.99**

### Air Locker

23 Ga Micro Pin Nailer P630

P630 Shoots between  
1/2" to 1-3/16" 23Ga Pins



**\$59.99**

### Air Locker

Maintenance Kit PK630M

**\$9.99**



Comes in a Rugged Aluminum Case

### Top MultiMaster

**FMM 250Q**

**\$399.99**

Quick change tool with variable speed



### E-Cut Universal

**6-35-02-152-02-0**

**3 Packs**

**\$69.99**



### TM P003

Multipurpose

**\$4.99**

Get Toolmart's cutting with purchase of these Fein-Products on a Special Price!

### POWERMATIC

Cabinet Saw

**PM2000**

**1792000K**



**\$2699.99**

FREE Shipping

### JET ProShop

**708480K**

**\$50 Rebate**

**\$899.99**



Place Order over \$2000 of Jet/Powermatic products and get FREE Shipping

### PLS3 Self Leveling Laser Tool

3-beam laser that gives reference points for plumb and level layout

**\$181.99**

Lowest Price on Net



### PLS5 Point to Point Laser Tool System

Lay out reference points faster than traditional, labor intensive methods



**\$314.99**

www.toolmarts.com 1-800-735-8665

Circle No. 1770





## A TRADITION OF ELEGANCE

Osborne Wood Products, Inc. features the Traditional Elegance collection. These timeless product styles highlight the dignity of design that has remained classic through the centuries. To see the complete selection of wood components available visit: [www.osbornewood.com](http://www.osbornewood.com).



Graceful, yet bold...

with an air of distinction...

4618 GA Highway 123 N  
Toccoa GA 30577  
Order Line: 800.849.8876  
For a Catalog: 800.746.3233  
info@osbornewood.com

www.osbornewood.com

Circle No. 1851

# WOODCRAFT®

## Your Best Work Starts With Us!

With over 15,000 of the finest woodworking tools in the world, Woodcraft can help you work more efficiently and skillfully than ever. Call for your FREE copy today.

## FREE Tool Catalog!

1-800-542-9115  
[woodcraft.com](http://woodcraft.com)

406 Airport Industrial Park Road  
P.O. Box 1686  
Parkersburg, WV 26102-1686



Dept: FD9W1030

Circle No. 700

# Forrest Blades

Serious woodworkers count on American-made Forrest saw blades for smooth, quiet cuts, everytime...without splintering, scratching or tearouts. No matter what your application, Forrest blades are simply the best money can buy. That's why discriminating craftsmen prefer them!



"[Your blades] cut true, with no vibration. I can say with confidence that Forrest blades are the best."

Carl Stude - Burbank, CA

## Our Most Popular Saw Blades:

**Woodworker II** - This award-winning all-purpose blade is the finest of its type.

**Chop Master** - Produces perfect miters with smooth edges...and no bottom splinters.

Ask for Forrest blades at a fine dealer or retailer, order online,

or call the factory directly. Your satisfaction is guaranteed...or your money back!

## FORREST

The First Choice of Serious Woodworkers Since 1946

[www.ForrestBlades.com](http://www.ForrestBlades.com)  
1-800-733-7111  
(In NJ, call 973-473-5236)

© 2006 Forrest Manufacturing

Code WM

Circle No. 205



SINCE 1972

Essential,  
Unique,  
& Hard To  
Find Tools!

## WOODWORKING

## Special Offer! Only!

### PREPPIN' WEAPON



Professional Sanding Blocks

#62868

**\$15 ea.**  
Reg. \$19.99

Offer Expires 04/30/2009

**FREE! SHIPPING**  
On Orders Over \$75  
(Lower 48 States)

#62870

#62872

#66811

#62874



**FREE**  
**Woodworking Catalog!**

MADE IN THE  
U.S.A.

Order Online [hartvilletool.com](http://hartvilletool.com)  
or Call Us: **800-345-2396**

Circle No. 596

## Wireless Driveway Alarm



Alerts you when someone is walking or driving onto your property.

Free Literature

### Dakota Alert

PO Box 130, Elk Point, SD 57025  
605-356-2772 • www.dakotaalert.com

Circle No. 1129

## HARDWOODS

Lumber • Veneer • Turning Stock

exoticwoods.net  
800.423.2450

Wood Descriptions • Secure Online Ordering



WOODWORKERS  
Source

18115 N. Black Canyon Hwy. • Phoenix, AZ 85023

645 W. Elliott Rd. • Tempe, AZ 85284

3441 S. Palo Verde • Tucson, AZ 85713

Circle No. 869

**Wildwood DESIGNS INC.**  
2104 Beloit Ave  
Janesville, WI 53546  
1-800-470-9090

## Excalibur

21" & 30" Precision  
Scroll Saws

## Galaxy

Scroll Saw  
Blades & Pin  
Nailers

SIMPLY WILD  
ABOUT SCROLL  
SAWING

www.wildwooddesigns.com

Circle No. 1857

## Can Your Old Dust Collector Work Better Than A New One?

Cyclones,  
Stand-Alones,  
Baghouses & more

Yes, with Optimized  
Custom Filters from...



We Design & Fabricate  
Custom Filter Bags that  
**REALLY WORK!**

## American Fabric Filter Co.

americanfabricfilter.com  
(800) 367-3591

Circle No. 1888

## TILTBOX<sup>®</sup>

Pat. Pend. Accurately reads relative angles

Magnets on the sides cling to metal surfaces. Also gauges actual level.

### THE BEALL TOOL CO.

1-800-331-4718 Fax 1-740-345-5880  
www.bealltool.com Dpt. WM

Circle No. 598

## Walking the talk.



Hand tools for the serious woodworker

800.426.4613  
32 33rd St. Bklyn, NY 11232

TOOLS FOR WORKING WOOD

www.toolsforworkingwood

Circle No. 830

## The New Generation Of Bar Clamps:

ALPHA CLAMP

- Clamp
- Hoist
- Jack
- Levels
- Rulers
- Adjustable 13" Throat



New!

Lowell Thomas Tool, Inc.  
(406) 595-3416

www.AlphaClamps.com

Circle No. 806

## STOP BUYING LUMBER!

Use your chain saw and Granberg's mill to create perfect slabs of wood

1. MKIII Attachment  
Easily mounts on Bar  
Sizes from 34" to 54"
2. MINI MILL Attachment  
Great partner for MKIII  
Ideal for edging and  
reducing log diameters
3. SMALL LOG Attachment  
Add to chain saw and  
start making lumber!



WWW.GRANBERG.COM  
CALL NOW FOR FREE CATALOG! 800-233-6499  
50 Years of Customer Satisfaction!

## Weekend Project



The CarveWright Woodworking System is a revolution in computer aided carving, bringing unimagined possibilities to the home shop. Just Point, Click, and Carve.  
www.carveright.com/wood

**CARVEWRIGHT™**  
WOODWORKING SYSTEM  
Woodworking for the 21st Century

Circle No. 1463

**WEEK LONG & WEEKEND WORKSHOPS RUNNING APRIL - OCTOBER**



SCHOOL OF WOODWORKING  
marc  
**ADAMS**

## 2009 CLASSES

- Cabinet Making • Carving
- Chair Making • Design
- Finishing • Furniture Making
- Joinery • Turning
- Veneering • Marquetry
- *And Much More!*

[www.marcadams.com](http://www.marcadams.com)

5504 E 500 N • FRANKLIN, IN 46131  
317-535-4013 • FAX 317-535-1713  
marc@marcadams.com

**Masters Programs & Scholarships Available**

Circle No. 916

**INFINITY**  
CUTTING TOOLS

**NEW**

**Coping Sled Jr.**

Item: COP-200



**Sale**  
**\$79<sup>90</sup>**

877-USA-BITS

[www.infinitytools.com](http://www.infinitytools.com)

## Projects and Plans



**Vendor Cart**

Kit to build includes 2-24" iron wheels that really work, axles and step-by-step plans. Finished project measures 50"L x 25"W x 34"H. \$76.80 plus S/H

**ByeGone Workshop**  
888-279-3941 8-5 M-F EST  
[www.bye-gone.com](http://www.bye-gone.com)

**DETAILED** Play Systems  
Backyard Playground Equipment  
**FREE CATALOG!**  
Just Add Lumber!  
**FREE SMILES!**

**Do it Yourself and Save!**  
[www.detailedplay.com](http://www.detailedplay.com)  
**1-800-398-7565**

Circle No. 958

**PHASE-A-MATIC™**

**PHASE CONVERTERS**



CONVERTS 1-PHASE to 3-PHASE POWER!

1-800-962-6976

[www.phase-a-matic.com](http://www.phase-a-matic.com)

Circle No. 2052



TURN TO  
PACKARD  
FOR QUALITY  
TURNING TOOLS  
AND  
SUPPLIES

*Robert Farby*  
**Patriot Chuck**  
pictured above

**Packard**  
WOODWORKS  
INC.

1-800-683-8876  
PACKARDWOODWORKS.COM

Circle No. 2143

## STEVE WALL LUMBER CO.

Quality Hardwoods and Woodworking machinery For The Craftsman and Educational Institutions

Ash	4/4	Select	\$ 2.60
Basswood	4/4	Select	\$ 1.95
Birch	4/4	Select	\$ 3.55
Butternut	4/4	1C	\$ 2.95
Cherry	4/4	Select	\$ 4.90
Hickory - Pecan	4/4	Select	\$ 3.00
Mahogany (Genuine)	4/4	Select	\$ 4.70
Maple (Hard)	4/4	Select	\$ 3.45
Maple (Soft)	4/4	Select	\$ 2.50
Poplar	4/4	Select	\$ 1.80
Red Oak	4/4	Select	\$ 2.70
Walnut	4/4	Select	\$ 4.90
White Oak	4/4	Select	\$ 2.70
Cedar (Aromatic Red)	4/4	1C+Btr.	\$ 1.80
Cypress	4/4	Select	\$ 2.60
White Pine	4/4	F.G.	\$ 1.25
Yellow Pine	4/4	Clear	\$ 2.30

Above prices are for 100' quantities of kilndried rough lumber sold by the Bd. Ft. FOB Mayodan, NC. Call for quantity discounts. Other sizes and grades available.

**UPS  
Specials**

**SEE OUR CATALOG ON THE WEB!**

Above prices are 20 bd. ft. bundles of clear kilndried lumber 3"-10" wide - 3'-5" long (Random widths & lengths) Surfaced 2 sides or rough. Delivered UPS prepaid in the Continental U.S.

OLIVER MACHINERY DEALER

HARDWOOD PLYWOOD

CUSTOM RAISED PANEL DOORS

CUSTOM PLANK

HARDWOOD FLOORING

THIN CRAFTWOOD

EXOTIC LUMBER

**STEVE H. WALL LUMBER CO.**

BOX 287

MAYODAN, N.C. 27027

336-427-0637

1-800-633-4062

FAX 336-427-7588

Email: [wood@walllumber.com](mailto:wood@walllumber.com)

Website: [www.walllumber.com](http://www.walllumber.com)

Send \$1.00 For Lumber Catalog  
Prices Subject to Change Without Notice

Circle No. 856

**Make Time!**

Create your own wooden gear clock!

Need just the pattern?  
Or the complete kit?  
Build it YOUR way!

**Wooden-Gear-Clocks.com**  
clocks, kits, and do-it-yourself patterns

**(715) 953-4104**  
[www.wooden-gear-clocks.com](http://www.wooden-gear-clocks.com)

# Turn to Quality

**Shop on-line @**

[www.hutproducts.com](http://www.hutproducts.com)  
1-800-547-5461

Circle No. 2133

## NEW!

### SELF-FEEDING DR® CHIPPER!

Just load a DR® RAPID-FEED™ CHIPPER, step back, and watch it chip branches up to 5 1/2" thick!

**SELF-FEEDING** saves time and energy. Most branches can be dropped into the hopper and will self-feed, instead of you having to force-feed them.

**CHIP BRANCHES UP TO 5-1/2"** thick with powerful engines up to 18 HP.

**PRO-SPEC™ CHIPPER KNIFE** is made of forged alloy tool steel, making it exceptionally strong with an excellent edge-holding ability.

**Get a FREE DVD and Catalog!**

**TOLL-FREE**  
**877-201-5446**  
[www.DRchipper.com](http://www.DRchipper.com)

## Woodworking Plans!

Make This Stacking Book Rack! Order Plan #W3303

**FREE** color catalog features plans for over 1,000 different projects. Mention Offer #1202

Meisel Hardware Specialties  
P.O. Box 70  
Mound MN 55364

Call: 1-800-441-9870 Or visit our web site  
[www.meiselwoodhobby.com](http://www.meiselwoodhobby.com)

Circle No. 401

## HL & M LAKELAND FLORIDA

Est. 1998 863/646-8681

### Hardwood Lumber & Millwork

Over 50 Species in stock  
Plywoods - Turning Stock - Mouldings  
Stair Parts - Architectural Millwork

*Pull your own wood - Import & Domestic Discounts on 100 and 300 bd ft of lumber Rough cut or surfaced to your specs*

Largest retail distributor in Florida

For details and hours of operation go to [hardwoodlumberandmillwork.com](http://hardwoodlumberandmillwork.com)

### Create A Classic

**Baby Cradle** Build Plan # M62 These Classics \$15.95 Size 21x35x39 more info at [armorplans.com](http://armorplans.com)

**Cycle Rocker** Plan # M82 \$18.50 Size 44 L x 27 H Trim pack info at [armorplans.com](http://armorplans.com)

VISA/MC 1-800-292-8296  
Armor Box 445 E. Northport NY 11731

Circle No. 556

## MOISTURE METER

LOW-COST, HIGH-PERFORMANCE

mini-Ligno E/D - Proven accuracy and quality at an affordable price. Designed for woodworkers.

[sales@lignomat.com](mailto:sales@lignomat.com)  
[www.lignomat.com](http://www.lignomat.com)  
503-257-8957

**LIGNOMAT USA : 800-227-2105**

Circle No. 2013

### SPINDLE ARM MORRIS NATIONAL AWARD WINNING DESIGN

Introducing the finest plan on the market today! This design has won awards across the country! Pages of directions and 36 by 48 CAD generated plan.

Plan #182

**FREE CATALOG**

AMERICAN FURNITURE DESIGN  
P.O. BOX 300100 ESCONDIDO, CA 92030  
SPINDLE ARM MORRIS PLAN \$19.95 +\$5.00 S&H  
760 743-6923  
[www.americanfurnituredesign.com](http://www.americanfurnituredesign.com)

Circle No. 336

## Supergrit® SANDPAPER

HOOK & LOOP DISCS  
2" \$18/100 3" \$20/100  
4 1/2" or 5" 5 or 8 Holes \$15.00/50  
6" 6, 8, or 16 Holes \$17.00/50  
9" \$1.50 ea 12" \$2.75 ea

ABRALON™ 6" Polishing Disc Grits 360 to 4000  
ABRANET™ 5" & 6" Mesh Disc Grits 80 to 600

BELTS—A.O. Resin		SHEETS—9" x 11", A.O.	
1 x 30 \$ .85	4 x 24 \$ 1.40	50D, 80D	\$ 16/50
1 x 42 \$ .90	4 x 36 \$ 1.80	120C, 150C	\$ 26/100
3 x 21 \$ 1.00	6 x 48 \$ 3.80	180A, 220A	\$ 23/100
3 x 24 \$ .90	6 x 89 \$ 7.00		

ABRASIVE ROLLS

RED HILL CORP. FREE 48 PAGE CATALOG & incredible close-out sheets  
P.O. BOX 4234 GETTYSBURG, PA 17325 (800) 822-4003  
[WWW.SUPERGRIT.COM](http://WWW.SUPERGRIT.COM)

Circle No. 2065

## MAKE LUMBER YOUR OWN & SAVE MONEY

LOGS TO LUMBER

8 Sawmill Models Available

**Wood-Mizer**  
800.553.0182  
[woodmizer.com/b200](http://woodmizer.com/b200)

Circle No. 1505

**Adams Wood Products, Inc.**  
**FURNITURE COMPONENTS**  
 STOCK ITEMS • NO MINIMUM  
 CUSTOM COMPONENTS  
**FREE COLOR CATALOG**  
 WE WILL MAKE PRODUCTION RUNS OF YOUR PART

**NEW ITEMS**



A0753-12 A0755-12  
CORBELS



1032 Table Queen Anne Rams Head Claw/Ball



545 Bun 536 Bun  
530 Bun 537 Bun



A0914 A0921 A0924  
ISLAND LEGS

P.O. Box 728, Dept. M60  
 Morristown, TN 37815-0728  
 Phone 423-587-2942 Fax 423-586-2188  
 www.adamswoodproducts.com  
 info@adamswoodproducts.com

**Circle No. 1831**

**KLOCKIT**  
 Leading Supplier To Woodworkers For 35 Years!



- Easy To Follow Plans
- Extensive Line Of Clock Components
- Easy To Assemble Kits
- Detailed Instructions With All Movements
- Industry Leading Technical Support!

**Call Today For Your FREE Catalog!**

**1-800-556-2548**  
 www.klockit.com

Dept. Code: WD209

**Circle No. 973**

**Ezee-Feed**  
 MANUFACTURING

INFEED/  
 OUTFEED  
 SYSTEMS



SEE OUR  
 REVIEW!  
 FINE  
 WOODWORKING  
 MAGAZINE  
 APRIL 2008

FOR YOUR  
 WOOD SHOP!

WWW.EZEE-FEED.COM

**Circle No. 1952**

**WALLBED KITS!**  
 It's easy to build  
 your own with our  
 Tried and True  
 Coil Spring  
 Mechanism,



Starting at \$289

**COMPLETE BEDS  
 ALSO AVAILABLE!**

**FACTORY DIRECT: 1-888-249-6188**  
 WWW.DISAPPEARINGWALLBEDS.COM

**Circle No. 1843**

Better Homes and Gardens®  
**WOOD**  
 MAGAZINE

For advertising in the  
 WOOD Marketplace, please  
 call **Lisa Greenwood**  
 at **1-800-950-3829** or  
**lisa.greenwood@meredith.com**

**U-BILD.COM**




On-line catalog pictures hundreds of full-size  
 woodworking plans at low prices, plus more  
 than 30 downloadable plans. Indoor, outdoor,  
 kids and holiday projects for all skill levels.

**(800) 82-U-BILD**

**Circle No. 435**

Cut Holes with Ease & Precision

- Fully adjustable
- Cuts holes 3" - 7 3/4" with one cutter
- Sits at 15° angle
- Free cutting
- No burn
- 1/2" Shank
- 1 1/4" Tool holder
- Heat-treated: 50 Rc
- Resharpen with conventional wheel
- Patent pending



View our Demos at  
 www.hole-cutter.com

**THE HOLE THING**  
 Manufactured by McKinney Tool LLC

**Circle No. 241**

**DOWELMAX**  
 A PRECISION TOOL FROM O.M.S. TOOL COMPANY LTD

**Four precision woodwork joinery jigs in one.**



**Our Unconditional Guarantee:** Wood joints that are destructive test proven stronger than a mortise and tenon, and a joinery system that is more accurate and versatile than any other system on the market.

For more information, or to order call **1-877-986-9400** or log on to:  
**www.dowelmax.com**

**Circle No. 805**

**Knifemaking Made Easy!**  
**Cutlery Blades**

Traditional style blades assist the woodworker in creating a set of knives to be appreciated for a generations to come!

Complete set includes 11 blades shown, rivets, Dymondwood and instructions:

SS801.....\$74.95

Over 300 blades and kits available  
 Knife making kits, Exotic Woods, Bone, Pearl, Ivory,  
 Abrasives, Finishing Supplies, Schrenshaw kits,  
 Leathercraft Supplies, Books, Videos, And More!

**JANTZ SUPPLY**  
 309 WEST MAIN - DAVIS OK 73834  
 Full Color Catalog (\$5.00)

**1-800-351-8900**  
 www.knifemaking.com

**Circle No. 805**

# What's Ahead

A look inside the May 2009 issue (on sale March 17, 2009)

## FEATURED PROJECT



### Made-in-the-shade tree bench

This inviting cedar project fits around a tree to enhance any landscape. In the course of constructing it, you'll discover simple saw guides that make cutting the angles easy. You can easily downsize it for smaller trees, too.



### Caddy takes your air tools to the job

Build this compressed-air work center from one sheet of plywood and a few scraps of 2x6 pine.



### Simple habits of successful woodworkers

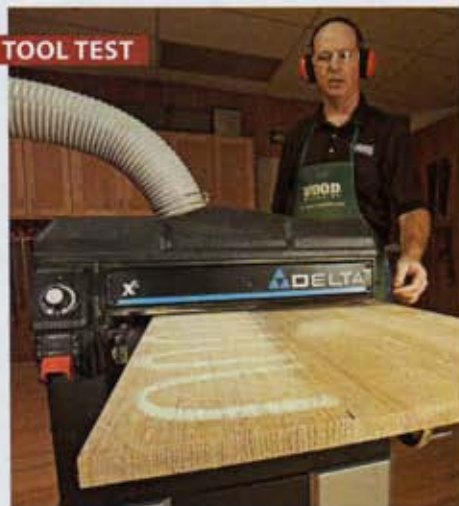
Learn the shop routines that will help you get great results no matter what you're making.



### Outdoor glue test

Learn which adhesive types hold joints together best through pouring rain, piled-high snow, blistering heat, and numbing cold.

## TOOL TEST



### Affordable drum sanders

These machines prove helpful in flattening and smoothing wide panels as well as thickening wild-grained woods. We pit five sanders head to head.



### Best buys in budget power tools

We put a mountain of basic power tools through the paces to find the best of the bargain-priced.

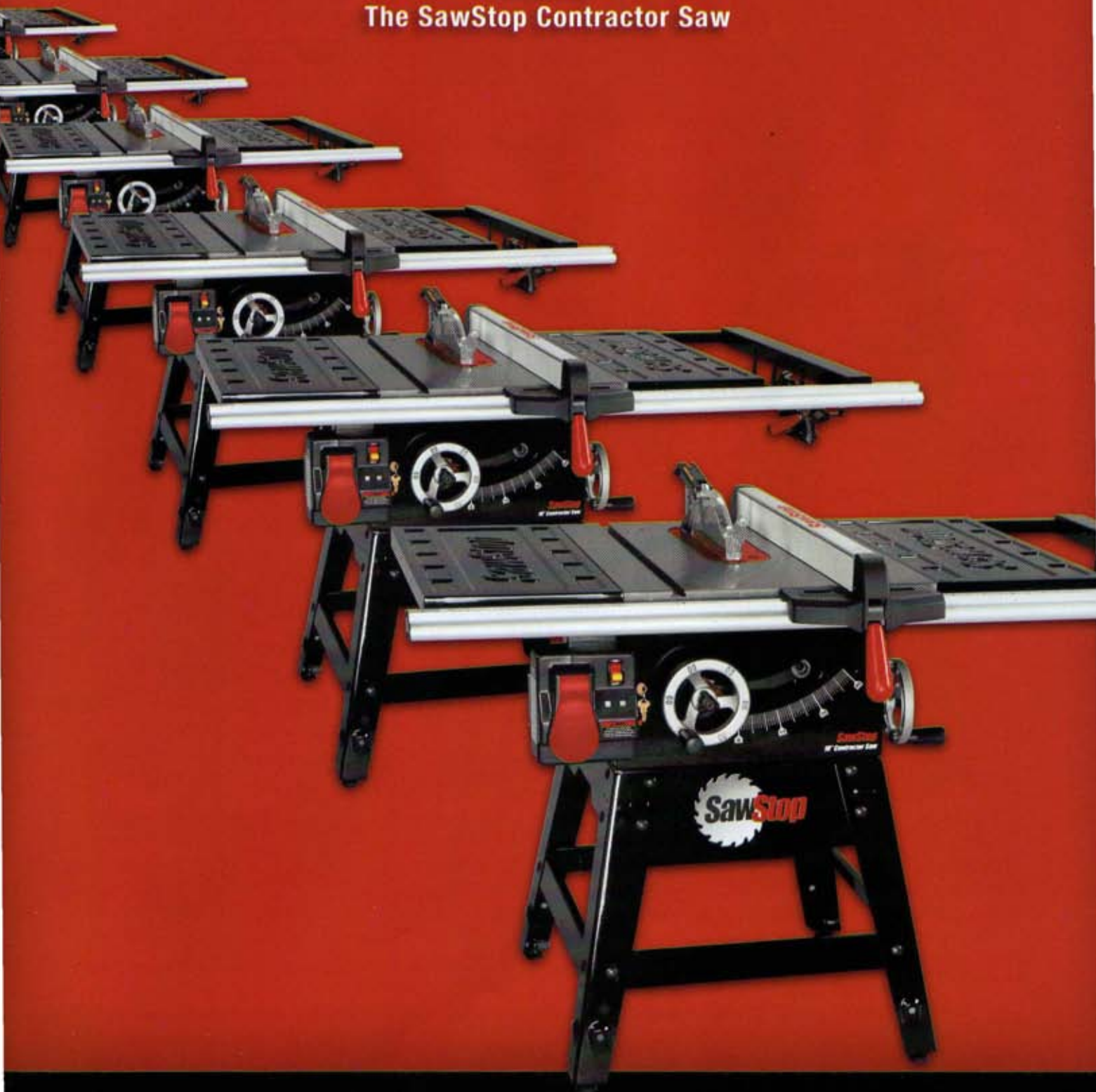


### Frame-and-panel furniture construction

This classic method has lots to offer today's woodworker. From design details to joinery, see how you can use it to plan and build your next heirloom.

# NOW SERVING — EVERYONE.

*Introducing*  
The SawStop Contractor Saw



DESIGNED with our revolutionary safety feature that stops the blade within 5 milliseconds of detecting contact with skin, the Contractor Saw lives up to the SawStop name in both safety and performance. With a wide range of options including a 52" fence system and mobile base, the Contractor Saw can be customized to meet your exact needs. Switch to the world's safest saw. Go to [sawstop.com](http://sawstop.com) or call 866-SAWSTOP to find a dealer and select the saw that's right for you.



# Think Fast!



## When your woodworking calls for speed...Think Instant Bond!

Although our core Titebond® Wood Glue product line is ideal for a vast majority of woodworking applications, we realize there is a growing need for faster, and in some cases, "instant" adhesion capabilities. For this reason, we now offer the Titebond Instant Bond line of ethyl-cyanoacrylate-based wood adhesives (a.k.a. super glues), complete with an adhesive activator that accelerates the bonding process.

Titebond Instant Bond is a two-part bonding system that takes between 5-15 seconds to set and 30-60 seconds for initial cure. The adhesives provide a strong, permanent bond and are ideal for hard to reach joints or surface areas that are difficult to clamp. Designed primarily for wood and wood products, Instant Bond adhesives are also very effective on a wide variety of materials and substrates.



1.800.347.4583

For more information and details on the adhesives, visit [www.titebond.com/InstantBond](http://www.titebond.com/InstantBond)

Made in the USA