SEPTEMBER/OCTOBER 1995

This Old House

Putting In the Perfect Lawn

Keeping Out the Cold

As seen on public television

USA $3.50
CANADA $4.50

Inspect **the new season's home** with Norm and Steve

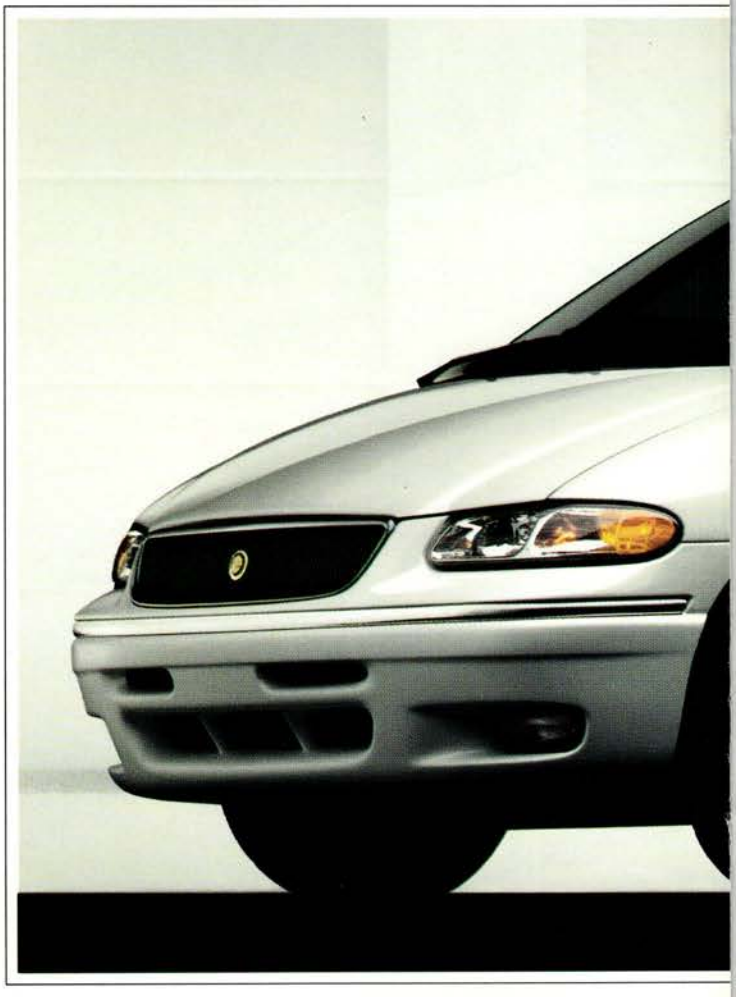
DON'T WORRY, YOU TO HAUL

True. It comes with the kind of features you'd only expect to find in a top-of-the-line luxury car, such as fine leather-trimmed seating throughout, independent temperature-control zones, dual front air bags,† ABS brakes and a premium Infinity Acoustic 10™ ten-speaker sound system.

But the all-new Chrysler Town & Country LXi is still, in essence, a minivan—with enough room to haul that proverbial lumber. (Chippendale chairs, Historic Charleston tables and Biedermeier cabinets, of course.) Plus there are available self-contained load-levelling rear-suspension shock absorbers. Basically, they keep the rear end level, whatever you're hauling. After all, you don't want to damage that fine furniture getting it home.

You'll also appreciate the convenience of a second sliding door on the driver's side—the only such minivan

Introducing The All-New Chrysler Town & Country



†*Always wear your seat belt. Infinity Acoustic 10™ is a trademark of Infinity Sound Systems.*

CAN STILL USE IT LUMBER.

feature available in America today.

In addition, Chrysler Town & Country LXi boasts an exclusive bench seat system—Easy Out Roller Seats.™ Fold the seatback to form a flat surface or literally roll it out on its wheels. All in all, Town & Country has 27 percent more cargo space. Then there are all the little practicalities like pockets, drawers, bins and cup holders throughout.

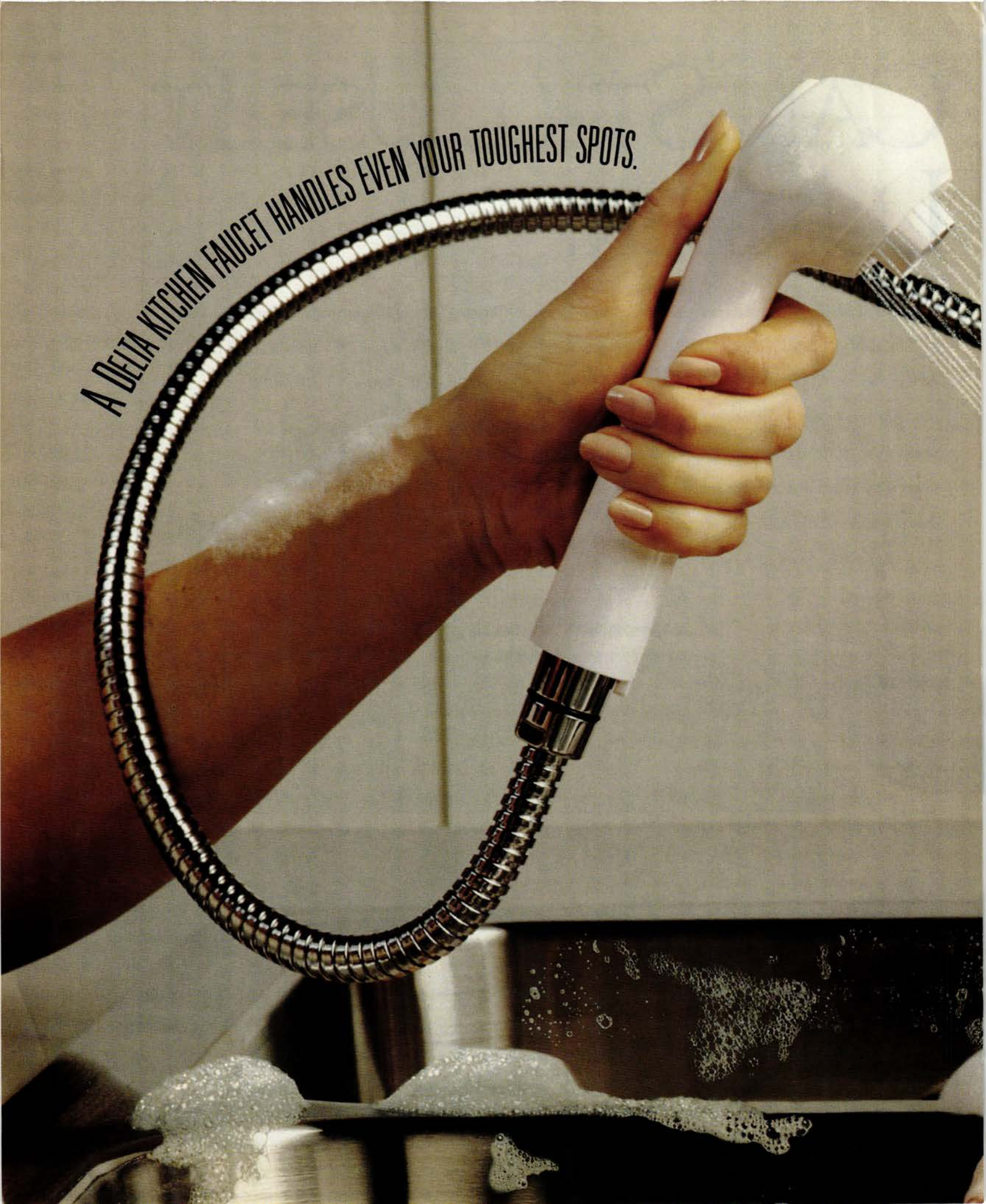
All of which make the new and very luxurious Chrysler Town & Country LXi a rather perfect find.

Apart from a Louis XIV armoire, of course. For more information, call 1-800-4-A-CHRYSLER.

CHRYSLER TOWN & COUNTRY

The Ultimate

Chrysler Town & Country LXi


A DELTA KITCHEN FAUCET HANDLES EVEN YOUR TOUGHEST SPOTS.


It also gets in those hard-to-reach places. And makes cleanup a snap. It's the new Gourmet Pull-Out Spray.™ With its 59-inch hose, the stylishly practical *Gourmet Pull-Out Spray* really knows its way around a kitchen. Be it rinsing dishes, cleaning a sink or even filling a fish tank, it's just what you'd expect from Delta.® To get your hands on the new *Gourmet Pull-Out Spray*, call 1-800-345-DELTA for the authorized Delta Studio® Showroom nearest you. We're sure there's a perfect spot for it at your house.
DELTA®
The way water is brought to life.™
©1995 Masco Corporation of Indiana, Delta Faucet Company, 55 E. 111th Street, P.O. Box 40980, Indianapolis, IN 46280. DAD-4003

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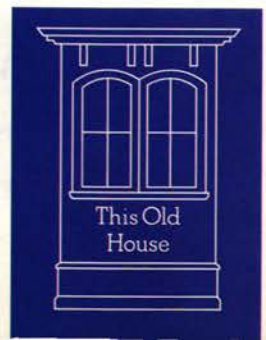
SEPTEMBER/OCTOBER 1995

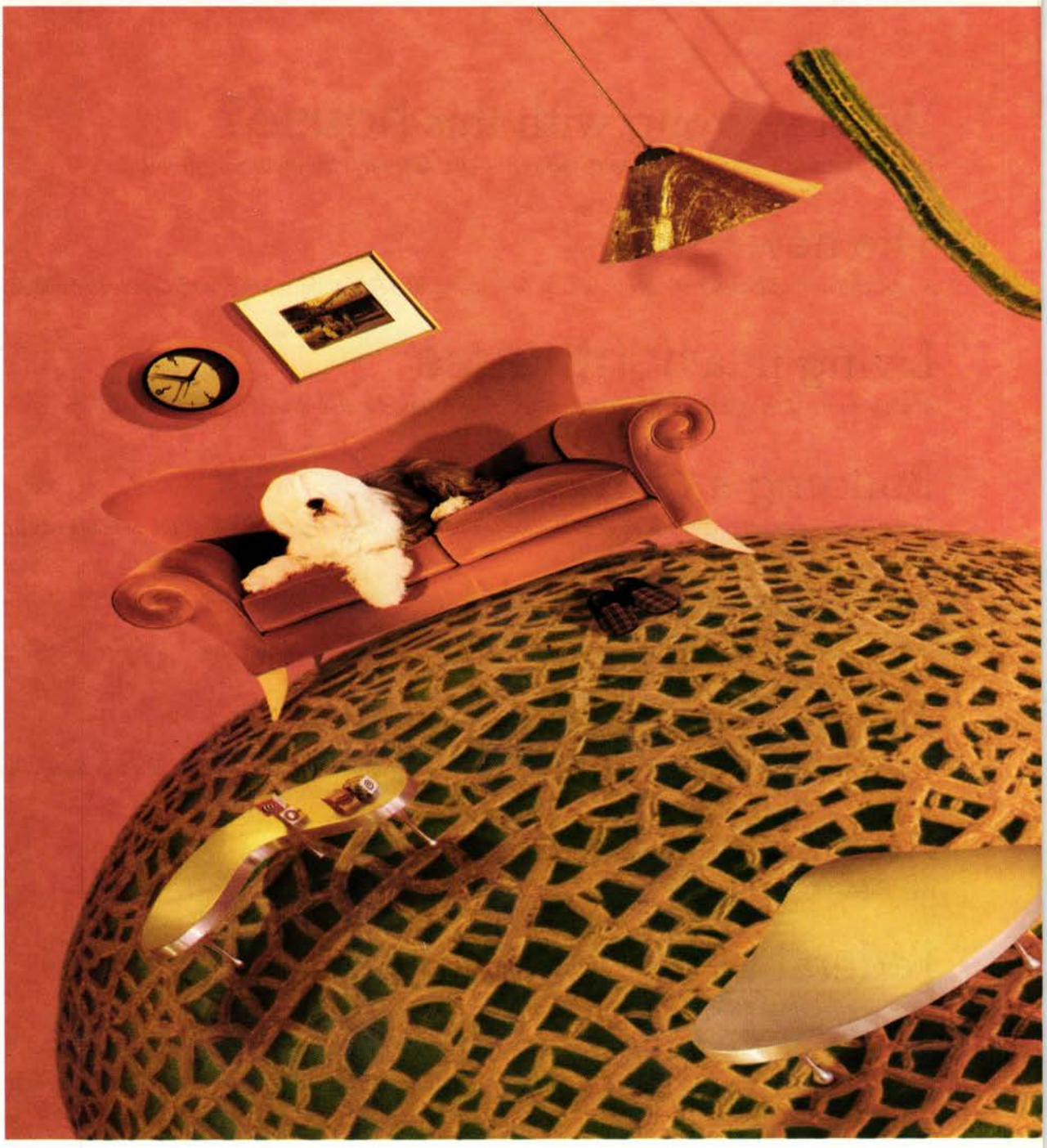
Cover photograph by Micheal McLaughlin

"WE SHAPE OUR BUILDINGS; THEREAFTER THEY SHAPE US."
Winston Churchill



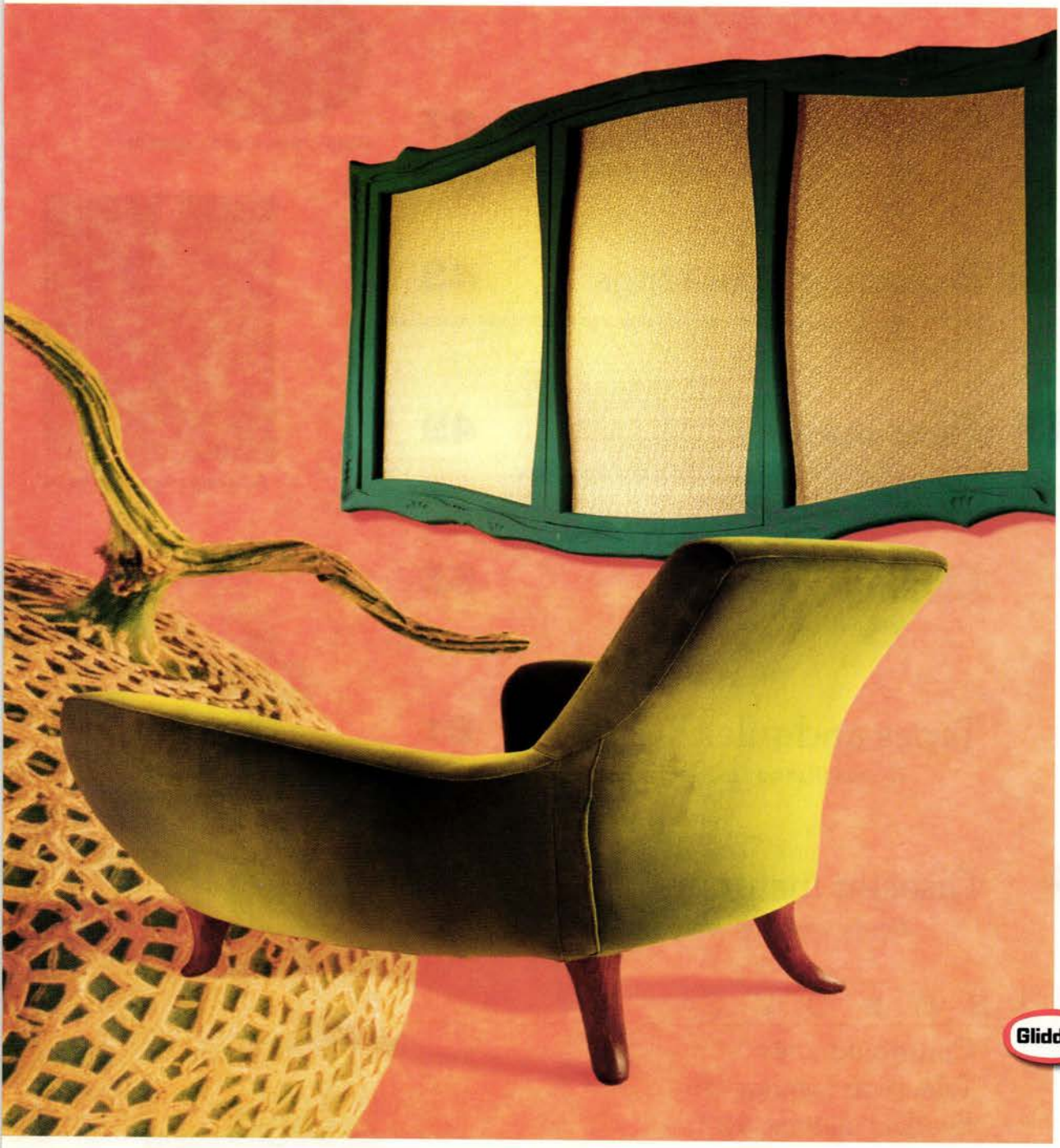
If you dream in color, why do you

© 1995 The Glidden Company



A dream? A fantasy? Or just an idea waiting for you to dive into. Not sure? Relax. It's easier than you think. You can start with a 1½ oz paint tester—perfect for scaredy-cats. And we can help you find a big idea if you only have a medium one—ask for the Dulux® Color Guide & Painter's Companion.

keep painting in off-white?



Or just call up 1·800·ON·DULUX and talk to some real painting gurus. Colors? There's a collection of 120 inspired by the world's fashion centers...then of course, there's the 5,880 others. The Dulux Premium Paints are here. And they're just a shade smarter.

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Hand-cranked tapes, page 61

Polishing a faucet, page 55

Respirators, page 43

Tom fits a shelf, page 31

Miscellaneous

Construction can be dangerous. Think about your safety, and that of others, when you embark on the projects shown in this magazine.

PHOTOGRAPHS, TOP TO BOTTOM, BY JAMES WOJCIK, ROSA & ROSA, KEVIN WILKES AND J MICHAEL MYERS

Why not a life on the water?
the future looked pretty good: a sail boat
and a
But wind and sunburn got old. And wet.
So you charted a different course:
school. A career.

Heeling back,
romantic vision.

Marriage.
Now the Great Room
of your remodeled home looks, well, great.
Moulding. Paneling.
Light from new windows.
Maybe you committed to romance after all?

NOTICE THE CURVES OF THE CROWN MOULDING? YOU WILL. THEY'RE IMPOSSIBLE TO MISS. AMAZING WHAT A LITTLE TEXTURE ADDS TO A ROOM. IT'S HERE, ABOVE THE TASTEFUL WAINSCOT OF BEDFORD VILLAGE® PANELS (THE VERY SAME PANELS GIVING THE CEILING ITS DISTINCTIVE LOOK) AND THE RICH WOOD TONES OF SOUTHERN GOLD® PINE FLOORING, AIRED AND LIT BY G-P GRAND VIEW® WINDOWS AND GRAND PASSAGE® ENTRY DOORS. IS IT AN OPTION TO STAY IN A ROOM FOREVER? MAYBE. BUT FIRST, STOP BY TO SEE US. 1-800-BUILD G-P (284-5347)

Georgia-Pacific
We help you build
on your imagination.℠

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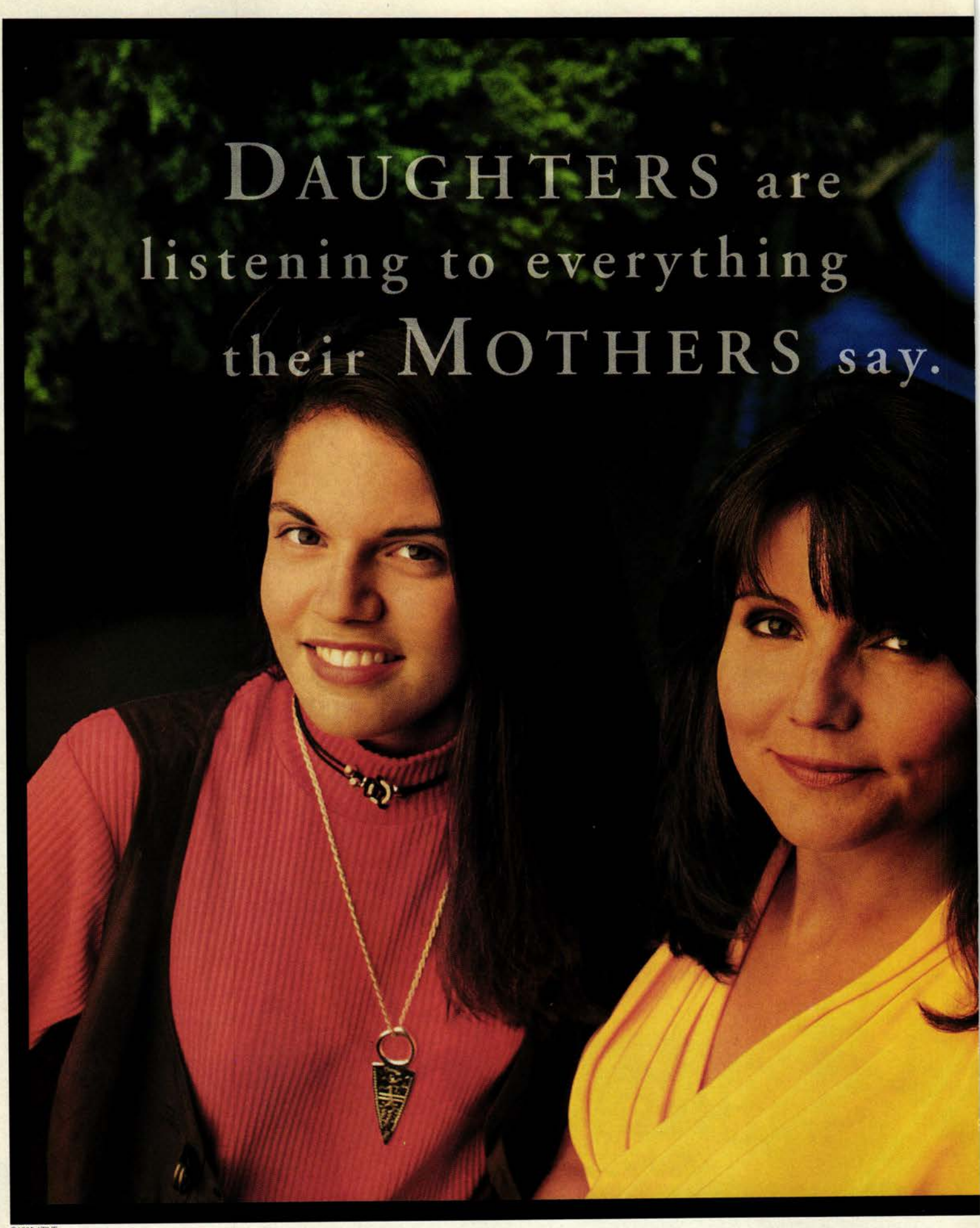


©1995 AT&T

BUILDING BRIDGES

Four in a series.

Now when mothers speak, daughters can have an easier time listening. And when fathers make pronouncements, their sons may actually find themselves nodding in agreement.

The AT&T ImagiNation Network
Interactive family entertainment that lets you play games, chat or share hobbies on-line.

As many AT&T customers are discovering, the barriers between loved ones are giving way to bridges of understanding. For example, family members are finding it easy to comprehend even the subtlest inflections of a familiar voice. They're getting savings on calls to everybody, anywhere in the United States. And distant relatives are growing closer by sharing laughter or information on The AT&T **ImagiNation Network.**®

AT&T True Savings®
*Spend $10 a month on AT&T calls anywhere in the US and get 25% off your bill.**

AT&T TrueVoice®
Patented technology gives you the clearest, richest sound quality ever.

A world of possibilities. That's *Your True Choice.*℠ AT&T.

Just call 1 800 336-TRUE. Or on the Internet at http://www.att.com

*Available in most areas. Discount off AT&T basic residential rates. Certain exclusions apply.

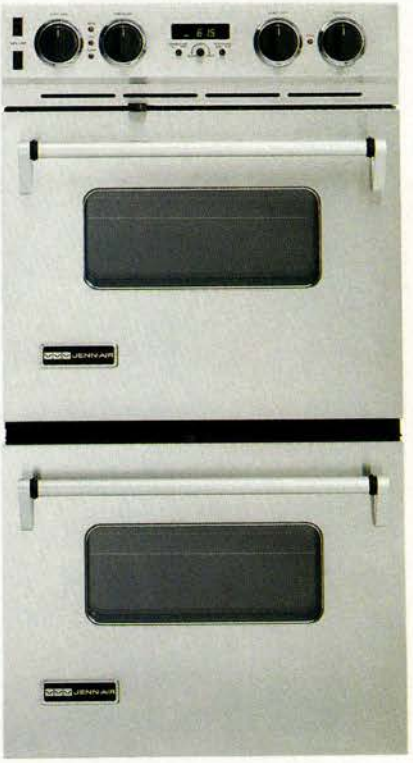
AT&T
Your True Choice

THE AFFORDABLE PRO-STYLE™ RANGE, COOKTOP, AND WALL OVEN. NOW YOU CAN COLLECT SOMETHING FROM A FOUR-STAR RESTAURANT BESIDES THEIR MATCHES.

SVD8310S
30" Pro-Style Range

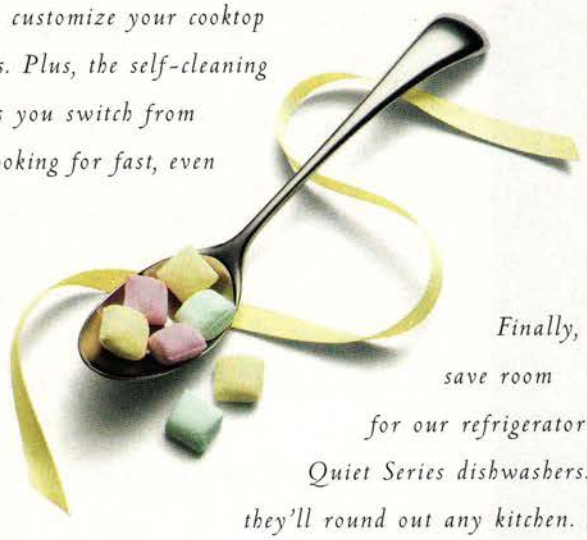
With Jenn-Air's Pro-Style™ Collection, you'll enjoy a true house specialty. Because only Jenn-Air combines professional style and conventional convenience with a very appetizing price.

Our large capacity wall oven offers both a radiant oven and a self-cleaning Selective-Use™ convection oven so you can host any size dinner party.



WW27210P
Pro-Style
Double Wall Oven

Our standard 30" range, with its downdraft cooktop system, lets you customize your cooktop and grill indoors. Plus, the self-cleaning Selective-Use™ oven lets you switch from conventional to convection cooking for fast, even baking every time.



Like our range, our 48" cooktop can change to suit your tastes. And thanks to an extendible front panel, it'll easily suit your cabinetry.

© 1995 Jenn-Air

Finally, save room for our refrigerator and Quiet Series dishwashers. With stainless steel panels, they'll round out any kitchen. For more information, call 1-800-JENN-AIR. Because now you don't have to own a restaurant to have a four-star kitchen. Bon appétit.

CVG4380P
48" Pro-Style Cooktop

JENN-AIR

THE SIGN OF A GREAT COOK™.

television listings

where and when to see This Old House

ALABAMA
Birmingham
WBIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm
Demopolis
WIIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm
Dozier
WDIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm
Florence
WFIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm
Huntsville
WHIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm
Louisville
WGIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm
Mobile
WEIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm
Montgomery
WAIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm
Mount Cheaha
WCIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm

ALASKA
Anchorage
KAKM-TV
Mon. 6:00 pm
Sat. 9:30 am
Bethel
KYUK-TV
Sun. 1:00 pm
Fairbanks
KUAC-TV
Fri. 8:00 pm
Sat. 8:00 am
Juneau
KTOO-TV
Mon. 6:00 pm

ARIZONA
Phoenix
KAET-TV
Thu. 1:00 pm
and 7:30 pm
Sat. 5:00 pm
Tucson
KUAS-TV
Sat. 11:00 am
and 6:30 pm
KUAT-TV
Sat. 11:00 am
and 6:30 pm

ARKANSAS
Arkadelphia
KETG-TV
Sat. noon
Sun. 5:30 pm
Fayetteville
KAFT-TV
Sat. noon
Sun. 5:30 pm
Jonesboro
KTEJ-TV
Sat. noon
Sun. 5:30 pm
Little Rock
KETS-TV
Sat. noon
Sun. 5:30 pm
Mountain View
KEMV-TV
Sat. noon
Sun. 5:30 pm

CALIFORNIA
Cotati
KRCB-TV
Wed. noon
Sun. 7:30 pm
Eureka
KEET-TV
Wed. 7:30 pm
Sat. 10:30 am
Fresno
KVPT-TV
Sat. 9:30 am
Huntington Beach
KOCE-TV
Sat. 4:30 pm
Los Angeles
KCET-TV
Sat. 5:30 pm
Redding
KIXE-TV
Sat. 1:30 pm
Sacramento
KVIE-TV
Thu. 8:00 pm
Sat. 8:30 am
San Bernardino
KVCR-TV
Thu. 8:00 pm
San Diego
KPBS-TV
Tue. 7:30 pm
Sat. 10:30 pm
Sun. 7:00 pm
San Francisco
KQED-TV
Sat. 5:00 pm
San Jose
KTEH-TV
Wed. 9:00 pm
Sat. 3:00 pm
Sun. 5:30 pm
San Mateo
KCSM-TV
Tue. 7:00 pm
Sat. 9:30 am
Sun. 9:00 am

COLORADO
Boulder
KBDI-TV
Mon. 10:00 pm
Wed. 6:00 pm
Sat. 5:30 pm
Sun. 4:00 pm
Denver
KRMA-TV
Sat. 2:30 pm
Sun. 5:30 pm
Pueblo
KTSC-TV
Thu. 8:00 pm
Sat. 2:30 pm

CONNECTICUT
Fairfield
WEDW-TV
Wed. 1:30 pm
Sat. 8:00 pm
Sun. 10:30 am
Hartford
WEDH-TV
Wed. 1:30 pm
Sat. 8:00 pm
Sun. 10:30 am
New Haven
WEDY-TV
Wed. 1:30 pm
Sat. 8:00 pm
Sun. 10:30 am
Norwich
WEDN-TV
Wed. 1:30 pm
Sat. 8:00 pm
Sun. 10:30 am

DISTRICT OF COLUMBIA
WETA-TV
Sat. 5:30 pm
Sun. noon

FLORIDA
Daytona Beach
WCEU-TV
Tue. 9:00 pm
Fort Myers/Naples
WSFP-TV
Sat. 1:30 pm
Sun. 5:00 pm

Gainesville
WUFT-TV
Sat. 9:30 am
and 1:30 pm
Jacksonville
WJCT-TV
Mon. 8:30 pm
Sat. 2:30 pm
Miami
WLRN-TV
Thu. 7:30 pm
WPBT-TV
Sat. 2:00 pm
Orlando
WMFE-TV
Sat. 9:00 am
and 1:30 pm
Sun. 9:00 am
Pensacola
WSRE-TV
Sat. 12:30 pm
Tampa
WEDU-TV
Sat. 11:30 am
Sun. 7:30 pm
WUSF-TV
Wed. 9:00 pm
Sun. 5:30 pm

GEORGIA
Atlanta
WGTV-TV
Sat. 6:30 pm
Sun. 8:00 pm
WPBA-TV
Mon. 8:00 pm
Sat. 6:00 pm
Chatsworth
WCLP-TV
Sat. 6:30 pm
Sun. 8:00 pm
Cochran
WDCO-TV
Sat. 6:30 pm
Sun. 8:00 pm
Columbus
WJSP-TV
Sat. 6:30 pm
Sun. 8:00 pm
Dawson
WACS-TV
Sat. 6:30 pm
Sun. 8:00 pm
Pelham
WABW-TV
Sat. 6:30 pm
Sun. 8:00 pm
Savannah
WVAN-TV
Sat. 6:30 pm
Sun. 8:00 pm
Waycross
WXGA-TV
Sat. 6:30 pm
Sun. 8:00 pm
Wrens
WCES-TV
Sat. 6:30 pm
Sun. 8:00 pm

HAWAII
Honolulu
KHET-TV
Thu. 7:30 pm
Sat. 4:00 pm
Wailuku
KMEB-TV
Thu. 7:30 pm
Sat. 4:00 pm

IDAHO
Boise
KAID-TV
Sun. 4:30 pm
Coeur d'Alene
KCDT-TV
Sun. 3:30 pm
Moscow
KUID-TV
Sun. 3:30 pm
Pocatello
KISU-TV
Sun. 4:30 pm
Twin Falls
KIPT-TV
Sun. 4:30 pm

ILLINOIS
Carbondale
WSIU-TV
Thu. 7:00 pm
Sat. 12:30 pm
Chicago
WTTW-TV
Tue. 7:30 pm
Sat. 5:00 pm
Jacksonville
WSEC-TV
Thu. 10:00 pm
Sun. 1:30 pm
Macomb
WMEC-TV
Thu. 10:00 pm
Sun. 1:30 pm
Moline
WQPT-TV
Tue. 7:00 pm
Sat. 5:30 pm
Olney
WUSI-TV
Thu. 7:00 pm
Sat. 12:30 pm
Peoria
WTVP-TV
Thu. 10:00 pm
Sat. 12:30 pm
Quincy
WQEC-TV
Thu. 10:00 pm
Sun. 1:30 pm
Urbana
WILL-TV
Thu. 7:30 pm
Sun. 3:30 pm

INDIANA
Bloomington
WTIU-TV
Thu. 11:00 pm
Sat. 12:30 pm
Evansville
WNIN-TV
Sat. 12:30 pm
and 6:00 pm
Sun. 4:30 pm
Fort Wayne
WFWA-TV
Sat. 10:00 am
Indianapolis
WFYI-TV
Sat. 10:00 am
Sun. 7:00 pm
Merrillville
WYIN-TV
Wed. 9:00 pm
Sun. 3:30 pm
Muncie
WIPB-TV
Thu. 8:00 pm
Sun. 4:30 pm
South Bend
WNIT-TV
Fri. 10:30 am
Sat. 2:00 pm
Vincennes
WVUT-TV
Sat. 1:30 pm
Sun. 12:30 pm

IOWA
Davenport
KQCT-TV
Tue. 7:00 pm
Sat. 5:30 pm
Des Moines
KDIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Fort Dodge
KTIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Iowa City
KIIN-TV
Fri. 6:30 pm
Sat. 1:30 pm

STEVE THOMAS

September 16, in Overland Park, KS
Payless Cashways Store Opening

September 17, in Overland Park, KS
Home Design and Remodeling Show
at Overland Park International Trade Center

September 23-24, in Somerset, NJ
8th Annual Eastern Region Kitchen and Bath
Show at Garden State Exhibit Center

September 29-30, in Charlotte, NC
Remodel Charlotte Show
at Charlotte Merchandise Mart

October 1, in Wilmington, DE
Delaware Home Show at Bob Carpenter
Center, University of Delaware

October 6-8, in Des Moines, IA
Des Moines Remodeling and Interiors Show
at Veterans Memorial Auditorium

October 13-14, in Akron, OH
Remodeling and Interior Show
at John S. Knight Center

October 21-22, in Baltimore, MD
Fall Maryland Home and Garden Show at
Maryland State Fairgrounds

October 28-29, in Indianapolis, IN
Fall Indianapolis Home Show
at Indiana State Fairgrounds

NORM ABRAM

September 9, in Potter Place, NH, and
Sunapee, NH, at R.P. Johnson and Son
Hardware Stores

September 30-October 1, in Jacksonville, FL
Jacksonville Fall Home and Patio Show
at Prime F. Osborn III Convention Center

October 21, in Fort Lauderdale, FL
at the International Tool Store

November 11-12, in Fort Washington, PA
Woodworking in America Show
at Fort Washington Expo Center

PHOTOGRAPH BY DAN BORRIS/EDGE

Times and days may vary: Check your local listings.

television listings

where and when to see This Old House

Mason City
KYIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Omaha
KBIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Red Oak
KHIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Sioux City
KSIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Waterloo
KRIN-TV
Fri. 6:30 pm
Sat. 1:30 pm

KANSAS
Bunker Hill
KOOD-TV
Thu. 7:00 pm
Sat. 12:30 pm
Lakin
KSWK-TV
Thu. 7:00 pm
Sat. 12:30 pm
Topeka
KTWU-TV
Sat. 9:30 am
Wichita
KPTS-TV
Sat. 11:30 am
Sun. 11:00 am

KENTUCKY
Ashland
WKAS-TV
Sun. 5:00 pm
Bowling Green
WKGB-TV
Sun. 5:00 pm
WKYU-TV
Tue. 1:00 pm
and 6:30 pm
Covington
WCVN-TV
Sun. 5:00 pm
Elizabethtown
WKZT-TV
Sun. 5:00 pm
Hazard
WKHA-TV
Sun. 5:00 pm
Lexington
WKLE-TV
Sun. 5:00 pm
Louisville
WKMJ-TV
Sun. 5:00 pm
WKPC-TV
Wed. 1:30 pm
Sat. 1:30 pm
Sun. 3:00 pm
Madisonville
WKMA-TV
Sun. 5:00 pm
Morehead
WKMR-TV
Sun. 5:00 pm
Murray
WKMU-TV
Sun. 5:00 pm
Owensboro
WKOH-TV
Sun. 4:00 pm
Owenton
WKON-TV
Sun. 5:00 pm
Paducah
WKPD-TV
Sun. 5:00 pm
Pikeville
WKPI-TV
Sun. 5:00 pm
Somerset
WKSO-TV
Sun. 5:00 pm

LOUISIANA
Alexandria
KLPA-TV
Sat. 4:00 pm
Sun. 10:00 am
Baton Rouge
WLPB-TV
Sat. 4:00 pm
Sun. 10:00 am
Lafayette
KLPB-TV
Sat. 4:00 pm
Sun. 10:00 am
Lake Charles
KLTL-TV
Sat. 4:00 pm
Sun. 10:00 am
Monroe
KLTM-TV
Sat. 4:00 pm
Sun. 10:00 am
New Orleans
WYES-TV
Sat. 8:30 am
Shreveport
KLTS-TV
Sat. 4:00 pm
Sun. 10:00 am

MAINE
Bangor
WMEB-TV
Sat. 1:30 pm
Calais
WMED-TV
Sat. 1:30 pm
Lewiston
WCBB-TV
Sat. 1:30 pm
Portland
WMEA-TV
Wed. 7:00 pm
Presque Isle
WMEM-TV
Sat. 1:30 pm

MARYLAND
Annapolis
WMPT-TV
Sat. 4:30 pm
Sun. 6:30 pm
Baltimore
WMPB-TV
Sat. 4:30 pm
Sun. 6:30 pm

Frederick
WFPT-TV
Sat. 4:30 pm
Sun. 6:30 pm
Hagerstown
WWPB-TV
Sat. 4:30 pm
Sun. 6:30 pm
Oakland
WGPT-TV
Sat. 4:30 pm
Sun. 6:30 pm
Salisbury
WCPB-TV
Sat 4:30 pm
Sun. 6:30 pm

MASSACHUSETTS
Boston
WGBH-TV
Thu. 8:00 pm
Sat. 5:30 pm
WGBX-TV
Sun. 9:00 am
and 12:30 pm
Springfield
WGBY-TV
Thu. 8:00 pm
Sat. 5:30 pm

MICHIGAN
Alpena
WCML-TV
Sat. 2:30 pm
Bad Axe
WUCX-TV
Tue. 12:30 pm
Sun. 5:00 pm
Cadillac
WCMV-TV
Sat. 2:30 pm
Detroit
WTVS-TV
Thu. 1:30 am
and 8:30 pm
Sat. 10:00 am
East Lansing
WKAR-TV
Thu. 9:00 pm
Sat. 1:30 pm
Sun. 5:00 pm
Flint
WFUM-TV
Thu. 9:00 pm
Sat. 1:30 pm
Grand Rapids
WGVU-TV
Thu. 8:30 pm
Sat. 10:00 am
Kalamazoo
WGVK-TV
Thu. 8:30 pm
Sat. 10:00 am
Manistee
WCMW-TV
Sat. 2:30 pm

Marquette
WNMU-TV
Sat. 1:30 pm
Mount Pleasant
WCMU-TV
Sat. 2:30 pm
University Center
WUCM-TV
Tue. 12:30 pm
Sun. 5:00 pm

MINNESOTA
Appleton
KWCM-TV
Thu. 8:00 pm
Sat. 12:30 pm
Austin
KSMQ-TV
Sat. 12:30 pm
Sun. 7:00 pm
Bemidji
KAWE-TV
Sat. 12:30 pm
Brainerd
KAWB-TV
Sat. 12:30 pm
Duluth
WDSE-TV
Sat. 6:30 pm
Sun. 9:30 am
Saint Paul/
Minneapolis
KTCA-TV
Wed. 7:30 pm
Sat. 6:30 pm

MISSISSIPPI
Biloxi
WMAH-TV
Sat. 7:00 pm
Booneville
WMAE-TV
Sat. 7:00 pm
Bude
WMAU-TV
Sat. 7:00 pm
Greenwood
WMAO-TV
Sat. 7:00 pm
Jackson
WMPN-TV
Sat. 7:00 pm
Meridian
WMAW-TV
Sat. 7:00 pm
Mississippi State
WMAB-TV
Sat. 7:00 pm
Oxford
WMAV-TV
Sat. 7:00 pm

MISSOURI
Joplin
KOZJ-TV
Sat. 12:30 pm
Kansas City
KCPT-TV
Mon. 7:00 pm
Sat. 12:30 pm
Saint Louis
KETC-TV
Wed. 12:30 pm
Sat. 6:30 pm
Sedalia
KMOS-TV
Sat. 12:30 pm
Springfield
KOZK-TV
Sat. 12:30 pm

MONTANA
Bozeman
KUSM-TV
Sat. 11:30 am

NEBRASKA
Alliance
KTNE-TV
Sat. 9:30 am
and 4:30 pm
Bassett
KMNE-TV
Sat. 10:30 am
and 5:30 pm
Hastings
KHNE-TV
Sat. 10:30 pm
and 5:30 pm
Lexington
KLNE-TV
Sat. 10:30 am
and 5:30 pm

TOM SILVA

September 23-24, in Raleigh, NC
Carolina Builder's Home Show
at North Carolina State Fair Grounds

September 30, in Dayton, OH
Home Builders Association of Dayton Home
Show at Dayton Convention Center

Lincoln
KUON-TV
Sat. 10:30 am
and 5:30 pm
Merriman
KRNE-TV
Sat. 10:30 am
and 5:30 pm
Norfolk
KXNE-TV
Sat. 10:30 am
and 5:30 pm
North Platte
KPNE-TV
Sat. 10:30 am
and 5:30 pm
Omaha
KYNE-TV
Sat. 10:30 am
and 5:30 pm

NEVADA
Las Vegas
KLVX-TV
Sat. 2:30 pm
Reno
KNPB-TV
Sat. 10:30 am
and 1:00 pm

NEW HAMPSHIRE
Durham
WENH-TV
Thu. 7:30 pm
Sun. 11:00 am
Keene
WEKW-TV
Thu. 7:30 pm
Sun. 11:00 am
Littleton
WLED-TV
Thu. 7:30 pm
Sun. 11:00 am

NEW JERSEY
Camden
WNJS-TV
Tue. 10:00 pm
Sat. 8:00 pm
Sun. 5:30 pm
Montclair
WNJN-TV
Tue. 10:00 pm
Sat. 8:00 pm
Sun. 5:30 pm
New Brunswick
WNJB-TV
Tue. 10:00 pm
Sat. 8:00 pm
Sun. 5:30 pm
Trenton
WNJT-TV
Tue. 10:00 pm
Sat. 8:00 pm
Sun. 5:30 pm

NEW MEXICO
Albuquerque
KNME-TV
Thu. 7:30 pm
Sun. 10:30 am
Las Cruces
KRWG-TV
Sat. 11:30 pm
Portales
KENW-TV
Sat. 3:30 pm

NEW YORK
Binghamton
WSKG-TV
Sat. 1:30 pm
Buffalo
WNED-TV
Sat. 10:30 am
WNEQ-TV
Sun. 7:00 pm
Long Island
WLIW-TV
Thu. 8:30 pm
Sat. 10:30 am
Sun. 8:00 pm
New York
WNET-TV
Sat. 6:30 pm
Norwood
WNPI-TV
Sat. 10:30 am
Plattsburgh
WCFE-TV
Sun. 11:30 am
Rochester
WXXI-TV
Sat. 10:30 am
Sun. 5:30 pm
Schenectady
WMHT-TV
Tue. 1:30 pm
Sat. 10:30 am
Syracuse
WCNY-TV
Thu. 8:00 pm
Sat. 10:30 am
Watertown
WNPE-TV
Sat. 10:30 am

NORTH CAROLINA
Asheville
WUNF-TV
Sat. 5:30 pm
Sun. 9:00 am
Chapel Hill
WUNC-TV
Sat. 5:30 pm
Sun. 9:00 am
Charlotte
WTVI-TV
Tue. 12:30 pm
Thu. 8:00 pm
Sat. 5:00 pm
Sun. 11:00 am
WUNG-TV
Sat. 5:30 pm
Sun. 9:00 am
Columbia
WUND-TV
Sat. 5:30 pm
Sun. 9:00 am
Greenville
WUNK-TV
Sat. 5:30 pm
Sun. 9:00 am
Jacksonville
WUNM-TV
Sat. 5:30 pm
Sun. 9:00 am
Linville
WUNE-TV
Sat. 5:30 pm
Sun. 9:00 am
Roanoke Rapids
WUNP-TV
Sat. 5:30 pm
Sun. 9:00 am

PHOTOGRAPH BY J MICHAEL MYERS

Times and days may vary: Check your local listings.

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Make your kitchen the focal point of your home by combining the efficiency and beauty of KraftMaid cabinetry. KraftMaid has the impeccable detailing you usually find only in custom cabinetry. And the selection of over 75 door styles in wood and laminates offers you the opportunity of a choice that is truly yours.

You'll feel better about your home when you walk into your kitchen and see KraftMaid cabinets with special moldings and unique features that will enhance any kitchen. Personal design capabilities and ease of installation make KraftMaid the cabinetry to choose.

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16052 Industrial Pkwy., P.O. Box 1055
Middlefield, OH 44062

TOH 995

television listings

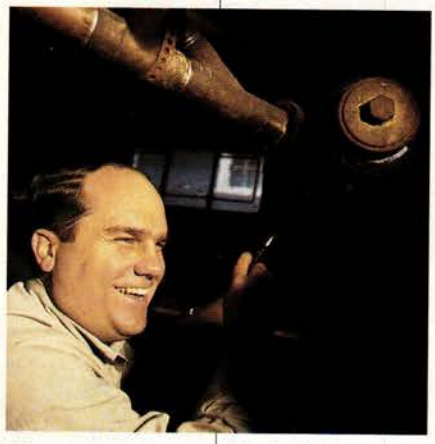
where and when to see This Old House

Wilmington
WUNJ-TV
Sat. 5:30 pm
Sun. 9:00 am

Winston-Salem
WUNL-TV
Sat. 5:30 pm
Sun. 9:00 am

NORTH DAKOTA

Bismarck
KBME-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm



Dickinson
KDSE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Ellendale
KJRE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Fargo
KFME-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Grand Forks
KGFE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Minot
KSRE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Williston
KWSE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

OHIO

Akron
WEAO-TV
Sat. 10:30 am
and 5:00 pm
Sun. 6:00 pm

Athens
WOUB-TV
Sat. 5:00 pm

Bowling Green
WBGU-TV
Mon. 3:00 pm
Sat. 1:30 pm

Cambridge
WOUC-TV
Sat. 5:00 pm

Cincinnati
WCET-TV
Thu. 8:00 pm
Sat. 9:00 am

Cleveland
WVIZ-TV
Tue. 7:30 pm
Sat. 1:00 pm
Sun. 12:30 pm

Columbus
WOSU-TV
Thu. 8:00 pm
Sat. 4:30 pm

Dayton
WPTD-TV
Thu. 8:00 pm
Sat. 9:30 am
Sun. noon

Portsmouth
WPBO-TV
Thu. 8:00 pm
Sat. 4:30 pm

Toledo
WGTE-TV
Thu. 8:00 pm
Sat. 1:00 pm
Sun. 1:00 pm

Youngstown
WNEO-TV
Sat. 10:30 am
and 5:00 pm
Sun. 6:00 pm

OKLAHOMA

Cheyenne
KWET-TV
Sat. 9:30 am
and 12:30 pm
Sun. 3:00 pm

Eufaula
KOET-TV
Sat. 9:30 am
and 12:30 pm
Sun. 3:00 pm

Oklahoma City
KETA-TV
Sat. 9:30 am
and 12:30 pm
Sun. 3:00 pm

Tulsa
KOED-TV
Sat. 9:30 am
and 12:30 pm
Sun. 3:00 pm

OREGON

Bend
KOAB-TV
Thu. 8:00 pm
Sat. 5:00 pm

Corvallis
KOAC-TV
Thu. 8:00 pm
Sat. 5:00 pm

Eugene
KEPB-TV
Thu. 8:00 pm
Sat. 5:00 pm

Klamath Falls
KFTS-TV
Sat. 10:30 pm

La Grande
KTVR-TV
Thu. 8:00 pm
Sat. 5:00 pm

Medford
KSYS-TV
Sat. 10:30 pm

Portland
KOPB-TV
Thu. 8:00 pm
Sat. 5:00 pm

PENNSYLVANIA

Allentown
WLVT-TV
Fri. 7:30 pm
Sat. 6:00 pm

Erie
WQLN-TV
Sat. 6:30 pm

Harrisburg
WITF-TV
Thu. 8:00 pm
Sat. 6:00 pm

Philadelphia
WHYY-TV
Sat. 6:00 pm
Sun. 8:00 pm

Pittsburgh
WQED-TV
Sat. 4:30 pm
and 6:30 pm
WQEX-TV
Wed. 8:30 pm

Pittston
WVIA-TV
Thu. 8:00 pm
Sat. 5:00 pm
and 5:30 pm

University Park
WPSX-TV
Sat. 5:00 pm
Sun. 4:30 pm

RHODE ISLAND

Providence
WSBE-TV
Tue. 8:30 pm
Sun. 6:00 pm

SOUTH CAROLINA

Allendale
WEBA-TV
Sat. 1:30 pm

Beaufort
WJWJ-TV
Sat. 1:30 pm

Charleston
WITV-TV
Sat. 1:30 pm

Columbia
WRLK-TV
Sat. 1:30 pm

Conway
WHMC-TV
Sat. 1:30 pm

Florence
WJPM-TV
Sat. 1:30 pm

Greenville
WNTV-TV
Sat. 1:30 pm

Greenwood
WNEH-TV
Sat. 1:30 pm

Rock Hill
WNSC-TV
Sat. 1:30 pm

Spartanburg
WRET-TV
Sat. 1:30 pm

Sumter
WRJA-TV
Sat. 1:30 pm

SOUTH DAKOTA

Aberdeen
KDSD-TV
Sat. 4:30 pm

Brookings
KESD-TV
Sat. 4:30 pm

Eagle Butte
KPSD-TV
Sat. 3:30 pm

Lowry
KQSD-TV
Sat. 4:30 pm

Martin
KZSD-TV
Sat. 3:30 pm

Pierre
KTSD-TV
Sat. 4:30 pm

Rapid City
KBHE-TV
Sat. 3:30 pm

Sioux Falls
KCSD-TV
Sat. 4:30 pm

Vermillion
KUSD-TV
Sat. 4:30 pm

TENNESSEE

Chattanooga
WTCI-TV
Sat. 1:30 pm

Cookeville
WCTE-TV
Sat. 12:30 pm

Knoxville
WKOP-TV
Sat. 1:30 pm
WSJK-TV
Sat. 1:30 pm

Lexington
WLJT-TV
Thu. 9:30 pm
Sat. 12:30 pm

Memphis
WKNO-TV
Thu. 7:30 pm
Sat. 9:30 am

Nashville
WDCN-TV
Sat. 4:30 pm

TEXAS

Amarillo
KACV-TV
Sat. 12:30 pm

Austin
KLRU-TV
Sat. 5:30 pm

College Station
KAMU-TV
Mon. 5:00 pm
Sat. 12:30 pm

Corpus Christi
KEDT-TV
Sat. 12:30 pm
and 9:00 pm

Dallas/Fort Worth
KERA-TV
Sat. 6:30 pm

El Paso
KCOS-TV
Sat. 4:00 pm

Harlingen
KMBH-TV
Sat. 12:30 pm

Houston
KUHT-TV
Mon. 1:30 pm
Sun. 11:30 am

Killeen
KNCT-TV
Sat. 12:30 pm

Lubbock
KTXT-TV
Sat. 12:30 pm

Odessa
KOCV-TV
Tue. noon
Sun. 12:30 pm

San Antonio
KLRN-TV
Sat. 5:30 pm

Waco
KCTF-TV
Mon. 12:30 pm
Sat. 12:30 pm

UTAH

Provo
KBYU-TV
Sat. 9:30 am
and noon

Salt Lake City
KUED-TV
Sat. 8:00 am
and 5:00 pm

VERMONT

Burlington
WETK-TV
Thu. 8:00 pm
Sat. 11:00 am

Rutland
WVER-TV
Thu. 8:00 pm
Sat. 11:00 am

Saint Johnsbury
WVTB-TV
Thu. 8:00 pm
Sat. 11:00 am

Windsor
WVTA-TV
Thu. 8:00 pm
Sat. 11:00 am

VIRGINIA

Charlottesville
WHTJ-TV
Sat. 8:30 am

Harrisonburg
WVPT-TV
Sat. 1:30 pm

Marion
WMSY-TV
Sat. 1:30 pm

Norfolk
WHRO-TV
Thu. 8:00 pm
Sat. 8:30 am
and 2:00 pm

Norton
WSBN-TV
Sat. 1:30 pm

Richmond
WCVE-TV
Sat. 8:30 am
WCVW-TV
Fri. 8:30 pm

Roanoke
WBRA-TV
Sat. 1:30 pm

WASHINGTON

Centralia
KCKA-TV
Thu. 6:30 pm
Sat. 12:30 pm

Pullman
KWSU-TV
Wed. 7:30 am
Sat. 2:00 pm

Richland
KTNW-TV
Thu. 7:00 pm
Sat. 2:00 pm

Seattle
KCTS-TV
Sun. 5:00 pm

Spokane
KSPS-TV
Sat. 10:30 am
Sun. 5:30 pm

Tacoma
KBTC-TV
Thu. 6:30 pm
Sat. 12:30 pm

Yakima
KYVE-TV
Sun. 5:00 pm

WEST VIRGINIA

Beckley
WSWP-TV
Sat. 1:30 pm

Huntington
WPBY-TV
Sat. 1:30 pm

Morgantown
WNPB-TV
Sat. 7:00 pm

WISCONSIN

Green Bay
WPNE-TV
Wed. 7:00 pm
Sun. 4:00 pm

La Crosse
WHLA-TV
Wed. 7:00 pm
Sun. 4:00 pm

Madison
WHA-TV
Wed. 7:00 pm
Sun. 4:00 pm

Menomonie
WHWC-TV
Wed. 7:00 pm
Sun. 4:00 pm

Milwaukee
WMVS-TV
Thu. 7:30 pm
Sat. 8:00 am

Park Falls
WLEF-TV
Wed. 7:00 pm
Sun. 4:00 pm

Wausau
WHRM-TV
Wed. 7:00 pm
Sun. 4:00 pm

WYOMING

Riverton
KCWC-TV
Sat. noon
and 5:00 pm

RICHARD TRETHEWEY

September 23-24, in Raleigh, NC
Carolina Builder's Home Show
at North Carolina State Fair Grounds

September 30, in Dayton, OH
Home Builders Association of Dayton
Home Show at Dayton Convention Center

PHOTOGRAPH BY MICHEAL MCLAUGHLIN

Times and days may vary: Check your local listings.

IT'S SORT OF A RADIAL ARM, MITER BOX, COMPOUND SAW, WORKBENCH KIND OF THING.

When it came to naming the latest addition to our Sidekick™ line of tools, we ran into a bit of a snag. It seems we'd come up with a tool that does so much, so differently, that it was nearly indescribable. But we took a shot.

The new Delta Sidekick 10" Sliding Compound Miter Saw is a mouthful, indeed. But then, it's also quite a "sawful".

Its large 19" diameter table with dual rod, linear ball bearing guide system sits atop a complete folding work station–with stock stops, work clamps and right and left table extensions that give you an amazing 59" of work space.

If you'd like to meet the best friend you may ever have on the jobsite, call for the name of your nearest Delta dealer. Delta International Machinery Corp.: 800-438-2486. In Canada, call: 519-836-2840.

Makes precision cuts, 3 5/8" x 11 1/2" at 90°– or 3 5/8" x 8" at 45° miter–and 2" depth of cut at a 45° bevel. Carbide-tipped 10" x 40 ATB blade comes as standard equipment.

Equipped with 45° right and 57° left miter scales, ball detent stops, oversized numbers for easy reading and a quick-action miter lock for faster miter setting.

Our newest Sidekick is heavy on features, but weighs a mere 55 pounds. Folds down to the size of a small piece of luggage. A cinch to carry from jobsite to jobsite.

Other members of our Delta Sidekick Series include the 8 1/4" Builder's Saw, Frame & Trim Saw, 10" Compound Miter Box shown mounted on our Kickstand™ Portable Workstand and 10" Miter Box. Plus a complete line of Sidekick Carbide-Tipped Saw Blades.

Delta funds these national PBS programs.

The New Yankee Workshop with Norm Abram.

The American Woodshop with Scott Phillips.

THE POWER OF THE PROS

DELTA
WOODWORKING MACHINERY
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preview

In the November/December issue of *This Old House*, on sale October 30

Follow the crew through the new season's house in Salem

- The basic **bathroom**
  Renovation with Steve Thomas and Richard Trethewey
- Saving **windows**
  Norm Abram repairs and reglazes
- The **living fence**
  Gardening with evergreens
- Encyclopedia of **screws**
  The right fastener for every project
- Historic **wallpapers**
  How to date, choose, strip or hang
- **Steel** framing
  An industrial technique in a domestic setting
- Building a **library**
  The principles of bookcase design

• Equipment
Outfitting a **home workshop** with Norm

• Technique
Repointing the Salem chimney

• Tools
Tom Silva's **reciprocating saw**

• Materials
How to quarry and finish **marble**

• Finances
Getting a loan on a derelict home

• Fittings
What nobody else will tell you about **toilets**

• and
Carpenters' levels, step-by-step tiling, our favorite books, new product and technology news

For subscription information, call 800-898-7237

Letters

Q **Several months ago, I saw a program where foundation concrete was poured into permanent Styrofoam forms. The exterior of the forms was smooth, but the insides were molded to accept rebar both vertically and horizontally. Where can I get more info?**

Joe Villeneuve
Florence, South Carolina

A The white interlocking foundation forms used on the Lexington ranch house were made by 3-10 Insulated Forms, PO Box 46790, Omaha, NE 68128; 800-468-6344.

Q **Is there any way to reinforce a roof to sustain hurricane winds (up to 200 mph)?**

Frances Valentin
Brandon, Florida

A It helps to look at the roofs that survived Hurricane Andrew: low-pitch (3:12) hip roofs with relatively small overhangs. Good workmanship is crucial. Use metal strapping, nailing schedules that meet or exceed local code and properly secured roofing materials.

Q **We just built a box frame out of treated lumber for a vegetable garden. After reading "Treated Wood" in your first issue, we became concerned that the preservatives would leach out of the wood and into the soil. Neither Home Depot, where we bought the lumber, nor any gardening centers could advise us. Soil testing firms we've contacted do not test for all the compounds that might be in the preservatives. Should we dig up our garden—or not worry?**

Michael Durket and Roberta Lucier
via e-mail

A The lead article in the January/February 1993 issue of *Environmental Building News* (802-257-7300) discusses a 1979 study that found soil more than 6 inches from treated wood that had been in the ground for 30 years contained no significant quantities of the wood preservatives. We wouldn't worry about it if we were you.

Q **I'm a third-generation contractor and have just finished your first issue. It's great. I think an interesting article would be an in-depth interview with Tom Silva of Silva Bros. Construction.**

William Sposa Jr.
Norwood, New Jersey

A You'll be pleased to see that Tom Silva has done a story for this issue ("Routers Made Simple," page 31). We wanted him for the first issue, but he was too busy (building a 4,000-square-foot house almost next door to the New Yankee Workshop) to stand still for photos.

Q **On an episode of *This Old House*, Steve Thomas visited a New England couple who had a carriage house with several sets of swing-out doors. Each set of doors was operated by a single automatic opener. I would like to automate my carriage doors, but I've been told by several garage-door companies that they cannot install an opener that will operate both doors. Do you have any information about such an opener?**

Dean Day
Laguna Beach, California

A The garage-door openers that you are remembering appeared during the Acton colonial house project, when Steve visited a restored 1760 tavern. The company responsible was Early New England Restorations Inc., 273 Pendleton Hill Road, North Stonington, CT 06359; 203-599-4393.

If you have a house-related query, write
This Old House
20 West 43rd Street
New York, New York 10036
or e-mail: **letters @ toh.timeinc.com**

punch list

definition: a list of items incorrectly done or remaining to be fixed on a construction job

- The area code for Icynene, makers of **Pour Foam** insulation (May/June, page 37), has changed. The new number is 905-890-7325.
- The telephone number listed for the **National Register of Big Trees** (May/June, page 110) was wrong. The correct number is 800-8-RELEAF.
- Due to a publisher's error, we listed an incorrect copyright line for ***Norm Abram's New House*** ("Norm's Timberframe," May/June, pp. 122-125). The copyright line should have read: *Norm Abram's New House*. Copyright © 1995 by Norm Abram. Photographs by Richard Howard. Reprinted by permission of Little, Brown & Company.
- To order the **"Federal Energy Policy Guide"** from GE Lighting ("Tube Sale," May/June Directory, page 134), you will need to give the publication numbers, which are 205-31158R and 205-31155R. Call 800-626-2000 and select number 4 (commercial/industrial division) on the voice-mail menu. (Our thanks to reader Gordon Jackson of Cheektowaga, New York.)

The Best Thing To Happen To Decks Since The Lounge Chair.

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Now you don't have to do a thing to your deck except lie back and enjoy it. Because a Trex™ deck stays looking new without your spending time and money on costly sealants and repairs.

Since Trex is a wood-polymer lumber, it won't split or rot like wood, and you can even walk barefoot on it without ever worrying about splinters. Trex also resists damaging moisture, termites and harmful UV rays.

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or e-mail:
letters @ toh.timeinc.com

Photographs by Darrin Haddad

dates to remember

■ **OWNERS OF OLD HOUSES** can meet people who repair and outfit old buildings at the Old House Fair planned by the National Trust for Historic Preservation. It will be held September 8 to 10 at the Chesterwood Museum, the home of American sculptor Daniel Chester French, in Stockbridge, Massachusetts. For information, call 413-298-3579.

■ **WANT TO PEEK INSIDE A HOME** powered by the sun, wind or water? People across the country can do just that during the National Tour of Independent Homes on October 14. To find out about homes in your area, call the sponsor, Real Goods Trading Corp., a mail-order supplier of alternative energy products, at 800-762-7325.

■ **LEARN ABOUT HISTORIC** and reproduction upholstery at an all-day lecture and demonstration in Historic Deerfield, a central Massachusetts town with 14 museum houses that display 20,000 objects made or used in America from 1650 to 1850. The event, on September 30, is by registration only. Call 413-774-5581.

■ **PEOPLE INTERESTED IN BRAINSTORMING** about how to protect and revitalize old neighborhoods will gather in Fort Worth/Dallas from October 11 to 15 for the National Trust for Historic Preservation's annual conference. More than 60 educational sessions are planned. For information, call 800-944-6847.

Our favorite new tool

Caulking guns sold out of hardware-store barrels for $1.99 apiece are irritating—they drip, they break, they fall off ladders—but they've been the best we could get. Until now. Dripless Inc.'s model CH200 is a muscular, even Schwarzenegger-esque alternative with everything the junkers lack: a baked-on finish, a built-in spout cutter and cartridge punch, a hooked plunger rod for hanging anywhere, a pinchless finger guard on the trigger. And after every squeeze the CH200 backs off the pressure just a tad, thereby reducing drips. Somebody actually designed the CH200, so it's a tool—not a gadget.

Video rentals for woodworkers

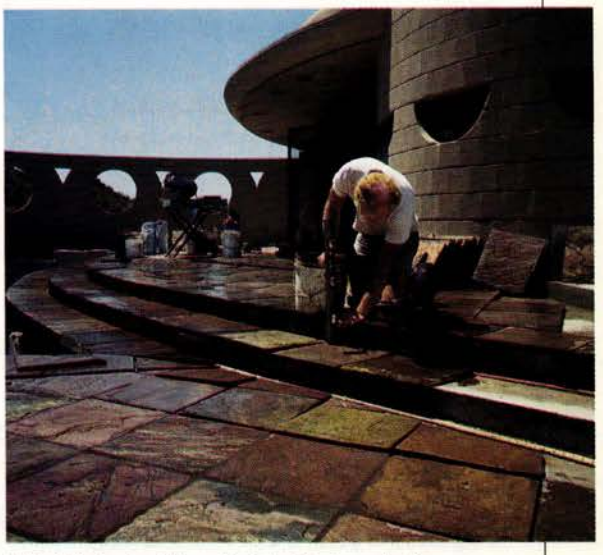
Nemy Electric Tool Co. in Citrus Heights, California, has a good idea you might ask your local hardware store to copy. For just $3 a day, plus a deposit, the store rents out any of about 150 how-to videos, including those from Taunton Press, a Northern California wood-turner's association, tool manufacturers and independent sources. One tape, on making arched, raised panels for doors and cabinet sides, has been especially popular. Perhaps the store puts a little extra zeal into promoting it, since the star is none other than owner Bill Nemy.

"Give us the **tools** and we will **finish the job**."

Franklin Delano Roosevelt

Last Wright: A Phoenix Rises in Phoenix

Linda Melton thought owning a Frank Lloyd Wright was a pipe dream until she fell over one in Phoenix. "I found it Saturday, called the realtor Sunday, inspected it Monday and bought it [for $525,000] Tuesday," she says. "It was his last house, on his drawing board when he died, and built between 1966 and 1968. Like several Wright houses, it had penny-pinching owners, and the cheapness showed. I'm restoring his design, laying Indian tiles instead of concrete, having the half-moon windows individually made, dumping the hollow-core doors"—all with the guidance of Wright's Taliesin architects. The renovations have cost $1 million so far, but Melton says she already covets another Wright house nearby.



Wright's last wish: red slate tile from India.

FRANK LLOYD WRIGHT PHOTOGRAPH BY DAN VERMILLION

Portable Plumbing

Norm's dad, who taught Norm almost everything he knows about carpentry, abandoned his bulky 6-foot level after his son suggested hanging a door with Plumb-Rite, a self-reeling plumb line. Now, Norm says, "He won't hang doors any other way."

A spring-loaded pin holds the Plumb-Rite to the side of a wood jamb, then drops an 11-ounce plumb bob exactly 60 millimeters (about 2⅜ inches) from the jamb's edge. Measuring the line's distance from the jamb at any point shows if the jamb is plumb. The Plumb-Rite comes with 14 feet of line.

Russ Morash, creator of *This Old House*, has a similar device—the Anchor Line (shown here). Both tools have a magnet for plumbing Lally columns or steel doorjambs and a hook for installing cabinets.

Self-reeling plumb lines, like the Anchor Line, simplify window and door jamb installation. More precise than a spirit level, a plumb line never needs recalibration.

dates to remember

■ **IF YOU'VE GOT SOMETHING METAL** that needs fixing, consider a visit to the National Ornamental Metal Museum in Memphis, Tennessee, October 20 to 22. Volunteer metalsmiths will re-tin copper and weld, sharpen, solder and pound out dents on items ranging from iron beds to pewter beer steins. The metalsmiths will charge about half their usual rates, then donate all the money to the museum, the only one in the country dedicated exclusively to metalwork. For information, call 901-774-6380.

■ **HAVE AN OLD TOOL** but no idea what it was used for? Collectors likely to have the answers will staff a "What's-it Roundtable" at Antique Tool Discovery Day, sponsored by the Bucks County Historical Society, at the Mercer Museum in Doylestown, Pennsylvania, on November 12. They will also demonstrate tools of the slater, cooper and cabinetmaker and give tips on how to research tool history. For information, call 215-345-0210.

■ **MAKE A HAND-PLANED BAMBOO FLY ROD,** learn blacksmithing (from beginner basics to big jobs like gates and furniture), discover new finishes for woodwork or learn to carve or turn wood at the John C. Campbell Folk School in Brasstown, North Carolina. Weeklong classes continue through the middle of December. Call 800-FOLK SCH for information.

HOW HOME BUILDING HAS CHANGED

AMERICANS SPEND MORE ON HOME CONSTRUCTION THAN THEY DID 30 YEARS AGO, EVEN AFTER ADJUSTING FOR INFLATION. BUT WHILE NEW CONSTRUCTION WOBBLED WITH THE ECONOMY, REMODELING GREW STEADILY, TO NEARLY ONE-THIRD OF TOTAL SPENDING.

*CONSTANT (1987) DOLLARS, ADJUSTED FOR INFLATION

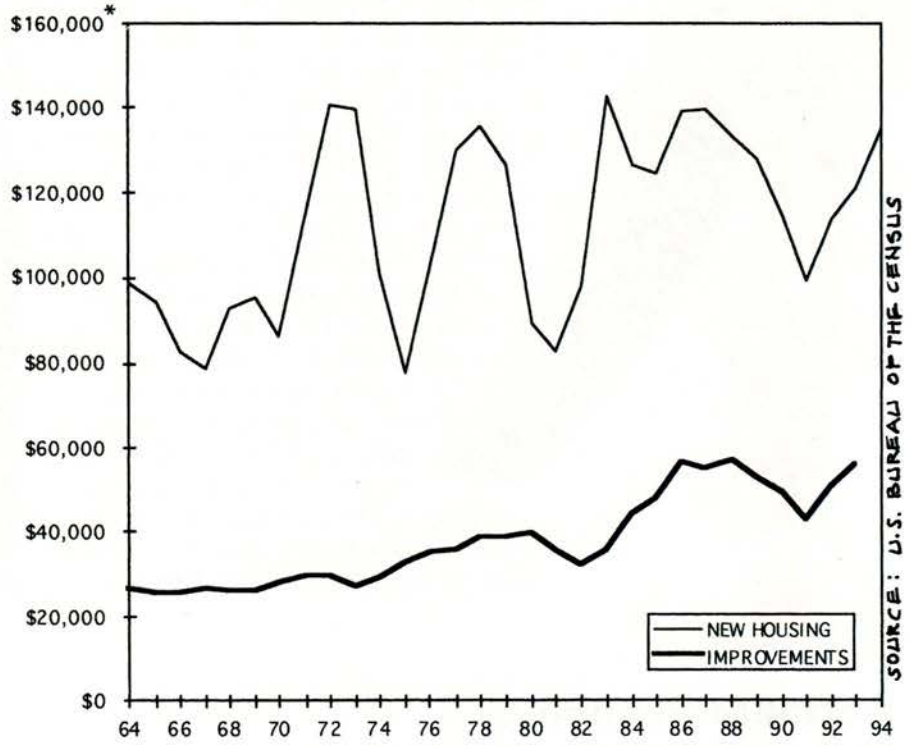


CHART BY MANON ZINZELL

Want to buy great old tools?

Each September, collectors of antique tools head to the Holiday Inn in Nashua, New Hampshire, for an auction where a molding plane by a prized toolmaker may go for thousands of dollars. But people who want nicely crafted hand tools they can actually use head for the parking lot. Starting at daybreak on September 15 and 16, dozens of tool dealers will set out tables laden with old but usable planes, chisels, saws and more. We picked up a set of stencil-cutting stamps, a mortising chisel and a Stanley hand-tool training manual from 1950, each in the $10 to $20 range. For an auction catalog, call 603-478-5723; for hotel directions, see Directory.

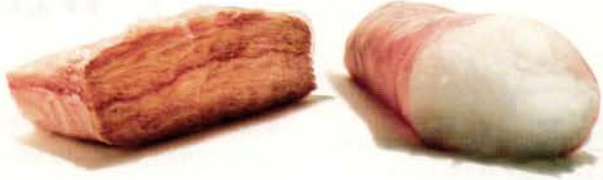
CO detector update

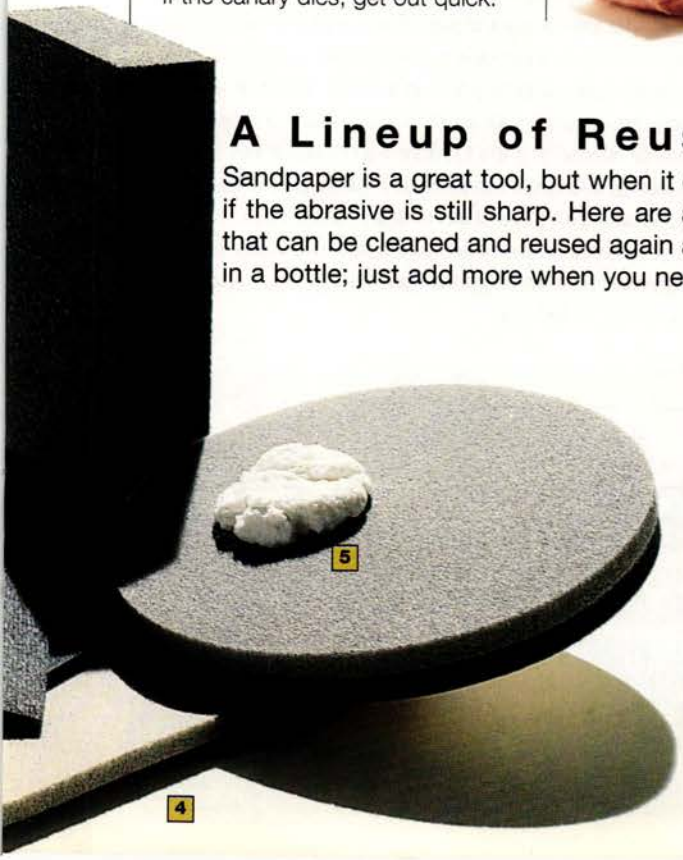
Got a gas furnace or dryer at home? How about a fireplace or water heater? All can generate poisonous carbon monoxide (CO), which may accumulate in weather-tight, energy-efficient houses that lack "natural" ventilation (such as loose-fitting doors and windows) to disperse it. But CO detectors are costly ($40 to $80), and early models often cried wolf at harmless traces of CO. As of October 1, Underwriters Laboratory's new "threshold standards" solve that problem, but new models are hard to tell from old. Make sure the box or manual clearly says the unit has a reset button, won't go off at safe CO levels (15 parts per million) unless that level has persisted for 30 days and won't be triggered by temporary phenomena like rush-hour traffic. Or you can buy a canary—the old-fashioned miner's CO detector. If the canary dies, get out quick.

CANARY PHOTOGRAPH BY A. SCHMIDECKER/FPG

Insulation without the itch

Fiberglass insulation doesn't have to itch. The Miraflex fiber in PinkPlus looks and feels like cotton (but squeaks when rubbed, as we discovered). Free of standard formaldehyde binders, it's made by fusing two kinds of glass fibers into a curly strand. "It's easier to maneuver; it doesn't get caught on boards in the attic," says Tom Merker, a spokesman for manufacturer Owens-Corning Fiberglas Corp. Unlike regular fiberglass insulation, the Miraflex product carries no warning that it is suspected of causing cancer. Studies have shown that the thin fibers of regular fiberglass can break into tiny pieces that can lodge in the lungs. The company maintains Miraflex fibers are safe because they're thicker. You might expect it to trumpet this fact. But doing so could draw attention to the hazards of regular insulation; Owens-Corning doesn't want that. "Our normal glass fiber, when applied correctly, we believe is perfectly safe," Merker says.





A Lineup of Reusable Abrasives

Sandpaper is a great tool, but when it clogs up, it's darn near useless, even if the abrasive is still sharp. Here are a range of paperless sanding sheets that can be cleaned and reused again and again. The sanding gel is like grit in a bottle; just add more when you need it.

1. Metal sanding sheet
Tough enough to strip paint—and severely gouge wood.

2. Foam sanding blocks
36 to 120 grit
For curved surfaces; two grits per block; rinses clean.

3. Foam-backed sanding sheets
60 to 150 grit
Perfect for wet sanding; residue washes away.

4. Foam-backed sanding pad
60 to 220 grit
Thick foam for easy hand sanding, wet or dry.

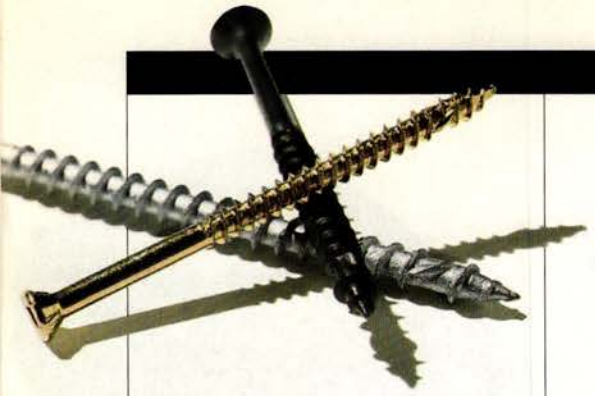
5. Sanding gel on foam applicator pad
3,000 to 10,000 grit
Polishes any nonporous surface.

Reborn Batteries

Saitek's Eco-Charger recharges batteries usually considered "non-rechargeable": 1.5-volt alkaline and zinc carbon cells—from AAA to D—and prismatic cells, as well as 1.2-volt nicads. Its gentle "trickle charge" recharges fully. Dime-store units don't, leading many electronics makers to discourage their use.

Routing **Sans Clamps**

We were skeptical of router pads, those foam squares that supposedly hold wood in place for routing and palm sanding. (For belt sanders, clamps are required.) But when a recent project had us routing the edges of many small hardwood blanks, we tried a Vermont American Bench Vise. Now we're believers. With no clamps to interfere, the job went quickly, and not a piece budged. (Multicolored foam carpet pads or the rubberized antiskid mesh for rugs also work.) The open-weave, 24x36-inch Bench Vise lets sawdust filter through, and it can be thrown in the washing machine when it gets dirty.



Screws that don't split or break off

"They're expensive, but boy, do they work," says *This Old House* creator Russell Morash about Fastap self-drilling screws, one of the niftiest little inventions to come our way in years. Anyone who has used drywall screws in endless ways that have nothing to do with drywall knows they have a nasty habit of snapping off. Fastaps don't do that because the tiny cutting flutes at the tip of the screw drill out a path for the screw that follows. Nibs on the underside of the head make the screws self-countersinking too. They range from 1¼ inches to 6 inches long for exterior use, and 1 inch to 3 inches for interiors. Both square-drive and Phillips-head versions are available.

OLD RULES

In his new book, *The Old Way of Seeing* (Houghton Mifflin, $24.95), Jonathan Hale grapples with the question: What is it that makes an old house beautiful? His answer: Old houses were designed by the craftsmen who built them, to proper (human-based) proportions informed by fundamental geometric principles—"the old way of seeing." To illustrate, he superimposes "regulating lines" over photos of various facades to show how our eyes unify architectural details (windows, doors, fanlights, etc.) into a harmonious whole, or how they struggle hopelessly to find such harmony. The blights on our architectural landscape, he contends, have their roots in the early 19th century, when the old way of seeing was gradually lost amid a succession of self-conscious revivals and design movements. To recapture the beauty of old, Hale urges us to be less imitative and more intuitive in the way we approach design—more like the craftsmen of old.

In celebration of bungalows

Not long ago, magazines often featured stories on how to remodel a bungalow to mask what it was. But as the century winds down, these simple homes from the first half of the 1900s are now old enough to be valued. Fans even have their own magazine, *American Bungalow* (800-350-3363). Will *American Ranch House* be next?

"Neither wise men nor fools can work **without tools**."

Anon.

Small House, Small Budget

Architecture's easy when space is abundant and cost is no object, but you have to sweat the small stuff in a competition like the American Institute of Architects' 1995 "Designing an Atlanta Legacy." The challenge was this: Design a 1,300-square-foot house with three bedrooms, one bath, one living/dining room and a covered porch for Atlanta's inner-city poor. Budget: $45,000, lot included. And it had to be buildable by amateurs.

Eighty-one submissions came in from across the country, but a local firm called Design Traditions took the prizes with volunteer-friendly designs that limited on-site sawing and used easily installed prefabricated roof trusses. But the competition's restrictive criteria meant the winners were more conservative than creative. More revealing were the gaffes of the losers: poor interior layouts (bathrooms opening into dining rooms), incongruous exteriors (a banklike building on a block of 1930s bungalows) and strange site planning (one had a 5-foot-wide side yard). One submission impressed jurors with an interior that seemed amazingly spacious—until a juror noticed that the furniture was drawn at half scale.

Habitat for Humanity, a Georgia-based charity that helps provide low-cost housing, actually built three of the houses—and came in on budget. But do-it-yourselfers please note: Habitat has a volunteer labor force and gets materials free from corporate sponsors. In the real world, the price would be closer to $65,000.

Base **Recycling**

WWII-era barracks are usually demolished (big bucks) and thrown into landfills (big mess), but Fort McCoy in Sparta, Wisconsin, has a better way: public auction.

"It's unbelievably simple; you just drive up and put a bid in," says Matt Christenson, who along with his wife, Michele, bought a 30x90-foot, two-story barracks for $390 in 1993. The high bidder gets five days to present a certified check (no plastic, please) and up to 90 days to remove the structure. In 10 weeks, with a little help from friends, the Christensons dismantled the barracks—turning its 30,000 board feet of hemlock and Douglas fir into their first home.

The cost of a barracks has risen to about $1,500, but it's still a bargain: The lumber is worth about $12,000 retail.

Want a barracks of your own? With more base closings due, keep your eyes peeled. Fort McCoy has saved $2 million in demolition costs already—and Art Davey, who helped start the program, is recruiting other bases.

Hawaii revisited: "Come back, guys"

The big news from Christiane and Gib Bintliff, whose historic Honolulu home was Steve-and-Normed in 1994, is baby Ileiana. She was born last October 3, and so—we're counting on our fingers here—wasn't she conceived between the taping of episodes three and four? "Maybe we were paying too much attention to the renovation and not enough to other things," says Christiane. "She certainly was a beautiful surprise!" Other welcome surprises: "I had doubts about the big mirror the architect put in the living room and the wall he took out between the master bedroom and bathroom. But they're both brilliant; I love them. And Ching Construction Co. was wonderful, even after the cameras left, which is the real acid test."

Two things aren't up to snuff. She's "a little shocked" that some of the sliding-door hardware has tarnished already, and there's the ceiling in the

studio: "You remember I wanted it painted but exposed, for a high-tech look?" Christiane says. "The architect and Ching Construction tried to talk me out of it, but I wouldn't listen. Now it's falling down; I don't know what to do."

Since the show, both Bintliffs have gotten "take-downs"—Steve and Norm's term for being recognized in public. A long-lost mainland relative contacted them through the Internet. An e-mail message asked, "Are you related to Christiane Bintliff of *This Old House*?" When they owned up, Gib says, they got "a huge letter of out-of-control adoration, as if we were the Beatles of home repair." Says Christiane, "At the airport, some guy came running over. He recognized me even though I was pregnant, 50 pounds overweight and had a different hairdo!"

Gib wants the guys back—anytime—to "do a sequel," he says. "We had agreed that Christiane would be in charge of everything except the garage, workshop and media room—but we never even got to them. So come back, guys. We've got a great place for you to stay."

Siding Strippers

To avoid sanding and scraping to get encrusted paint off a house, try the 6-pound Paint Shaver Pro (above). If lead is a concern, the acrylic dust shroud with a vacuum port captures the paint planed off by three spinning carbide "teeth." (But equip your face and vacuum with HEPA filters.)

Porter-Cable's 9½-pound Power Paint Remover (below) is another option. This easy-to-use tool, which whirls a 6-inch tungsten/carbide-studded disk at 3,500 to 4,500 rpm, abrades everything in its path. Use only on lead-free paint; it flings lots of dust.

Neither tool can reach into corners, and both may leave swirls that require sanding. Set any nails before you begin. And as with any machine, stay alert; a moment of inattention can leave nasty gouges.

RECYCLING PHOTOGRAPHS BY LYNN FOX; HAWAII BY WAYNE LEVIN; SANDERS BY J MICHAEL MYERS

♦ *See Directory,* on page 130, *for lists and addresses*

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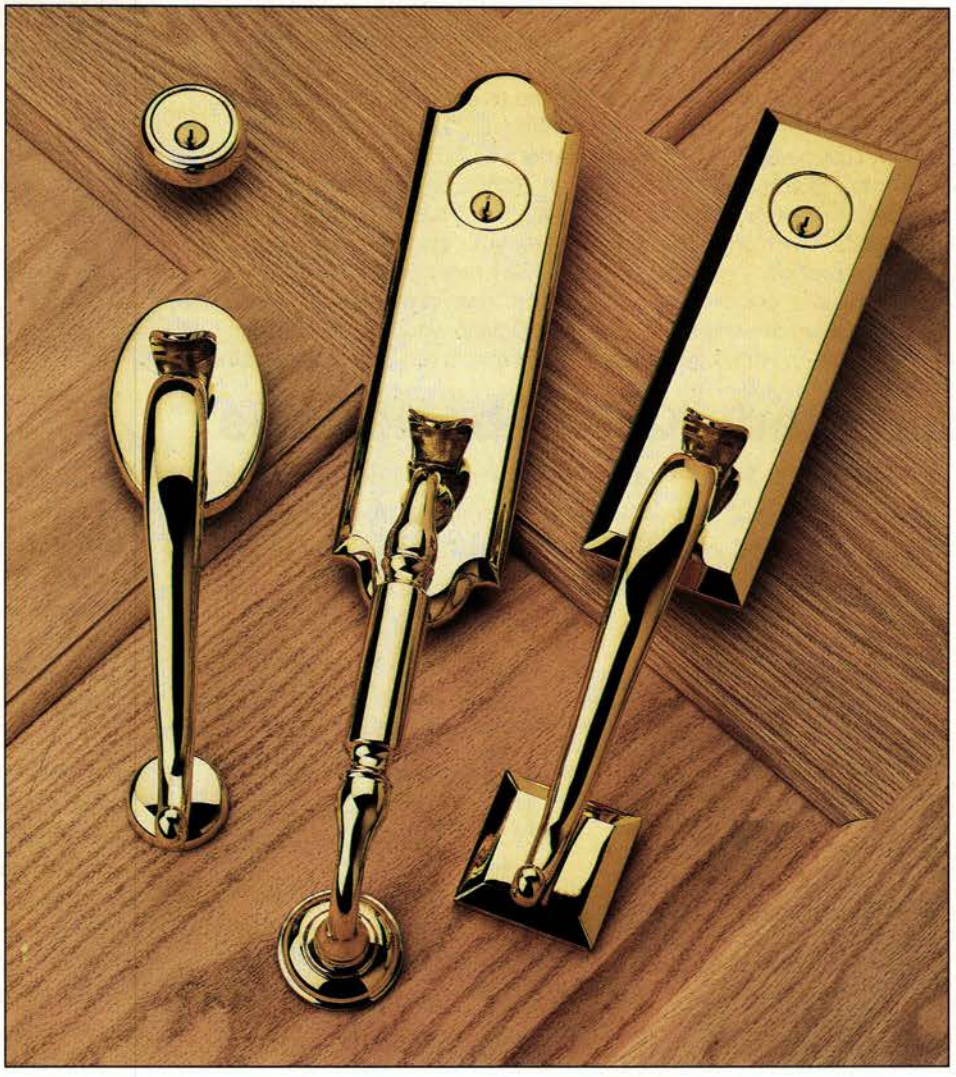

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Routers Made Simple

Tom Silva's most versatile power tool.

BY MARK FEIRER **PHOTOGRAPHS BY DARRIN HADDAD**

"It's the one tool I couldn't do without," says Tom Silva of his 1¼-horsepower plunge router (shown here). It shapes edges, cuts dovetails, plows grooves and makes molding. When asked about models with soft-start motors and electronically controlled bit speeds, Tom says, "I like my routers plain and simple." But with eight in his stable, the joke at *This Old House* is that he never has to change a router bit—he just changes routers.

Routers come in two varieties: fixed-base and the more versatile plunge type. Here's what to look for in a router (if you only want one):

- **1¼ hp (minimum)**
- **Both ¼-inch and ½-inch collet capacity**
- **Plunge capability**
- **On-Off switch that is easy to reach while holding handles**

Early **Routers**

For centuries, craftsmen worked wonders with wooden tools like this beech router plane from the late 1700s. The L-shaped, depth-adjustable blade could excavate a carving or clean up a groove with unmatched precision. Some woodworkers still prefer its long, fragrant shavings and quiet demeanor to the wail of an electric router. Tom Silva has a modern brass one that he uses when working on antique doors.

The first powered routers date to about 1872. They were unwieldy but worked fine—as long as the operator kept pedaling. A foot crank spun the bit at speeds up to 2,500 rpm. The first electric router, made by the Kelley Tool Co., was introduced around 1905.

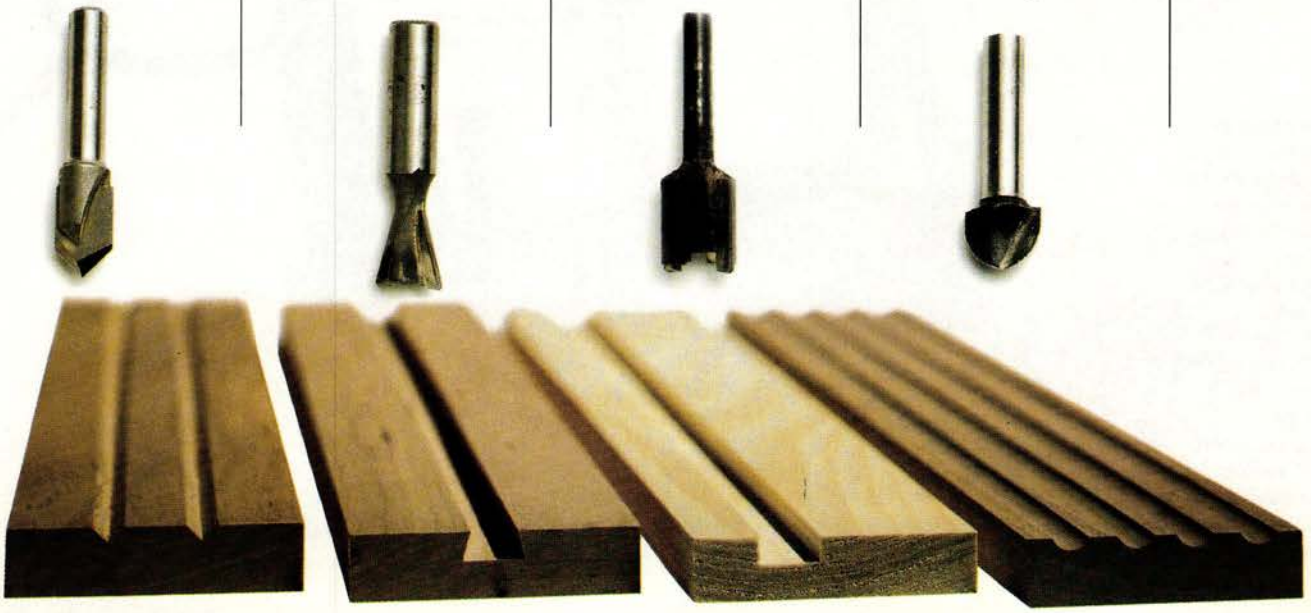
basic groove-forming bits

V-groove
Sometimes called a veining bit, this bit usually has two flutes (cutting edges), available in 60-degree, 90-degree and 120-degree angles. It's used to cut lettering or for general decoration. Changing cutting depth widens or narrows the groove.

Dovetail
Though it's often used with a special template to make drawers, Tom uses his—"a lot"—for other joinery (see page 35). The bit shouldn't be withdrawn from a cut until it exits the edge of the board. Various diameters and angles are available.

Mortise
Best for routing the recesses (mortises) for hinges and hardware, this bit makes perfectly flat cuts. Cutter diameters range up to 1¼ inches. It's a poor choice for plunge cuts; use a straight bit instead.

Round-nose
The round-nose (also called a core box bit) can be used to cut the orderly flutes of a classical column. Less formally, Tom has used his to make the chalk rail for a child's chalkboard. The depth of the bit's cut affects the width of the groove.



care of bits

For a router to cut cleanly, the bit must be sharp and free of nicks. (Carbide bits keep a sharper edge longer than inexpensive high-speed steel bits.) Test a cutting edge by brushing it across your fingernail; if it doesn't grab, the bit's too dull. A quick honing with a diamond whetstone may be all it needs. To protect his bits from damage, Tom sticks them shank first into a block of wood drilled with suitably spaced holes. Clean bits periodically with oven cleaner and a toothbrush and lubricate the bearings; Tom recommends sewing machine oil.

OLD ROUTER PHOTOGRAPH BY JAMES WOJCIK

Basic Edge-Forming Bits

Roundover Bit

A bearing prevents a bit from taking too big a bite and keeps the cut on the edge of the wood. This bit has a roller bearing (most effective) and carbide cutting edges for super-smooth cuts. Use a roundover to ease any edge. Fitted with a smaller bearing, it becomes a beading bit (see below).

Cove Bit

A cove is like a round-nose with a bearing. When cutting a deep cove, especially in hardwood, best results come with several successively deeper passes; this is where a plunge router excels. Tom once used his cove bit to shape the maple edge of a kitchen countertop—scooping out the wood and the plastic laminate in one pass.

Rabbet Bit

This bit cuts a lip (rabbet) into the edges of boards. Use it on the back edges of a cabinet to inset a plywood panel, create lipped cabinet doors or turn old boards into shiplap paneling. The bit shown here has a pilot bearing—a fixed pin that rides against the wood. Too much sideways pressure with a pilot bearing will scorch the wood (see page 34).

Chamfer Bit

Tom calls it a "great finishing-off bit." Like a cove, it can detail the edge of a laminate countertop or dress up the edges of a post. Chamfer bits from 11¼ degrees to 45 degrees are available.

Ogee Bit

Ogees usually feature a mix of curves and crisp edges that look like a cove bit and a beading bit in one. Tom's unusual ogee has an especially sinuous profile. "We make a great little detail on window muntins with this bit," he says.

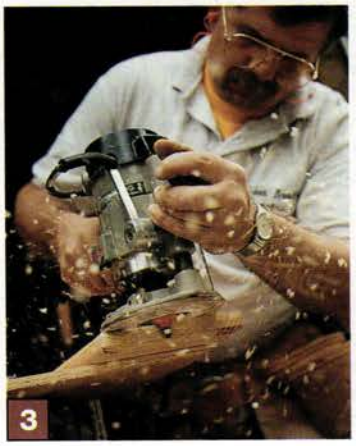
Slot Cutter

Here's the bit for making tongue-and-groove flooring or spline joints, in which a narrow strip of wood (spline) is inserted between two edge-slotted boards. Tom's trick for centering the cut without measuring: Eyeball the middle, make one cut on the edge of a scrap board, then flip the board over and make another cut from the other side. Adjust bit height until two passes cut in the same place.

Beading Bit

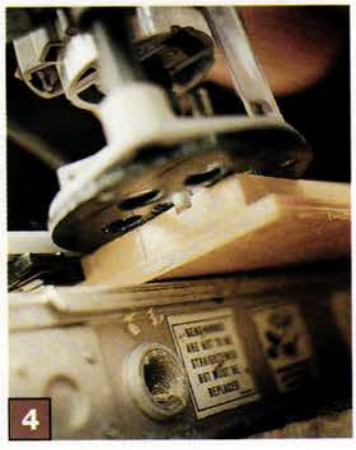
The bearing on this bit stops just short of the cutting edge, which leaves a reveal, or tiny lip, below the radiused bead. Adjust the height of the bit to cut a matching reveal above the bead—test cuts are mandatory. Cut a bead (also known as an ovolo) anywhere you want to set off an edge—a window ledge, a shelf or the top of a baseboard.

Router Technique



Routing an Edge

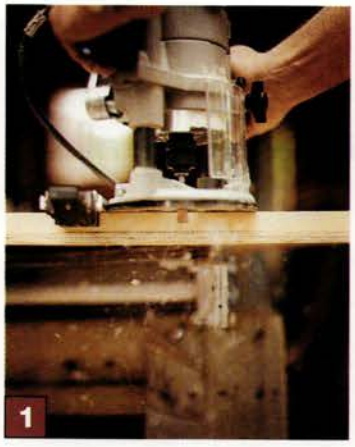
(1) Unplug and upend the router. Slip the bit fully into the collet, then back it out 1/16-inch or so (to make removing it easier) and **tighten** the collet nut with the wrenches. **(2)** Adjust the height of the cut and **lock** it in place with the plunge lever. **(3)** Move the router **counterclockwise** around an outside edge so the clockwise-spinning bit bites into the wood. Start and finish cuts halfway down a board; finishing the cut on end grain may cause chipping. At corners, where the router's base has the least support, slow down and keep one handle over the workpiece for good control. **(4)** Tom holds his router firmly with **both hands** and has a steady, balanced stance. "Feel comfortable," he says, "but be ready for anything."



Routing a Surface

(1) "If you don't measure, you can't measure wrong," Tom says. To cut a dado (flat-bottomed groove) for a shelf standard, he first **pushes down** his unplugged router until the bit just touches the wood. Then, keeping the router in this position, he sandwiches the standard between the depth stop rod and a depth stop on the turret and tightens the depth-stop knob. Now when the router is plunged, the depth of the cut will exactly match the thickness of the standard. **(2)** Always **guide** the router with a straightedge, or **(3)** use an **adjustable fence** attached to the router itself. **(4)** When beginning or finishing a cut, move the router **slowly and carefully** to avoid chipping the wood.

FLAWS You can do an awful lot with the right tool, but a lot of awful if you use it wrong. • The burn marks on the edge of the top board were caused by the pilot bearing on a rabbet bit. Burn marks must be sanded out. • The edge of this oak board splintered (that's what a chip shield protects you from). Oak is notorious for such behavior, but you can minimize problems by making several shallow cuts instead of a single deep one. • The bottom board is burned too, perhaps due to a dirty bit or a too-slow feed rate. "What you want is a nice, steady movement," Tom says.



Cutting a Dovetail Groove

Here's a trick Tom uses to secure a fixed shelf in a bookcase. **(1)** He starts by using a **dovetail bit** to cut a groove across the width of the cabinet's side piece. **(2)** He uses the same dovetail bit mounted on a **router table** to shape the ends of the shelf. A router table is a useful accessory that holds a router upside down so that wood can be pushed past the rotating bit. **(3)** After Tom test-fits the pieces, he **assembles** the cabinet. A dab of glue at the ends of the groove keeps the shelf from sliding, resulting in an unusually stiff assembly.

Routing an Inlay or Dutchman Repair

(1) With a **bushing kit** and a hardboard template, you can cut a patch and recess to cover a flaw using the same ⅛-inch bit. **(2)** First fit the template guide to the router's base and rout out the **bowtie** from thin stock. The template (secured with double-sided tape) guides the perimeter of the cut. **(3)** Now fit the brass **bushing** over the guide and set bit depth to match patch thickness. **(4)** Secure the template over the flaw. Then rout out a **recess** for the inlay. **(5)** To complete the repair, **glue** bowtie in place and **(6) sand** it smooth.

do's and don'ts

A router relies on speed, not strength, to do its work, so kickback is less of a danger than with tools such as the circular saw. Still, a sharpened bit spinning at 23,000 rpm is formidable, so keep fingers well away from the action. That goes for router tables too. Always unplug a router before changing the bit. Because routers kick up a lot of sawdust and shavings, wear a decent particle mask (see pages 43–47). Though most routers have a chip shield, only fools rely on it for eye protection; be sure you have safety glasses. Protect your ears as well. Tom uses compressible foam earplugs, but muff-type hearing protectors also work if they fit correctly.

Don't do this unless you want dovetails in your fingers. Keep hands well away from the bits on your router table.

So I'm spinning around in circles  trying to get the jump  on all the things I had to get done, when all of a sudden it hit me,  Ace! What a great idea! 

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Veneer Plaster

Jim Marshall makes drywall beautiful.

BY THOMAS BAKER **PHOTOGRAPHS BY WILLIAM VAZQUEZ**

Jim Marshall (below, on stilts) has been mixing, applying and patching plaster for more than 45 years. He first came to the attention of *This Old House* for his work on an 18th-century tavern converted to a private home. In 10 weeks, he and his son John troweled 25 tons of plaster over the tavern's original hand-split chestnut lath to re-create the look of colonial plaster.

Though widely used on today's walls and ceilings, drywall is subject to nail pops, telegraphing joints and abuse (you can scratch it with your fingernail). There is an alternative—veneer plastering—that marries plaster's hardness, fire resistance and texture with the convenience of drywall. Veneer plaster is skimmed over sheets of blueboard—a blue-tinted gypsum wallboard treated to accept plaster. Within an hour, the plaster hardens into a monolithic surface with a perfectly smooth finish.

To demonstrate the strength of his favorite product, plasterer Jim Marshall hammered a newly veneered wall with the edge of his trowel. Despite repeated blows, the surface showed nary a dent or scratch. "Try *that* with drywall," he challenged.

How to **Plaster**

An expert demonstration

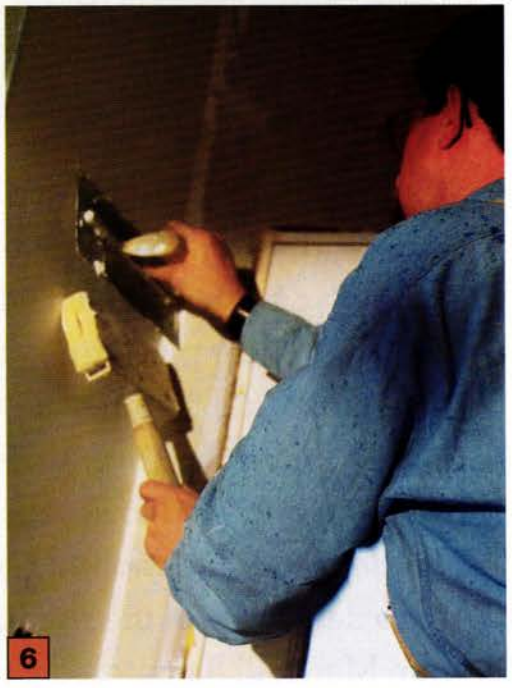
After adding a tablespoon of retarder to 6 qts. of water, John Marshall blends 70 lbs. of an 80-lb. bag of basecoat plaster with a jiffler **mixer** attached to a 500-rpm drill. Mixing plaster is dusty, hence the mask. Glasses keep caustic materials out of eyes.

In about a minute, the batch reaches the consistency of grainy cake **batter.** Marshall stops mixing immediately; any longer can accelerate the set. With his trowel, he scoops plaster off the mixing board and onto his hawk, which holds plaster as he works.

Ceilings are plastered first, then walls. Joints and screws get an **initial coat**, then the blueboard's entire surface is covered with a layer of plaster about ⅛-inch thick. All tools are thoroughly cleaned with water between each batch.

Once the ceiling sets, **basecoat** plaster is troweled on the walls with a quick up-and-down rhythm. Holding the trowel at about 30 degrees to the blueboard gives a smooth, chatter-free surface, leveling undulating walls and creating perfect intersections.

After about an hour, the basecoat will have set. Then a **finish coat** made of lime putty mixed with gauging plaster is spread over the basecoat veneer. The corner trowel Marshall is using puts a neat crease down an inside corner.



This second veneer must be "packed" and polished with a trowel to make the **smooth**, hard surface we know as plaster. No sanding is needed. The wet felt brush in Marshall's left hand moistens the finish coat as he pulls the trowel at a low angle down the wall.

the materials

Clean water **(1)** and fresh plaster **(2)** are essential. "Look for the date on the bag," advises Marshall. "If it's more than six or eight months old, pass it by." He buys bags with the same date for consistency. Retarder **(3)** and accelerator **(4)** slow down or speed up the set. The jiffler mixer **(5)** and the low-speed drill **(6)** make quick work of mixing. Gauging plaster **(7)** and hydrated dolomitic lime **(8)** form the finish coat. Lime is caustic; cover skin, hands and eyes, and wear a dust mask when mixing.

the tools

Ninety percent of the time, the only tools a plasterer uses are a hawk **(1)** and steel trowel **(2)**. The hawk holds the plaster and gives a convenient edge for scraping the trowel clean. The pipe trowel **(3)**, tuck trowel **(4)** and margin trowel **(5)** are handy when space is tight. The point trowel **(6)** cleans up blobs at the edges of outlet boxes. The corner float **(7)** and corner trowel or "butterfly" **(8)** smooth inside corners. A felt brush **(9)** smooths surface imperfections. Nonetheless, Marshall says, "A plasterer's best tools are his arm and his eyes."

Plaster Tips

Checking for level: "Plaster's greatest asset is as a leveling device," Jim Marshall says. "You don't have to fuss with shimming out boards; the plasterer takes care of it." He uses 4- and 8-foot wooden straightedges to find dips in the blueboard, then circles those spots with pencil.

Working time: Heat, humidity and drafts speed the set, as will bits of plaster left over from a previous batch. That's why Marshall keeps the thermostat turned down and the windows shut and is fastidious about cleaning his tools and mixing board.

Troweling technique: Always work plaster "from wet areas into dry," Marshall recommends. For smoothing, the trowel is pressed down slightly at the front to "feed the plaster off the back." Hold trowel at a low angle (30 degrees or less); a 45-degree angle roughs up plaster, leaving "chatter marks."

Creating texture: Many of Marshall's clients ask him to leave a little roughness or irregularity in texture so visitors won't mistake his work for drywall. What he can't abide, however, is seeing his finely polished, perfectly smooth plaster surfaces painted with a thick-napped roller. "It leaves an orange-peel surface that looks like painted drywall," he says. Use a short-napped roller or, better yet, a brush, and "your walls will look like a piece of furniture."

Squaring corners: A straight, square corner is the mark of a good plaster job. In Marshall's hands, all it takes is a couple of swipes with the edge of his 3-foot slicker, a simple beveled cedar clapboard, followed by a clean cut with his corner trowel.

Patching Plaster

While it may be tempting to rip down an old plaster-over-lath wall and replace it with drywall, often the plaster can be saved. Firm plaster that has popped off lath can be reattached with plaster washers and drywall screws. Soft, crumbly plaster should be removed down to the lath and out as far as the firmly attached areas in preparation for patching.

John Marshall starts by chiseling out the old plaster from between the lath and brushing away any loose dust and plaster crumbs. **(1)** The plaster around the hole is scraped smooth with an angle plane or rough drywall screen. He brushes a bonding agent over the lath and all plaster being recoated, then covers all but the smallest cracks with fiberglass mesh tape.

To make lime putty for the patch, Marshall mixes hydrated dolomitic lime with water until it is the consistency of whole-fat yogurt, then slakes it for at least 20 minutes, leaving a thin layer of water on the surface to ensure even rehydration. The putty is formed into a ring on the mixing board and the bonding agent is poured into its center. **(2)** Marshall sifts in several handfuls of gauging plaster to give the putty more body. **(3)** He mixes everything with his trowel into a stiff dough, which he presses firmly onto the exposed lath and around the edges of the hole, leaving a slight depression for the final coat. **(4)** To reinforce the patch, he cuts a sheet of fiberglass mesh to cover the hole and presses it into the wet plaster. **(5)** After the first coat sets, Marshall mixes another batch of lime putty and gauging plaster (this time with less gauging so it's easier to work) and skims a thin final coat over the entire area. He then uses a sponge to touch up any surface imperfections. In 30 minutes the patch has set and the job is finished, without any need for sanding.

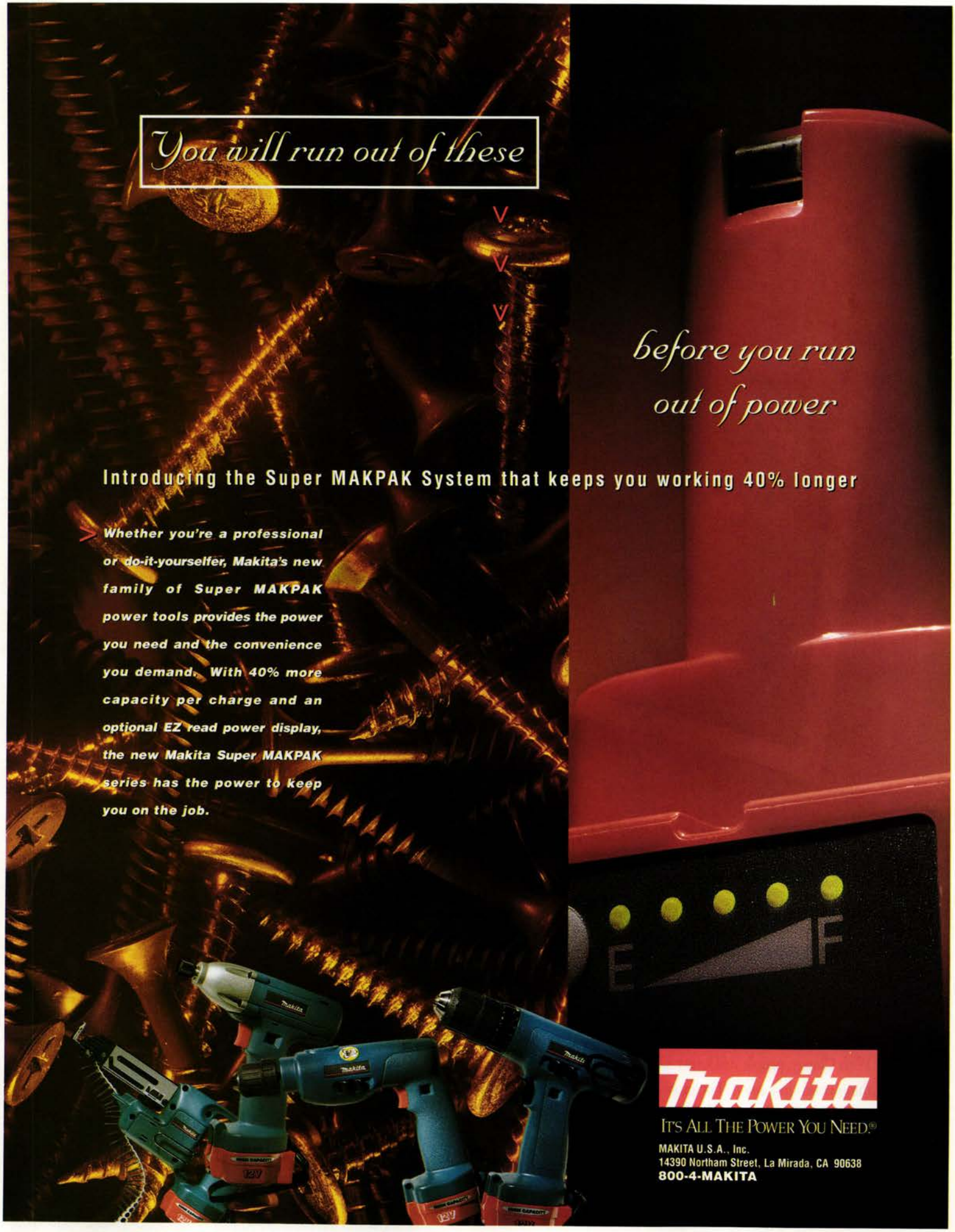
plaster of old

Most plaster used in the United States since the turn of the century is based on gypsum. Before then, walls were coated with lime-based plaster, which dates to the time of the pharaohs (it's on the walls of the tombs).

Limestone was burned (calcined) to drive off water and carbon dioxide. The resulting calcium oxide, called quicklime or lump lime, was slaked with water (rehydrated) in sand-lined pits. The mixture reacted explosively, but when the reaction subsided, creamy white lime putty remained. Mixed with sand and animal hair, it was applied over lath—horizontal strips of wood or straw. The first coat, or scratch coat, oozed between the laths to form "keys" that held the plaster in place. Two more layers, the brown coat and the finish coat, were applied to a thickness of about half an inch. The finish coat, usually hairless, had to be "packed"—troweled again and again under pressure. Poorly packed plaster cracked as it dried; homeowners were warned to wait a year before painting.

Plaster made from calcined gypsum rock (calcium sulfate) forms a harder surface than lime without the bother of slaking and packing, but it sets almost immediately. In 1880, a retarding agent made of ground-up horns and hooves was found to slow setting. A quarter of a century later, virtually all the lime plaster in the United States had been replaced by gypsum plasters.

Still, there are some plasterers, like Rory Brennan of Putney, Vermont, who prefer to use lime, especially for restorations. "Rigid gypsum plaster isn't compatible with the softer lime," Brennan says. He points out that lime takes centuries to harden: "Lime plaster is young at 100 years," he says.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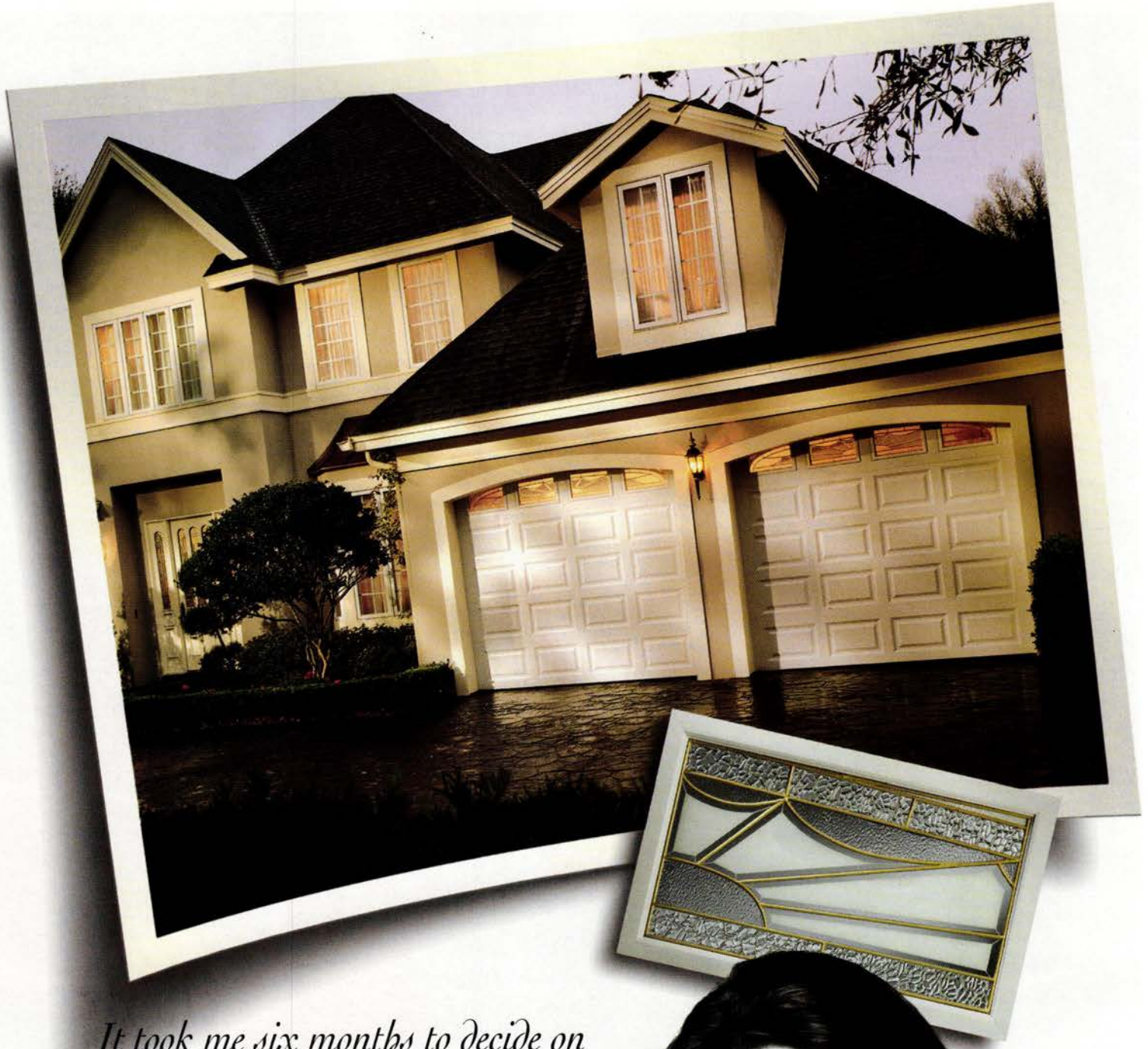

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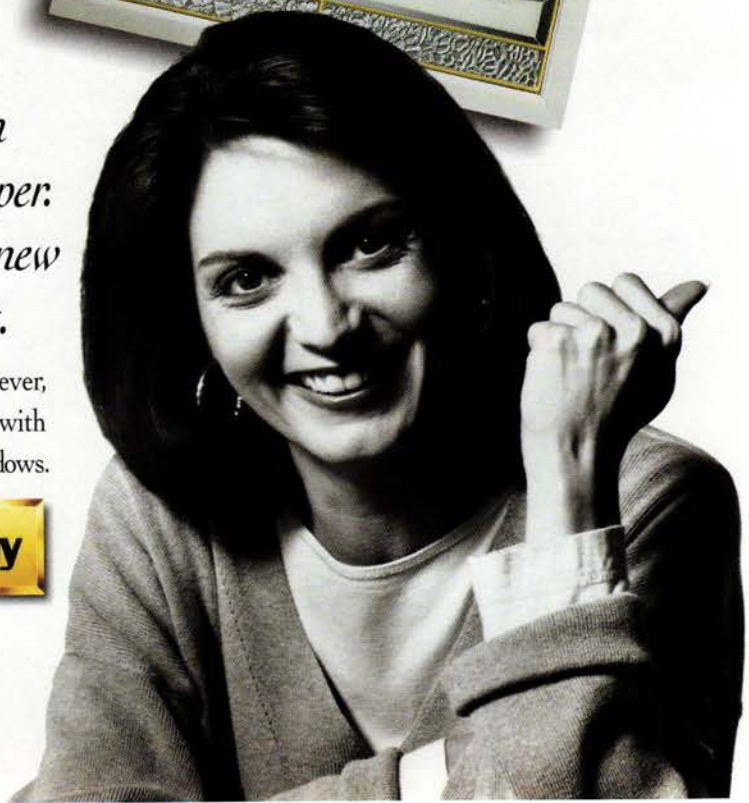
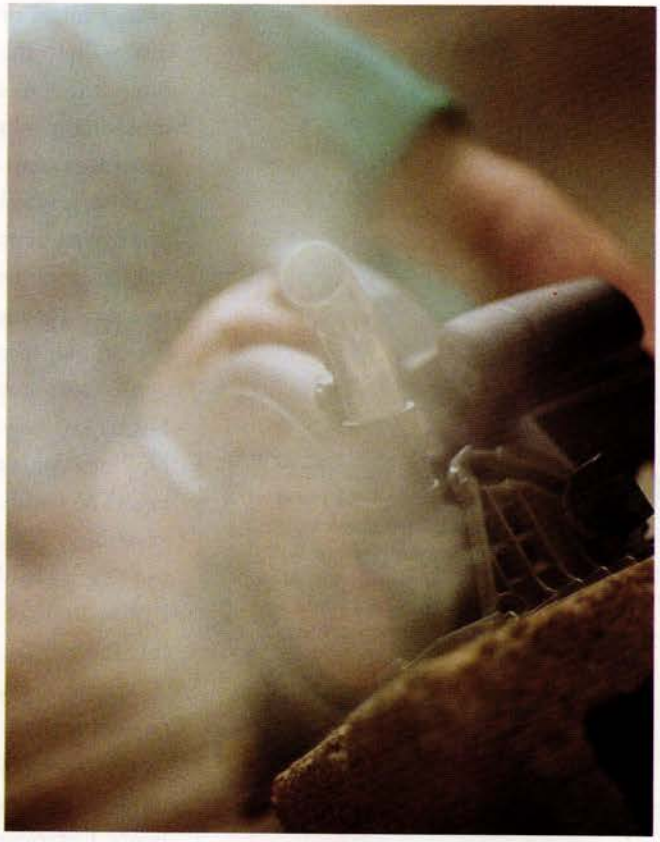


Protecting Your Lungs

What you need to know if you use hazardous materials at home.

BY JEANNE HUBER **PHOTOGRAPH BY J MICHAEL MYERS**

Steve Thomas, like many people, used to cut, sand and paint with little thought to his lungs. Then he realized he had become allergic to all sorts of things: polyester resins; cedar, redwood and iroko sawdust; house paint. Even latex paint causes his throat to close up and his lungs to ache. So, at 42, he uses a respirator—not a flimsy dust mask but a silicone half-face respirator that accepts high-efficiency particulate air-purifying filters, commonly called HEPAs, for protection against dust, and organic-vapor cartridges for fumes from latex paint and solvents. "I've seen a lot of guys suddenly interested in respirators," he says, "but they can't get good information." In an effort to help, *This Old House* hired consultant Charles Schwartz to research what protection is needed for a variety of tasks. The results were confirmed by several respirator experts.



A respirator is essential for dusty jobs like dry-sawing cement.

a bit about dust

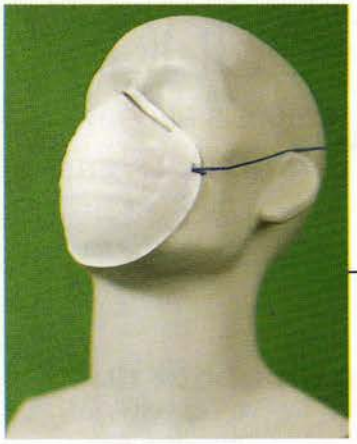
It's one thing to breathe a little sawdust now and then. It's entirely another to do it every day. Sawdust, especially from beech and oak, has been linked to nasal cancer among furniture and cabinet makers. Everyone's heard that it's dangerous to breathe asbestos fibers, which are so thin that they can settle deep inside the lungs and cause cancer. Now scientists suspect any material of the same length and width—such as shreds of fiberglass insulation—may do the same thing. Less well known is the sometimes fatal disease, called silicosis, that can be caused by dry-sawing cement, shown at left, or simply by sanding drywall joint compound. Using a wet saw or a wet sponge eliminates the problem.

Let the buyer beware

You can't judge a mask by the way it looks or how much it costs. It's not a respirator unless it has a label from NIOSH, the National Institute for Occupational Safety and Health. At $235, the Airlite Air Visor certainly ought to protect. But a catalog promise of a "steady gentle stream of cool filtered air," rather than actual protection for the lungs, is the giveaway. Despite its high price, geeky look and belt-pack blower, the Airlite is not a respirator. A disposable respirator, for $3 to $5, would work better. Be aware that a "pesticide" respirator won't protect against fumigants or even all pesticides; the testing standards are antiquated. And you won't be able to smell when a "spray-paint" respirator stops protecting you from urethane hardeners in auto-body paint.

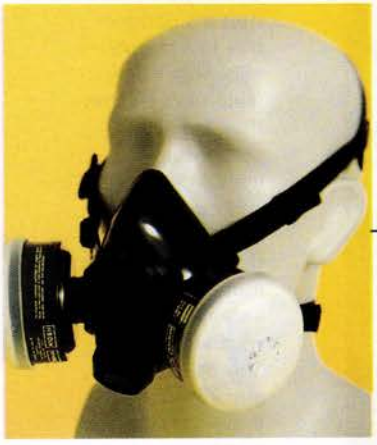
PHOTOGRAPHS BY KEVIN WILKES

the masks



NUISANCE DUST MASK
Cheap but rarely tested by the government or guaranteed by makers to protect you. Single rubber band allows dirty air to seep in.

DISPOSABLE RESPIRATOR
Government tested (look for NIOSH label), with two rubber bands for a better seal. Some have HEPA rating and exhalation valve, fold flat.



AIR-PURIFYING RESPIRATOR
Half-mask is good for most home jobs. Full-face model, shown at bottom in use with air-supplying respirator, also protects eyes. Most have replaceable filters, cartridges.

POWERED AIR PURIFIER
Motor in belt pack delivers filtered air to face for easier breathing. This model works with trimmed beards. Full hoods also available.

AIR-SUPPLYING RESPIRATOR
When cartridges can't work, the only option is to hook to an outside air hose or to an oxygen tank, good for 30 to 60 minutes.

HOW TO FIT, AND OUTFIT, A MASK

Nothing is more critical to a mask's performance than fit. Directions for testing for leaks are included with all masks. If you buy by mail from a company that accepts returns, you can switch to a different style or size if needed.

It's also important to select the proper filters or cartridges. With disposables, the filter material often is the mask. With air-purifying masks, filters and cartridges snap or screw on.

Filters, which trap particles in a nonwoven fiber net, are rated by the size and number of particles that pass through. A HEPA rating is best; a dust/mist rating isn't as good. Over the next three years, NIOSH will switch to ratings of N, P or R plus an efficiency number. (The letters don't stand for anything.) The best, equivalent to today's HEPA filters, will be P100s. Replace filters when breathing becomes difficult.

For gases and vapors, the choices are more confusing. Most cartridges work by trapping contaminants in materials called sorbents. Cartridges work only for specific contaminants. And they wear out, sometimes even when not in use. If you smell what you're using or feel dizzy, get fresh air and replace the cartridge. If the problem recurs quickly, concentrations are too high for the mask.

24 chemicals to avoid

This is a partial list of ingredients that simply shouldn't be used around a home because they either pass through respirators or can't be smelled when cartridges are exhausted. Some common synonyms are listed too.

- Acrolein (acrylic aldehyde, propenal, acrylaldehyde)
- Allyl chloride (3-chloropropene, 1-chloro-2-propene)
- Benzene (benzol)
- Bromine
- Bromoform (tribromomethane)
- Butane (n-butane)
- Carbon tetrachloride (tetrachloromethane)
- Dimethyl sulfate (methyl sulfate)
- Dipropylene glycol methyl ether
- Hexane (hexyl hydride, normal hexane)
- Hydrogen cyanide (prussic acid)
- Hydrogen sulfide
- Methyl alcohol (methanol)
- Methyl bromide
- Methyl chloride (chloromethane)
- Methyl chloroform (1,1,1-trichloroethane)
- Methylene bisphenyl isocyanate (MDI)
- Methylene chloride
- Nitromethane (nitrocarbol)
- Phosgene (carbonyl chloride)
- Phosphine (hydrogen phosphide)
- Toluene-2,4-di-isocyanate (TDI)
- 1,1,2-Trichloroethane (vinyl trichloride, b-trichloroethane)
- Trichloroethylene (ethylene trichloride)

Steamy glasses and other excuses

Why don't more people wear respirators when they're using hazardous materials? Respirators can be tight and heavy. They can make your glasses steam up. But investing in a quality silicone rubber mask greatly minimizes these problems. Good ones cost about $25 to $30, compared with $9 for bottom-of-the-barrel models. Steve Thomas was pleased with how easy his is to wear. "My glasses don't fog up like they do with disposables," he says. "Masks have gotten a lot more comfortable."

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task/danger	respirator
DEMOLITION	
Asbestos around pipes and in flooring. Can cause cancer if inhaled or swallowed.	Half- or full-face mask with HEPA (high-efficiency particulate air-purifying) or new P100 filters.
Fiberglass insulation. Suspected of causing cancer if fibers are inhaled. On skin, itch is a nuisance, not a health hazard.	Half- or full-face mask with HEPA or P100 filters. Disposable mask with dust/mist rating is suitable for quick jobs where few fibers are stirred up.
Nuisance **dust**. Irritates eyes and lungs. Hazard depends on composition.	Disposable respirator with dust/mist rating, or half-face mask with dust/mist filters.
CLEANING	
Detergents with **trisodium phosphate** (TSP). Can burn skin, eyes and throat.	Half- or full-face mask with dust/mist filters, especially for mixing or spraying work.
Masonry cleaners with **muriatic acid**. Can burn skin, eyes, nose and throat.	If brushing on, use half- or full-face mask with acid/gas cartridges unless ventilation is excellent. If spraying, use acid/gas and dust/mist combination cartridges.
Alkaline exterior paint cleaners with **potassium hydroxide**. Can burn skin, eyes, nose and throat.	Half- or full-face mask with dust/mist filters, especially if spraying.
Stain removers with **organic solvents**. Hazards vary with specific ingredients.	Usually half- or full-face mask with organic vapor cartridges, but recommendations vary. Check label and call manufacturer if label isn't specific. Consult other sources as listed on label.
PAINT REMOVAL	
Paint strippers with **methylene chloride**. Narcotic and can cause cancer.	No home mask works well. Organic vapor cartridges protect for 10 minutes or less. Smell isn't a reliable indicator of when they fail. In industry, an air-supplying respirator is required.
Paint stripping using heat gun. **Lead**, often present in old paint, can cause anemia, brain damage and other problems, particularly in fetuses and children younger than 6 years.	If paint scrapings might contain lead, use half- or full-face mask with HEPA or P100 filters and clean up with HEPA vacuum.
Sandblasting with abrasive that contains **silica**. Can clog lungs and cause fatal, nontreatable silicosis.	No safe way to do this at home unless you rent an air-supplying respirator along with the sandblasting equipment.
PAINTING AND FINISHING	
Water- and oil-based house paints, varnishes, shellac, most spraypaint sold by the can. All contain **solvents**, which can irritate the body and affect the central nervous system.	If brushing on in a poorly ventilated room, use half- or full-face mask with organic vapor cartridges. If spraying (this includes cans of spray enamel or lacquer), add a spraypaint filter.
Polyurethanes. Both oil- and water-based products contain **organic solvents** that can affect central nervous system. **Isocyanate hardeners** in oil-based finishes can cause allergies; some sensitized people even react to dried finish.	Half- or full-face mask with organic vapor cartridges help, but no smell warns when they stop removing isocyanate hardeners. To minimize exposure, apply only with brush or pad. Auto-body spraypaints require air-supplying respirator.
Adhesives, all of which contain **organic solvents**. Can irritate breathing system and skin, cause dizziness, fatigue, loss of coordination. Can affect reproduction. Can cause cancer.	For big jobs, usually a half- or full-face mask with organic vapor cartridges. But some products have ingredients that cartridges won't protect against, so read labels and consult references cited in "Basics of Protecting Yourself" (right).
Drywall sanding. Joint compound contains **silica,** which can clog lungs and cause silicosis, a fatal lung disease.	Disposable mask with dust/mist rating at least. Better choice is half- or full-face mask with HEPA or P100 filters.
CARPENTRY	
Wood dust. Irritates eyes, can cause nosebleeds, rashes, asthma, cough. Can cause cancer with frequent exposure or inhalation.	Disposable mask with dust/mist rating at least. For added filtration, use half- or full-face mask with HEPA or P100 filters.
Pressure-treated wood with **chromated copper arsenate** (CCA). Intense exposure can damage organs, eyes, skin.	Disposable mask with dust/mist rating, at least, while cutting. For added protection, use half- or full-face mask with HEPA or P100 filters.
Particleboard made with **phenol-formaldehyde** resin. Can irritate eyes and breathing system; may cause cancer.	Disposable mask with dust/mist rating, at least, when cutting or sanding. Consider half- or full-face mask with dust/mist filters and formaldehyde cartridges if working with fresh material in areas with poor ventilation.
INSULATING	
Fiberglass insulation. Tiny, thin shreds suspected of causing cancer.	Half- or full-face mask with dust/mist filters, or for added protection upgrade to HEPA or P100 filters.
WELDING	
Oxyacetylene welding. Produces **carbon monoxide, nitrogen oxides, metallic vapors** and, from the flux, **fluorides**.	Half- or full-face mask with HEPA or P100 filters.
Arc welding. Produces **ozone** plus all of the above (except carbon monoxide).	Half- or full-face mask with HEPA/ozone cartridges.

additional precautions	alternatives
Seal work area with plastic sheets. Wear throwaway clothes. Spray material with soap and water, remove and bag. Clean with HEPA vacuum. Remove and bag clothing. Vacuum again.	Leave in place if not crumbling or likely to be bumped.
Seal work area with plastic. Remove insulation and bag. Clean with HEPA vacuum. Remove and bag clothes for washing alone. Vacuum again.	
Seal area and wet material if possible. Instead of sweeping, use a vacuum equipped with a HEPA filter if available.	
TSP is most dangerous when dry, so use extra caution when mixing.	Try hot water and soap or borax first.
Eye protection is crucial. Buy premixed instead of concentrated. Avoid products with sulfuric or hydrochloric acid. Never mix with alkaline (caustic) chemicals.	Try hot water and soap or borax first.
Never mix with acids.	Try high-pressure water and detergents first.
Stay away from products that include ingredients on our "24 Chemicals to Avoid" list (see page 44).	Consider living with the stain. For fresh stains especially, try borax, soap or lemon juice.
Work outdoors if possible, or set up a fan as directed in "Basics of Protecting Yourself" (right).	Leave old paint when intact. Use strippers with n-methyl-2-pyrrolidone (NMP), or use a heat gun.
Keep tip 3 to 6 inches from paint to avoid melting any lead it might contain. To avoid creating lead fumes, set temperature below 700 degrees if adjustable.	Leave old paint when sound.
For small pieces, find shop equipped to use abrasives in an enclosed tank.	
Follow manufacturer's ventilation recommendations (see sources at right). To prepare an area where lead paint is suspected, seal room, wet surfaces and wear HEPA mask while sanding or scraping.	Water-based formulas cause fewer emissions and don't require hazardous solvents for cleanup.
3M makes a disposable spraypaint respirator for isocyanate finishes, but it's not government approved. The company recommends it only for sprays because it's designed to clog up before isocyanate protection wears out.	Some solvents in polyurethanes pass through respirators. Shellac is safer; its denatured alcohol solvent is toxic only at high concentrations.
Avoid spray adhesives, especially those containing methylene chloride. Favor carbon dioxide propellants rather than ones with isobutane.	
Use a drywall sander equipped with a high-efficiency vacuum.	Try using a damp sponge to feather edges of joint compound. This often eliminates the need for sanding. Stiff sponges work best.
Connect power tools to vacuums. Work outside if possible. Be especially cautious with beech, oak, redwood, cedar and exotic species; long-lasting hypersensitivities can develop.	
Cut outdoors if possible.To minimize skin absorption, buy wood in advance and let it sit a while before using. Wear gloves (but not when operating a power saw).	Use wood naturally resistant to decay and design project to minimize chances of wood damage.
Separate pieces by stacking between scraps of wood and leave in garage or, even better, in the sun for a few days to outgas.	Use solid wood when possible.
Minimize dust generation by cutting batts with utility knife instead of shredding. Buy batts encased in plastic bags.	Rock-wool fibers have the same danger. Cellulose is safer, but wear a dust mask.
Proper ventilation is essential. No cartridges filter out carbon monoxide (colorless and odorless) or nitrogen oxides. Proper eye protection from ultraviolet radiation is required.	
Welding stainless steel with nickel is unsafe as a home job because it produces nickel carbonyl, a toxic vapor that requires an outside air supply.	

Basics of protecting yourself

Respirators are the last step. First consider safer alternatives. Work outside if possible; indoors, open a window and set a fan in an opposite doorway, blowing toward you. Stand between the fan and your work so you stay in fresh air. Be especially cautious if you have chronic health problems or are in close quarters.

Don't waste money on nuisance dust masks. Disposable respirators with two rubber bands are better but still leak. Invest in a top-quality half-mask respirator. But it won't work if you have facial hair that breaks the seal. Those with beards probably need a powered air purifier with a Tyvek hood. (See suggestions in Directory, page 130.)

Before buying, consider where you will get replacement filters and cartridges, which must match the mask. Stores often sell only one brand.

Read labels. If respirator advice isn't given (or if label reads "TC 23C or equivalent," which means any sort of chemical cartridge), consult the manufacturer's safety data sheet for toxic ingredients. Retailers should have these; if not, call the maker.

Once you know the ingredients, call one of several free hotlines. We got good advice from 3M (800-243-4630) and Lab Safety TechLine (800-356-2501). NIOSH also offers free advice (800-356-4674).

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Wood Floor Finishes

Jeff Hosking protects the wood underfoot.

BY STEPHEN PETRANEK **PHOTOGRAPH BY MICHEAL McLAUGHLIN**

Americans love wood floors. Flooring mills in the United States shipped more board feet of strip flooring last year (307 million) than they have in 23 years. But if you wear shoes indoors, have children (and allow them to have pets), spill liquids from time to time, use vacuum cleaners that roll around on plastic wheels and push your chair away from the dining-room table, your floors need help—probably from modern urethane coatings. Urethane finishes are simply the most durable protection you can put on your floor and still see the wood.

Still, not everyone bends to practicality. Architect Gary Brewer of Robert A.M. Stern Architects in New York says, "It's a process of essentially covering wood with plastic. [Urethane] looks a bit bogus—too deep, too rich, too glossy. In residences, we often specify a stain and then a shellac, then wax." But ask him what he specs for commercial buildings with lots of foot traffic: "Oh, no question. You almost have to call out a urethane finish—nothing else will last."

a master's voice

Advice from Jeff Hosking (left, sealing raw wood with thinned shellac), who is often seen refinishing worn floors on *This Old House:* 1. Buy the most expensive finishes available. 2. Before choosing a sheen, get a sample of gloss, semigloss or satin finishes. 3. Use satin for the final coat to get a more natural wood look. 4. Ask for a Material Safety Data Sheet (MSDS), which lists any hazardous chemicals and necessary safety precautions. (Retailers are required by law to supply this information.) 5. Call manufacturers directly to discuss products. 6. Never damp-mop a wood floor. Clean with Windex instead, and wipe immediately.

the chemistry of **coatings**

what's in this stuff anyway?

OIL-MODIFIED URETHANE
A combination of synthetic uralkyd resin, oils, petroleum-based thinners and metallic driers (cobalt, manganese, zirconium, zinc). The oil may be linseed (the most durable) or safflower or soybean (which don't yellow as much over time). Urethane-to-oil ratio determines softness and flexibility. Less oil results in a harder finish.

VARNISH
Natural or synthetic resins combined with oil (linseed, tung, safflower or soybean), petroleum-based solvents and metallic driers. Use only long-oil (alkyd) varnishes with 8- to 24-hour drying times. They are more flexible and longer-lasting than quick-drying short-oil (phenolic) varnishes. Products with China tung oil are easier to apply and produce a smoother finish.

PENETRATING OIL
Tung oil (pressed from the nut of the Chinese tung tree) or linseed oil (flax-seed extract) in a petroleum-distillate solvent. May contain pigments. Typically covered with a buffable paste wax.

MOISTURE-CURED URETHANE
Combines urethane resins and solvents with di-isocyanate methyl-benzene, which cures the finish by pulling moisture from the air. Also contains dangerously flammable xylene solvent and toxic ketones. Very toxic; always use a proper respirator. For professionals only.

WATER-BASED URETHANE
Resins can be acrylic (less durable), acrylic and polyurethane (very durable) or pure urethane* (most durable) dispersed in water with solvents such as glycol ether, which may be extremely toxic. Cross-linkers may be added just before application to make the finish more durable. These are highly toxic and should only be used by professionals.

*ALTHOUGH THERE ARE ESOTERIC MOLECULAR DIFFERENCES THAT DISTINGUISH A URETHANE FROM A POLYURETHANE, FOR ALL PRACTICAL PURPOSES THE TERMS ARE COMPLETELY INTERCHANGEABLE.

SHELLAC
Nontoxic flakes, from the resin secreted by lac bugs in India and Thailand, dissolved in denatured alcohol. It comes in two versions: amber (orange) or clear (white). Toxic until thoroughly dry (about 48 hours). Flakes mixed with ethanol make a nontoxic product. (Drug companies use an ethanol-based shellac to coat pills.)

preparing the wood

To finish raw wood or completely **replace an existing finish**, you must prepare a perfect surface. First sand the floor with 36-grit paper, then 80-grit, making one pass with each using a drum sander and moving with the grain. Where the drum can't reach, sand with an edger. Sand only until the grain is smooth and clear of old residue. Scrape corners by hand. Vacuum after each sanding. (Sand parquet floors at a 45-degree angle to the squares, with the final pass parallel to the squares.) Finish with a 100-grit screen on a floor-buffing machine.

To recoat an existing oil-based finish, wash the floor first with turpentine to remove any wax, grease or dirt. (For water-based urethanes, use a cleaner recommended by the manufacturer.) Then screen with a 120-grit abrasive on a buffer, vacuum thoroughly and wipe with a tack rag. Apply one or two coats of the same brand and type of finish. On shellacked floors, remove wax with turpentine, apply a fresh coat or two of shellac and protect with wax.

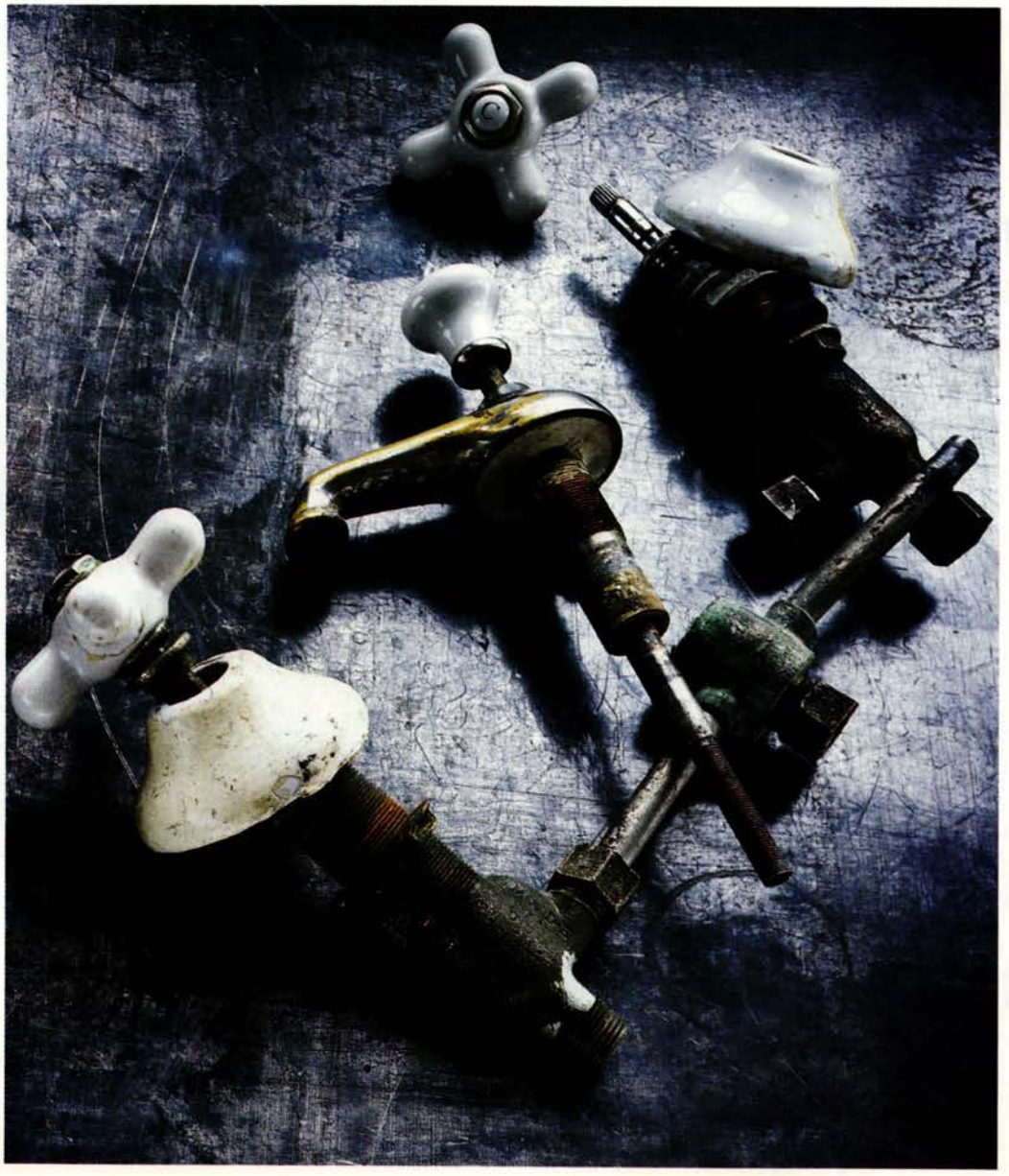
PHOTOGRAPH BY DARRIN HADDAD

Old Faucets

Antiques fixed up for daily use.

BY PETER LEMOS **PHOTOGRAPHS BY ROSA & ROSA**

There are old faucets lying in basements all over this country, tossed there during bathroom and kitchen renovations. Many are excellent pieces of craftsmanship; most are solid metal with fine detailing. But unlike furniture or china, plumbing doesn't seem to qualify as antique—just as a candidate for the dump. Plumbing design hasn't really changed in the last century, though: A lot of faucets still have valves, seats, washers, mixing tees and two handles, and it's possible to refit and refinish them. (Some of the old manufacturers are still in business and will sell new parts or direct customers to a supplier.) We rebuilt the faucet at left with the help of George Taylor Specialties of New York, a restorer of plumbing fixtures, and ended up with an authentic vintage tap that works just as well as a brand-new one. See how we did it on the next pages.

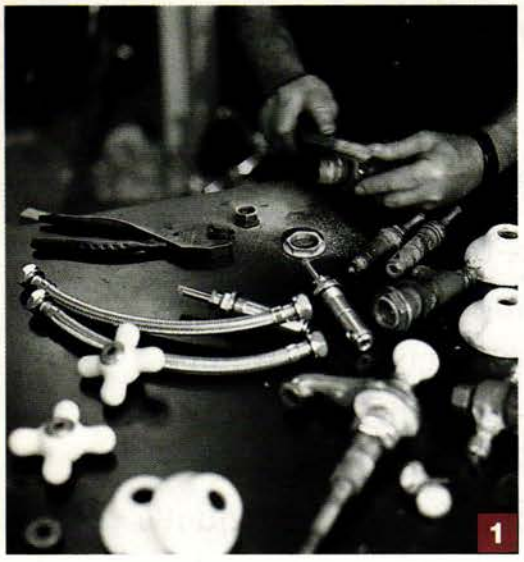


THE STARTING POINT

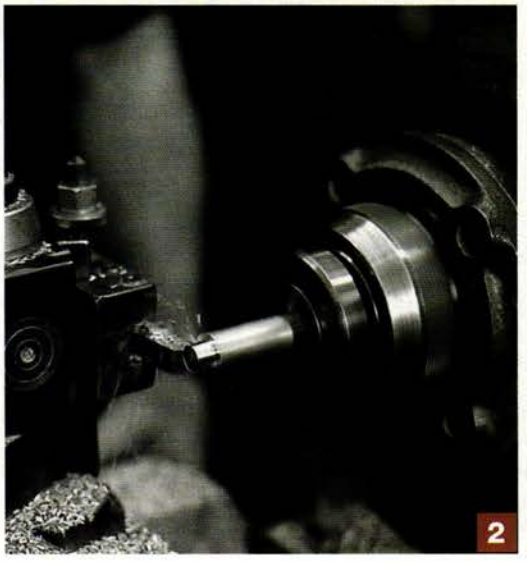
We found this solid brass 1920s American Standard faucet jumbled in a drawer at The Brass Knob, a Washington, D.C., salvage yard. Some of its parts were missing, others damaged. The nickel plating was almost all worn off. One of the porcelain cross handles was cracked, and the porcelain escutcheons didn't fit properly—we later learned that they originally belonged to the matching shower set.

Refitting the Faucet

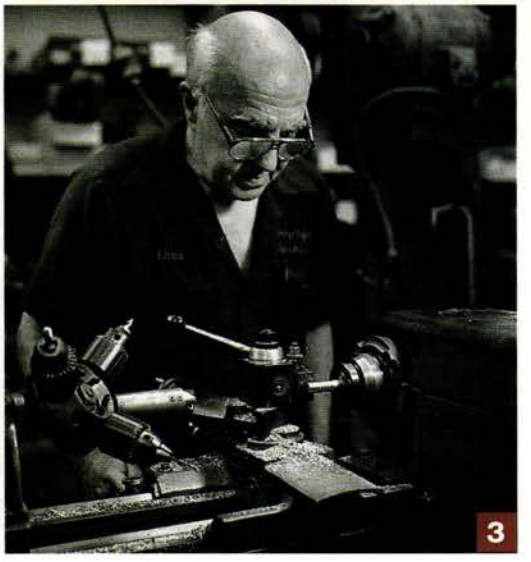
Many plumbing supply houses keep a stock of old fittings



(1) George Taylor Specialties, in business since 1869, stocked most of the parts we needed to complete our faucet: **antique escutcheons,** an **antique handle** and **new flexible stainless steel feed lines** for easy installation.



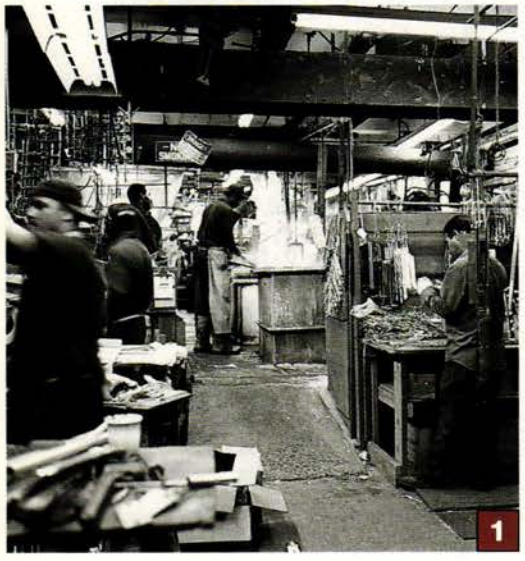
(2) Parts that could not be found were made in the **machine shop**. Though located in downtown Manhattan, George Taylor restores fixtures from all over the United States and will ship parts to homeowners who want to make their own repairs.



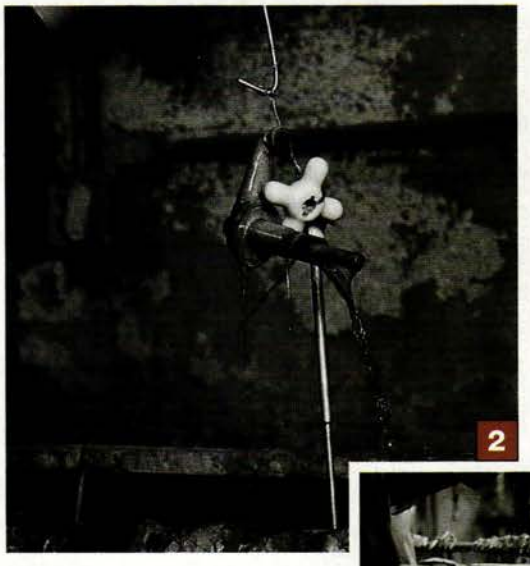
(3) Chris Christou re-creates out-of-production **valve stems** for another faucet on the lathe. The stems for our faucet, still available, were fresh out of a box. At George Taylor since 1945, Chris runs the shop with his children John and Valerie.

Replating the Finish

A new coating of nickel or chrome can be applied at the plater's



(1) After the faucet had been rebuilt and we were sure it had all of its working parts, we took it to HyGrade Polishing and Plating in Queens, New York. To find a local shop, look under **"plating"** in the Yellow Pages; ask if the plater is accustomed to handling antique fixtures. HyGrade, a busy shop, restores 50 to 60 items each week.



(2) The last of the nickel was removed from our faucet in a **deplating tank**, revealing the solid brass underneath. We then had the choice of restoring the nickel or replacing it with a new chrome finish.

(3) The **brass body** was taken from the tank and rubbed with sawdust to remove any excess solution. **(4)** It was cleaned and **polished** in preparation for its new coating: We chose nickel.

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Tapes and Rules

The simplest way to avoid mistakes—and to make them.

BY JEANNE HUBER **PHOTOGRAPHS BY JAMES WOJCIK**

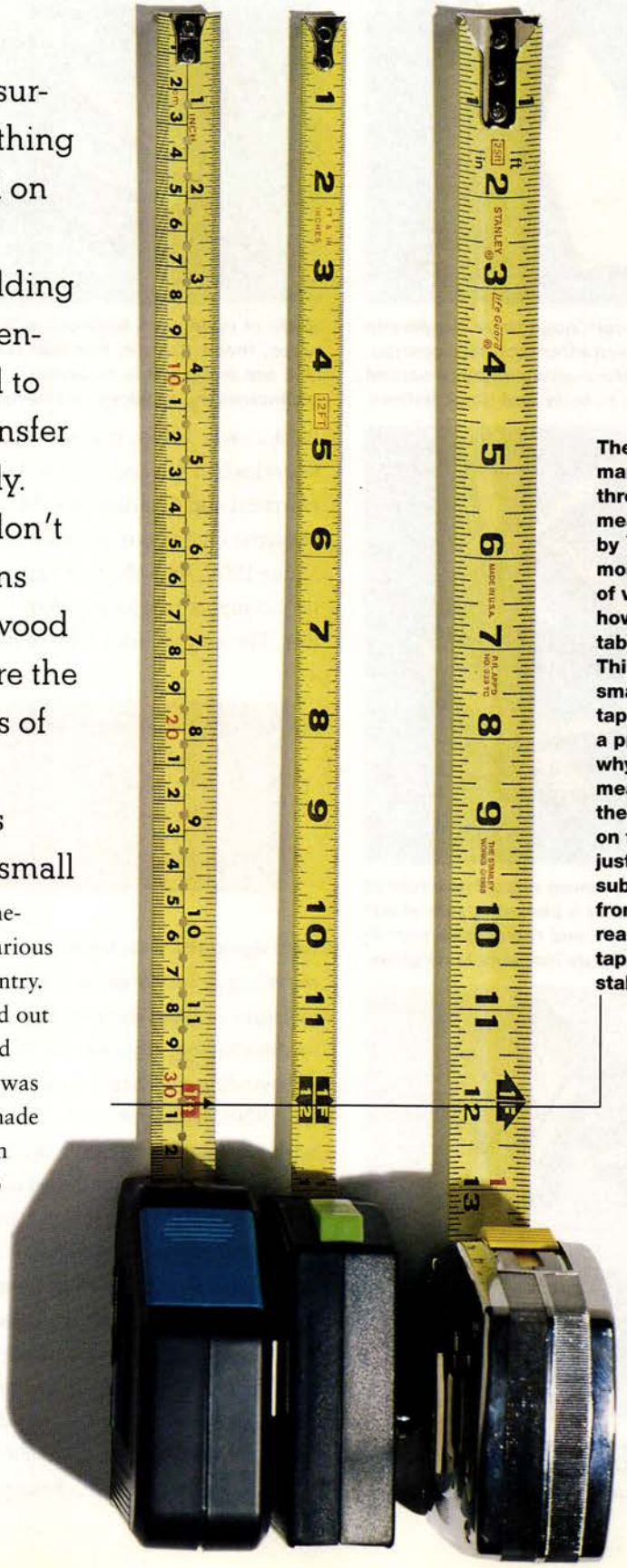
At their most basic, measuring devices need be nothing more than sticks of wood on which marks are made. In fact, one way to guard against cutting trim too short or building drawers too big is to avoid using a rule whenever possible. Just hold the piece you need to cut against the space it needs to fit and transfer the measurement directly.

But marks on boards don't help builders follow plans or calculate how much wood to buy. Those jobs require the standardized increments of tapes and rules.

What's an inch? In 1150 in England, it was the width of a man's thumb. Then it became three barleycorns "dry, laid end to end." Early rule-makers used a metal die (above) to imprint a rule inch by inch.

In early America, rules were generally made in small shops by men who advertised themselves as "mathematical instrument makers." The colonists used various measuring systems depending on their mother country. In New England the basic unit was the inch, as laid out on imported copies of a yardstick that England had adopted as its standard. Nevertheless, consistency was an elusive goal. In 1647, Hartford, Connecticut, made it illegal to sell any commodity not measured by an approved device. The town clerk was instructed to "breake or demolishe" any defective rules, such as those made of unseasoned wood.

Rules were often cut from boxwood imported from Turkey because of its stability and fine grain. The costliest rules were ivory or ebony; the cheapest were maple or steel. Hinges or protective end plates on rules were usually made of brass and sometimes of "German silver," an alloy that despite its name consisted of copper, zinc and nickel.

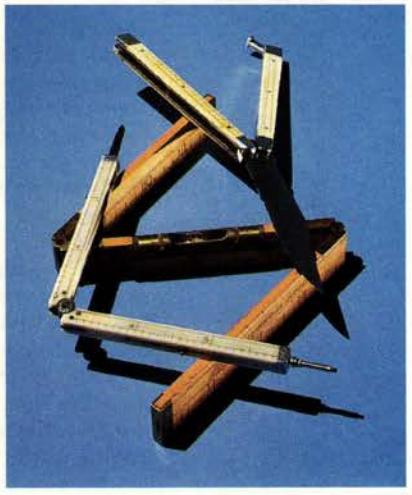


The 12-inch marks on these three new tape measures vary by 1/16 of an inch, mostly because of variations in how the end tabs wobble. This is why it's smart to use one tape throughout a project. And why pros often measure from the 1-inch mark on fine work; just be sure to subtract an inch from the final reading. Buy tapes with hefty, stable tabs.

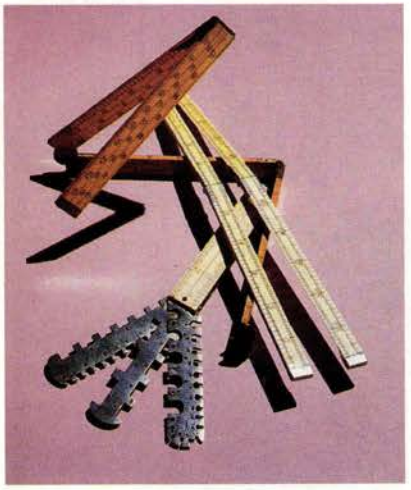
measuring tool **history**

Rules continued to be handmade even after factories opened. Nineteenth-century whalers carved these, in bone and black baleen.

Made of ebony and boxwood with brass, these 12-inch, two-fold rules also are equipped to be levels, inclinometers, squares and bevels.



More than mere rules. Ivory rule at right is also a penknife; rule at left has tiny knife and retractable pencil; boxwood rule includes level glass.

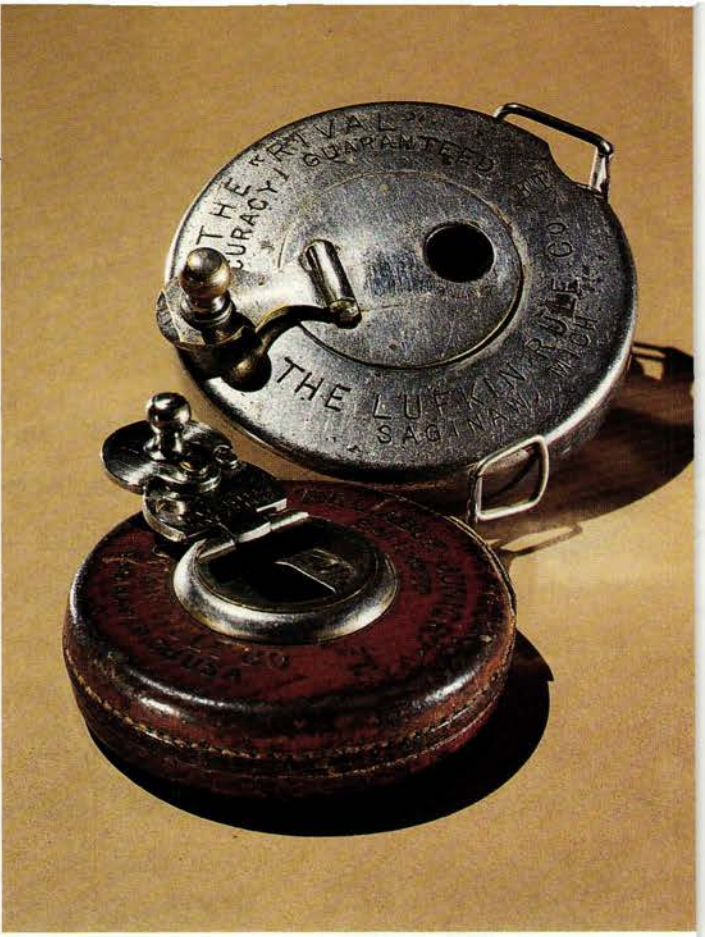


Rules with math aids, from top: built-in board-measure table, architect's scales, wire and iron gauges.

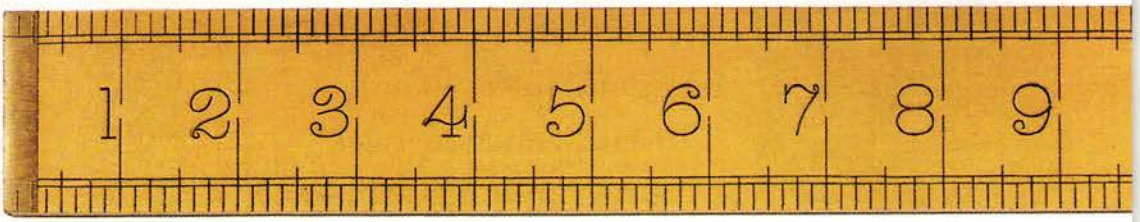
By the early 1800s, rule-making factories had opened in New York, Hartford and Charlestown, Massachusetts. One major advance came about 1900, with the first carpenter's compact rule longer than four feet. The new six-foot folding rules were equipped with telescoping or swiveling joints to allow extension in seven- or eight-inch segments.

Another big advance was the self-winding metal tape measure in the 1920s. Stanley Rule & Level advertised its "Push-Pull" as compact yet able to measure long distances and both rigid for measuring straight and flexible for measuring curves. Today, improved versions are the only rules many builders use.

The newest measuring devices link the precision of light and sound waves with the power of computers. But will these marvels of invention ever match the elegance of the past?



Before self-retracting steel tapes, hand-cranked models measured long distances. "Reliable Junior" of 1893 has a leather case and pop-out winding handle. "The Rival" is newer. Both measure 25 feet.



Self-winding, pocket-size 2-foot rule's secret is a curved steel blade. Early 6-foot Zig-Zag has slide-out extension. Pocket-size also came in yard length.

Note-taking options: Today, calculator and wipe-off pad attach to tape. In the 1800s, spit and thumb erased notes made on case of ass skin.

tips from norm

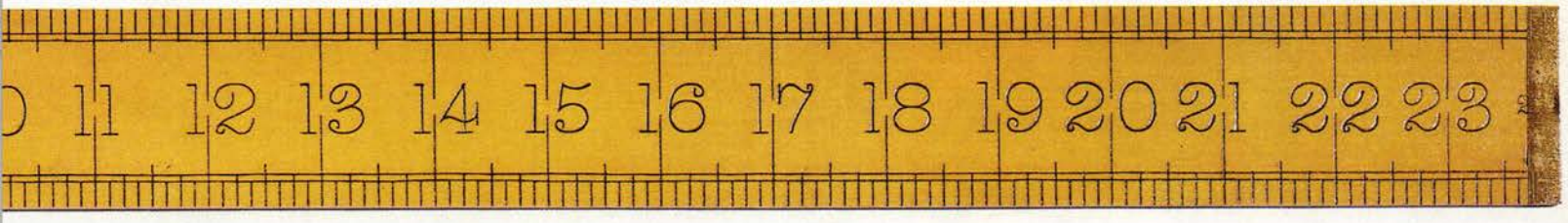
Ever try to measure inside an opening with a tape measure? Textbooks recommend extending the tape until the tip touches the far side and then adding the length of the case (usually two or three inches; it's often marked). Norm has found that crooked frames can keep the tape case from fitting into the corner, leading to a short measurement. He just sticks out his tape and lets it curve around one side of the opening. He notes the last place the tape is straight, estimates the width of the gap, then adds the two. For safety he cuts pieces a tad long. "It's easier to trim than to put wood back." Other tricks:

ABOVE: Norm snugs blade into doorway. BELOW: Length of flat tape plus estimate of gap equals total: 34⅛ inches.

• To mark a line parallel to the edge of a board, lock a fingernail at the desired distance on the rule, lock a pencil against the rule's end and run the whole affair down the board. (You can also use your fingers to lock a pencil a desired distance from an edge. Crease a pad of one finger over the edge and hold the pencil steady as you slide it down the board.)

• On a deck or other framing job, ensure uniform stud or joist spacing by tacking a ¾-inch-long scrap to the end of the plate. Hook your tape on the scrap so you can mark each 16 or 24 inches without having to adjust for zero being at the edge, not the centerline, of the first stud. Put an X after each mark and you won't put studs on the wrong side of the line.

• As for shortcuts, ultrasonic and laser measuring tools are fine for estimating, but Norm views a tape with digital display as a crutch that imperils our mastery of fractions.



For shop use, rigid wood rules are often best. This 2-foot bench rule was made early this century by Justus Roe & Sons in boxwood and brass.

New tools automatically read fractions, convert to decimals and change to metric units. Tape measure at top has digital display. Laser distance meter, middle, and smaller sonic tool allow users to stand still while measuring whole rooms.

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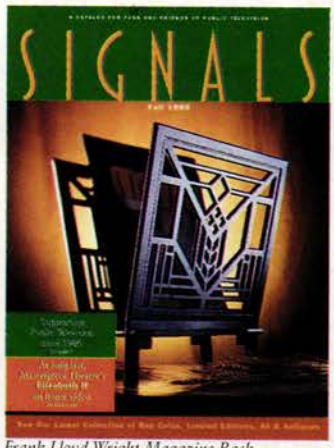

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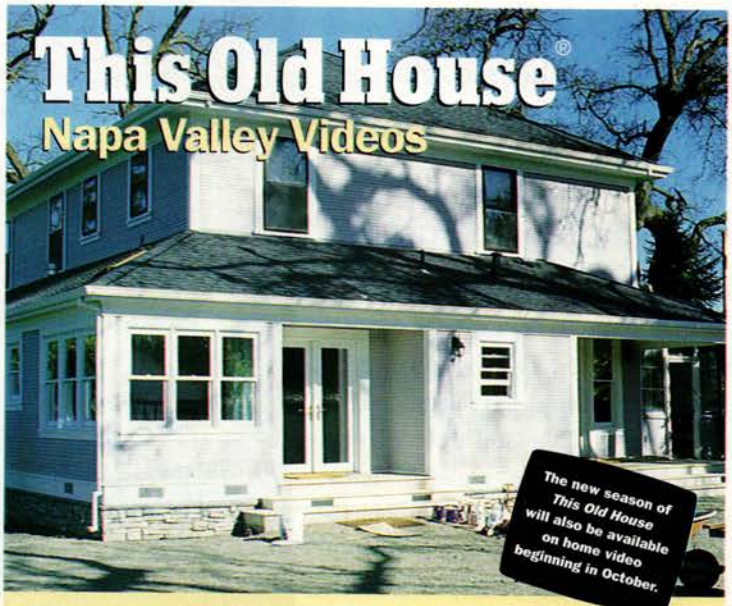

In this new 8-part video series, host Steve Thomas, master carpenter Norm Abram, and the rest of the *This Old House* team renovate a 1906 Napa Valley Victorian farmhouse. Shot during the once-in-a-century rains and flooding of early 1995, projects include expansion and upgrade of the kitchen, updating of electrical, plumbing and heating systems, foundation repair, and an exterior paint job. Also features visits to several Napa Valley vineyards. Four hours on 2 videocassettes. **$29.95**

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Disaster Insurance

Floods, winds and quakes make coverage hard to get.

BY JOHN P. PATELLA

Fans of *This Old House* remember Miami's O'Donnell house as a Hurricane Andrew victim. The project had two problems that can still be felt today: First, the insurance money came nowhere near the repair costs; second, it came nowhere near the O'Donnells.

Their insurer was among eleven bankrupted by Andrew. Other companies reacted by "reducing exposure" in the area. "We had wholesale nonrenewals in Dade County," says Margot Ammidown, director of the county preservation society, who helped Steve and Norm select the O'Donnell house. Banks wouldn't mortgage uninsured houses, she says, "but you couldn't get coverage at any price."

blown away **Hurricane Andrew's 200-mph winds smashed so many houses that residents simply painted insurers' names on the wall and hoped representatives would show up to assess damages. "We had nearly $3 billion in claims—and consider ourselves lucky," said a State Farm agent. Eleven underwriters folded as claims neared $16 billion. "If Andrew had hit 25 miles north of here," said another agent, "there'd be nothing left of Miami—or the insurance business either."**

DENNIE CODY 1992/FPG

The uninsurance crisis is spreading nationwide as private insurers back away from earthquake and storm zones. The Gulf and Atlantic coasts, for example, together represent 3,700 miles of jeopardy. Hurricane Hugo rang up $4.2 billion in damages in 1989, followed by Andrew's $16 billion in 1992. And the storm brewing in meteorologists' computer models—a once-a-century catastrophe that would level vast stretches of coast—just encourages further "shore-lining" by insurers.

In Ocean Grove, New Jersey, Jean and Gilbert Stiles were dropped by Royal Insurance after four decades. Like others whose policies were not renewed, Gil Stiles learned "no one would insure us, because we were too near the water." Near means 1,000 feet, as Eva Moore discovered when seeking a mortgage on Long Island last spring. Seeing a lake only 800 feet away, every company she called declined. Insurers now fear the Midwest's little-known New Madrid Fault Zone, where in 1812 a violent quake rerouted the Mississippi (while ringing church bells in Boston and stopping clocks in Charleston, South

GERALD FRENCH/FPG

Carolina). The zone has hardly stirred since, but underwriters, bruised by California's Northridge quake last year ($11.7 billion), have ceased writing new policies, dropped old ones or hiked premiums 80 percent on those they kept.

As insurers have bailed out, governments have stepped in. California, Florida, New Jersey, New York, North Carolina and other states have joint-underwriting associations to provide coverage, although it's expensive and minimal. Eva Moore's New York policy, for example, cost $500 for wind and fire only. She still needed separate liability, theft and contents policies. As a result, full coverage becomes dizzyingly expensive. Moore's agent, George Yates of East Hampton, says she may pay $1,700, versus $350 "pre-Andrew."

Homeowners with nowhere else to turn have made Florida's plan the state's third-largest insurer. Rates, once low, rose 24 percent overall in 1994 and averaged 18 percent more this year. The reason: Private insurers feared the state would overextend itself. When claims exceed premiums, joint-underwriting plans require private insurers to make up the shortfall.

"If they have to pay, they don't want the business," Jean Stiles says bitterly. But policyholders have to face facts: Insurance is a gamble. Companies that accept high risks at low rates cheat their own investors—and risk bankruptcy.

shaken confidence **The big Loma Prieta quake of 1989 fostered California's uninsurance problem, but it was 1994's Northridge quake that turned it into a crisis. Leading insurers headed for the hills, and even huge premium increases aren't bringing them back.**

California's quake premiums have gone through the roof, rising as much as 138 percent. Profiteering? Not to state regulators, whose spokesman, Richard Wiebe, notes that Northridge claims exceeded all quake premiums statewide for the past 25 years.

"We live in a precarious situation here," Wiebe says. "The exposure is so great that even these hefty increases aren't luring companies back." Bernie Bourdeau, president of the New York State Insurance Association, says insurance along the shore "has been underpriced for decades. Why should you subsidize someone who wants to live there? I think he should pay."

That hardball outlook shocks policyholders who think insurance pays everyone for everything out of some vast and limitless money pool. That's a delusion. As long as premiums exceed claims, somebody wins. But when the actuarial tables turn, everybody loses.

when it rains

Some clients have disaster coverage and want to keep it; others need to buy it. Both find the Yellow Pages a valuable resource (or call 800-942-4242 for the Insurance Information Institute's consumer help line). Here are other tips.

If you have it

- Just in case, seek replacement coverage a month before your renewal date, because even decades of consumer loyalty mean nothing today.
- Filing minor claims just because "it's covered" red-flags you: Royal dropped the Stileses for making three small claims in three years.

If you need it

- Make your offer to buy a house contingent on getting coverage.
- Ask to take over the seller's existing policy.
- Research insurers' guidelines, which may call for fitting storm shutters or roof-saving hurricane straps.
- Don't balk at high deductibles; the lower premium may pay for occasional small losses.
- Ask the agent who sold you other household coverage to handle your application for state insurance too.

On the horizon

- Rates will continue to rise out West, as new houses encroach on fire-prone wilderness.
- A bill to provide federal storm and quake coverage (HR 1856) is now in Congress. But don't bet on passage. Critics say it's a way to bill the government for billions, like the savings and loan bailout; New Jersey agent Tim Byrne doubts that "Congress will throw money at what's perceived to be wealthy people who want to live at the shore."

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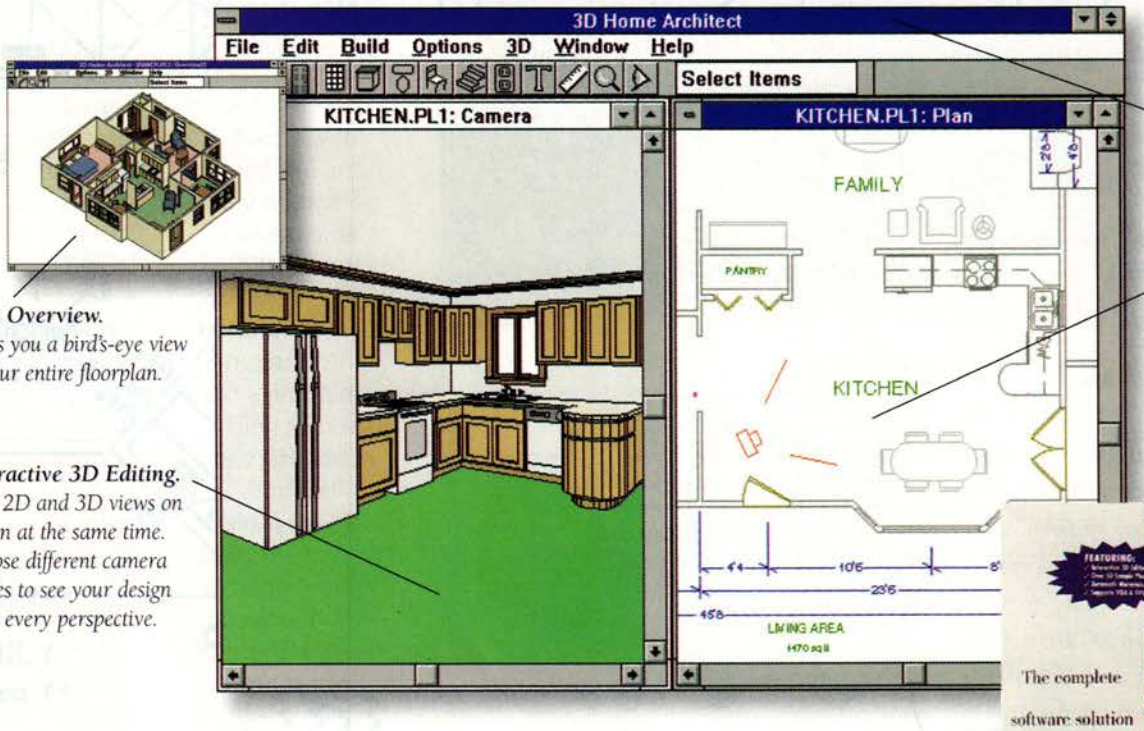

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With this house?

Tour the new season's project with our crew

Most of us assume that because a house has survived for two centuries, it's certain to go on forever. But the older the structure, the more likely it is to need serious work—meaning you'll have to spend serious money. Only a thorough inspection can tell you what to expect.

BY STEPHEN PETRANEK

PHOTOGRAPHS BY MICHEAL McLAUGHLIN

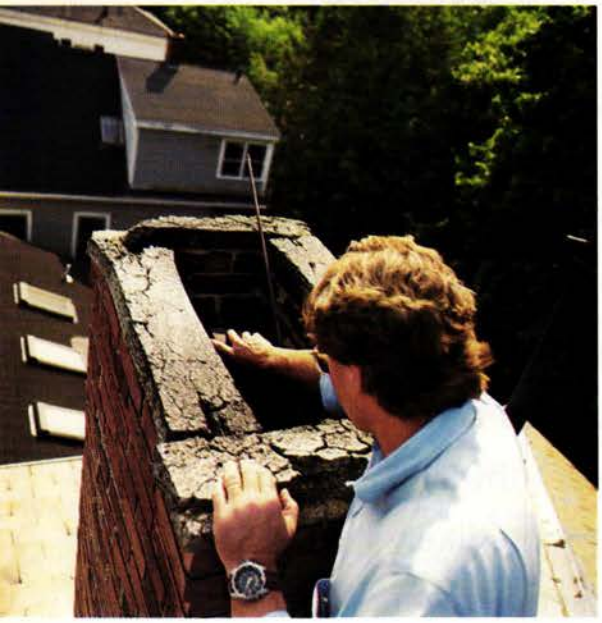
Norm Abram peers straight up the side of the very worn 19-room, three-bath Federal and gets set to give it a closer look. It's his first chance to inspect the new season's project for *This Old House*, and he wants to know what the crew is in for. "This seems like a great house. I think anyone could like this house, but you can see right away that it needs a lot of cosmetic work. Still, I always tell people not to look at the cosmetics. Is the place well built? That's the question." To decide, Norm insists that a proper inspection begin with a "cruise around the outside." And it should be organized: "You start at the top and work down." Staring up at the roof, he walks backward down Salem's historic Lynn Street until he gets a full house away, where he finally has a view of the ridgeline, almost 40 feet up. "I like to

WHAT TO TAKE

- compass
- pocketknife
- ice pick
- moisture meter
- circuit tester
- hammer
- screwdriver
- binoculars
- flashlights
- floodlights
- a quarter

outside

FROM THE ROOF TO THE SIDEWALK



Steve checks loose and crumbling mortar work atop a chimney on the oldest part of the house.

look at the roof and eave lines—these are nice and straight, not much sag—and I look for where the roof water is going to go: Can it cause ice dams in the winter?" He is impressed that the roof is slate, "but slate can crack and the shingles can slip. I see a lot of loose and broken shingles, and the ridge cap looks rough." He doesn't see any venting in the eaves. "Nothing ruins a roof faster than moisture in the attic."

Next Norm shifts his focus to the chimneys. "I look first to see if they're leaning—that's trouble—and then at their shape. Chimneys shouldn't have ledges that trap water and ice. This one is nice and straight, some repointing has already been done." But then he looks harder and says, "Hmmm. I can see right through the spaces between the bricks—some of the mortar has deteriorated. The chimneys may need cleaning too. They're probably unlined, which means the new owners shouldn't expect to fire up all the fireplaces."

Working his way down visually, Norm stops at the gutter line. The crown moldings where the roof meets the sides of the house are detailed and complicated, unlike anything he has seen on a Federal. He wonders if internal gutters are hidden there, then spies aluminum ones on other parts of the house and decides the gutters are just missing. "I don't think this house had gutters originally, so it would be nice to see it stay that way. The overhangs seem fine, and gutters look awful."

Sizing up the structure with his hand, he declares: "The house is square and straight." That means the windows are too, which is important, because there are 58 of them. "The sashes appear to be closing straight, and the sills are sloped, so we won't see rot there because water can't collect. These windows are very, very old, though," he says, approaching a large bay on the side of the house. "They're single-pane—not very energy-efficient." The sash joints are also separated at the corners and need rebuilding. He suggests the windows be restored, not replaced. "We want to preserve the historic nature of the house."

Now bending down to

Norm likes to sight the roofline and the sides of a house, checking for sags and bulges.

STEVE:

1. Not everything important about a house has to do with structure. Inspect the location too. Your house will be worth more, and you'll be happier, if you buy in an established neighborhood with good schools, promise and stability.

2. Consider the exposure of the house and its ability to bring in light, which can make the difference between feeling cooped up and enjoying being inside. Go for southern exposures, with morning light in day rooms like the kitchen and evening light in rooms like the den.

3. Don't forget the yard. The ability to get out easily into a satisfying yard is important. Does the house open itself up well to the outdoors?

4. Look for function as well as form. Can you get a car close to the kitchen for loading and unloading? Is there space in the yard for a shed, a play structure for the kids, a garden, a patio? Is there a mud room? Does the house flow well from formal to informal rooms?

5. Think about how the house will suit you in 5, 10 or 20 years. Can you grow with it? Is it expandable? Will it work when the kids move out?

Steve's Multi-Plier detects rot at the base of a column on the front porch.

Steve isn't happy about the gone-to-weeds backyard and the Norway maples that have formed a high sun block.

waist level, Norm begins poking with his Swiss Army knife. He finds some rot in the wood panels under a bay window and some soft wood in the trimboard along the foundation. There's rot too in the sill plate at the front door and under one of the porch columns. The foundation is high off the ground—unusual in a house this old—and solid, much of it granite. "There should be little or no insect damage with a foundation wall this high," he says. The brick sidewalk in front on Federal Street is pitched away from the house, which keeps water from running down the foundation. He finds the two enclosures off the back entrances cheap and offensive: "I'd just rip them off."

ABOVE: Anywhere water can collect, you're likely to find rot, says Norm, who found plenty around the trim on the bay window. BELOW: Although the house has no storm windows and ice must form easily on the inside in winter, Norm found almost no rot in the mullions and sash.

That leaves only the siding and paint to consider. "In a house this old, lead paint is a problem," Norm says, "though I would tend not to strip the paint back completely—it's too expensive. I'd just scrape and paint." And even though paint is peeling everywhere, he'd wait. "If I were buying this house today, I might let it go another year."

Playing the role of the typical home buyer, Steve Thomas gives the exterior less attention than the interior. "On the exterior, so much can be hidden under a cheap coat of paint or a bad roofing job. It's on the inside that you usually see the damage," he says. Steve agrees that the roof needs attention, and he sees some rot in the trim (his rot-picking device of choice is a Gerber Multi-Plier). He's not happy about the yard, which is shaded by four huge Norway maples that create a light-blocking canopy: "Those are weeds as far as I'm concerned; they suck moisture from the soil and create such a mess." And although he thinks the Victorian addition to the original house is "clunky," the overall effect is captivating. He stands right out in the middle of the street, gazes at the 19 double-hung, multi-paned windows facing him and says, "Yep, I would have bought it."

Remember to prod everywhere you can reach, even under overhangs, where rot may seem unlikely.

NORM:

1. If a house looks great, that doesn't necessarily mean it's built well. If it looks awful, that doesn't necessarily mean it's built badly.

2. Worry first about the foundation. Look for cracks, water damage and buckling in the walls. A house elevated well above grade—higher than normal—is much more likely to last through the ages.

3. If a house isn't insulated, figure out just how much it will cost to insulate properly before you buy. Clapboard is easiest to insulate, masonry hardest.

4. Blown-in insulation in an attic can be a bad sign if it has blocked the eaves and closed off ventilation.

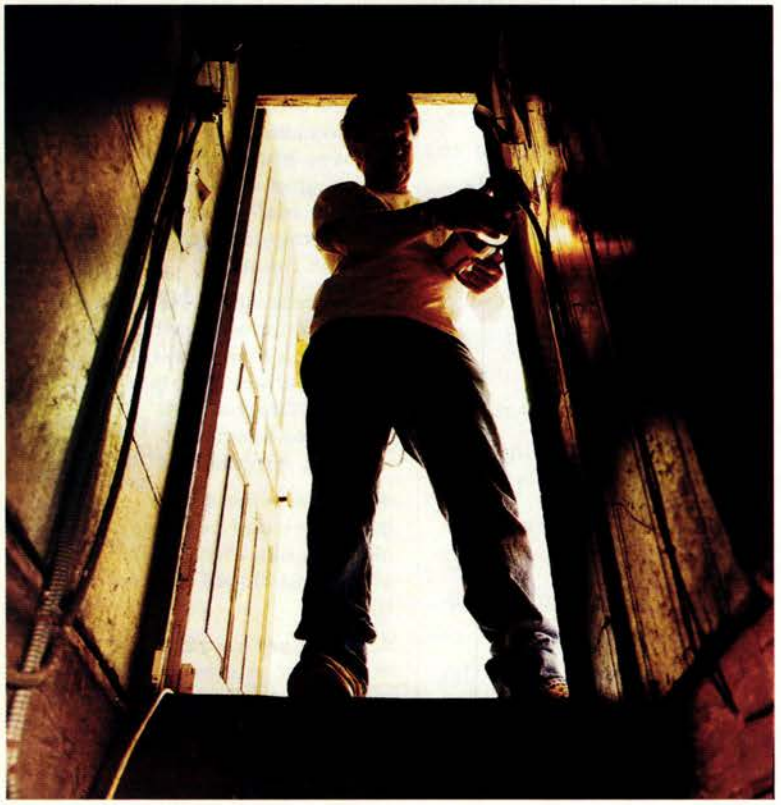
5. Look very carefully at the roof. If there are leaks, it's not just the roofing you'll have to replace but lots of wood below it. Home buyers rarely understand the problems they're getting into when they see a bad roof.

6. Look for bulges in walls and sags in roofs—they usually mean rot. Be wary of old houses with balloon framing.

7. Assume a house with a septic system could be trouble until you know otherwise. Have the septic tank dug up, pumped out and evaluated thoroughly. Have the distribution box dug up too. If the house has a well, get water tested for taste, quality and parasites.

inside

FROM THE ATTIC TO THE BASEMENT



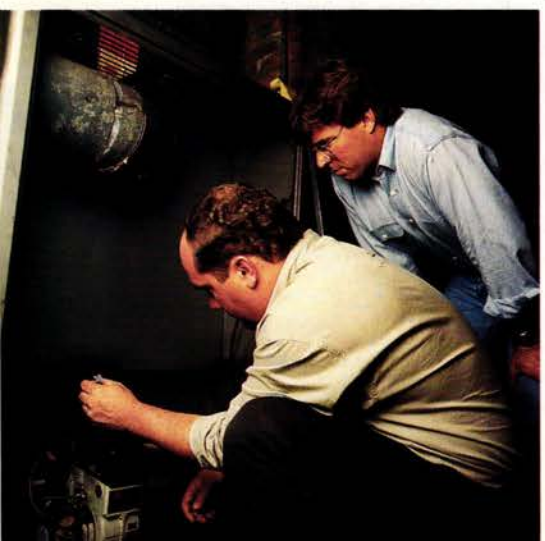
Paul Kennedy is meticulous about checking every switch and learning whether it runs an outlet, a light or some other device.

Up in the hot, dark attic, Steve Thomas is sweating. "I can't believe it. In 1995, in New England, here is a house with no insulation whatsoever." He keeps lifting up pieces of junk in search of some evidence of rock wool, fiberglass, cellulose—even crumpled newspaper. "There's not a shred of insulation anywhere: not in the walls, the ceilings, the roof. Unbelievable. What kind of heating bills did these people have?"

Plumber Richard Trethewey nods in agreement. "No storm windows and no insulation. You could insulate in one afternoon and get your money back in a year on fuel oil alone."

Steve holds out his hand, and two perfect circles of sunlight fall on his palm—evidence of holes in the roof. The attic "doesn't need more ventilation after all," he notes wryly.

Contractor Tom Silva stretches his arms as far as they will go and still can't reach from one rafter to another. "Framed 'em pretty light in those days, didn't they?" he says. He points to the chimney stack coming up through the attic floor and the brick debris around it. When he touches a brick, it crumbles to dust.

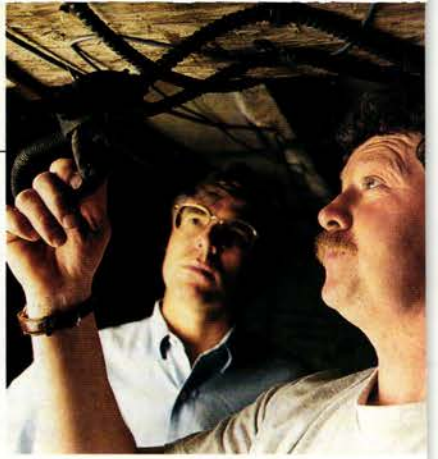


Richard and Steve examine the jet in the burner in one of two oil-fired furnaces.

A little later and one floor down, whatever is wrong with this house is forgiven as Steve runs his hands in awe over an oft-painted but intricately carved mantelpiece in a bedroom. "It's pretty rare to find a house with McIntire mantels in this shape." He muses that there are so many fine moldings in this one room that it will take a painter three days to apply a single coat. "The answer is to spray it with a high-volume, low-pressure sprayer," he says. To the right and left of the mantel are two closet doors, the tops of which have been sawn at a noticeable angle.

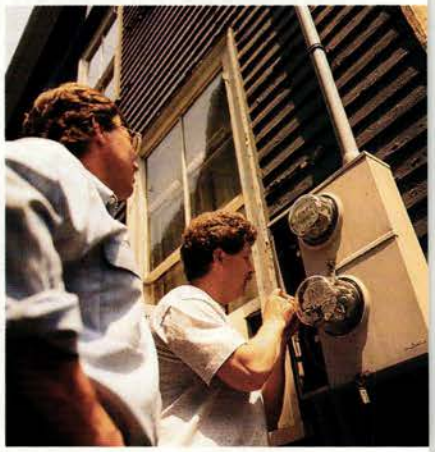
"The house sank around the fireplace," notes Norm Abram, entering the room. "In old houses with heavy fireplaces running up the center, either the fireplace settles faster than the house around it or the house drops faster than the fireplace."

Outside in the hallway near the back stairs, Steve speculates that huge plaster cracks running up the walls may simply be due to minor settling and seasonal expansion and contraction. "Not all plaster cracks are cause for alarm," he says.

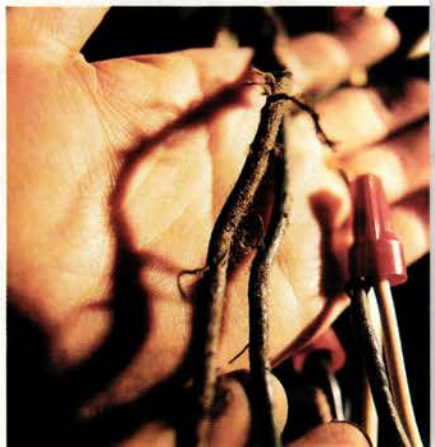


Steve and Paul test the soldered connections in a basement junction box.

The main circuit-breaker box is the first stop on a thorough examination of home electrics.



Steve and Paul make sure the line leading into the outside box is rated the same (100 amps) as the service inside.



Frayed outside insulation is okay, Paul says, if the rubber beneath has not cracked or become brittle.

PAUL:

1. Always be sure there are enough outlets in each room: Many older homes have only one outlet per room. Adding new ones is expensive.

2. Check that the main service is 100 amps or more.

3. If the main box has fuses instead of circuit breakers, make sure the seller hasn't installed fuses that are too big, such as 20-amp fuses in 15-amp circuits. Fuses are safer than circuit breakers—they blow quicker—but many people put high-amp fuses in low-amp circuits.

4. Be wary of older wiring, such as knob and tube. These systems cannot be upgraded to use three-prong outlets.

5. Look for ground-fault-interrupters in kitchens, bathrooms and outdoors.

This, Richard tells Steve, is a plumbing nightmare: a jumble of unsupported pipes made of several different materials, arranged in patterns that appear to defy logic.

RICHARD:

1. Closely check the flooring around toilets. Even a minor leak can cause formidable rot over time.

2. Find out what the water pressure is. Buy a test gauge that measures up to 100 psi. Get an adapter and screw it onto the outside lawn faucet. Good pressure is 30 to 50 psi.

3. Determine what the pipes are made of. A mixture of materials like copper, brass, galvanized steel and lead could be trouble.

4. Beware of long horizontal runs of waste pipe. Sewage settling in the bottom of the pipe can cause blockages and corrosion.

5. Look for the serial numbers on the water heater and the furnace. Call manufacturers to find out how old these appliances are.

6. Call the local utility to ask how much it cost to heat the house over the last several years.

7. Plan on upgrading insulation. Prioritize: attic first, windows second, walls third.

In a nearby bedroom, all eyes drift upward to a dark, stained ceiling. "That's where the Victorian portion joins the main house," Norm says. "Either the addition is pulling away, creating a roof leak, or the flashing and the roof are worse than we think."

Finally they head for the basement, where Richard believes the team will find the most important indicators of the house's health: "That's where the root of the tree is." Electrician Paul Kennedy Jr. is pulling wires out of the circuit-breaker box. "This doesn't look too bad," he says. "I'm bending the wires going into the box to see if they're flexible. That means they haven't overheated. Everything here looks properly done, and I'm checking all the screws in the box to be sure they're tight. Even vibrations from passing cars or people walking in the house can loosen up fittings."

The house wiring is what electricians call bx: wires shielded in flexible metal tubing, a format that became popular in the late 1930s. Paul notes that the box is wired for 100 amps, which is adequate unless air conditioning is added.

Tracing wires from the box to joist-mounted junction boxes, some of which are just dangling, he points out that the connections are taped solder joints. "Wire nuts are much better—solder joints can break—but I'd leave them alone unless they show signs of having heated up."

Richard takes a quarter and begins tapping the bottom of the cast-iron waste pipes. "If I hear a clear ringing, everything is okay. If the sound goes dead, that means the pipe is rotten." He quickly discovers a leaking drainpipe from a bathroom and under it a mishmash of water pipes with hurried solder connections. The plumbing is full of drum traps, devices—not allowed by current codes—that can't be snaked like the more modern P-style traps. "Nobody notices plumbing until it goes bad," he sighs. The furnace seems old yet adequate, he says, but "the ductwork is kind of Mickey Mouse. Looks like another low-bid job. There are too few cold-air returns." He is concerned that the copper pipe coming into the house is only ¾-inch diameter. "That's adequate for a 2,200-square-foot house, but not a behemoth like this. If this place ends up having the four or five baths it ought to, that pipe might have to be upgraded to 1-inch. And that won't be cheap."

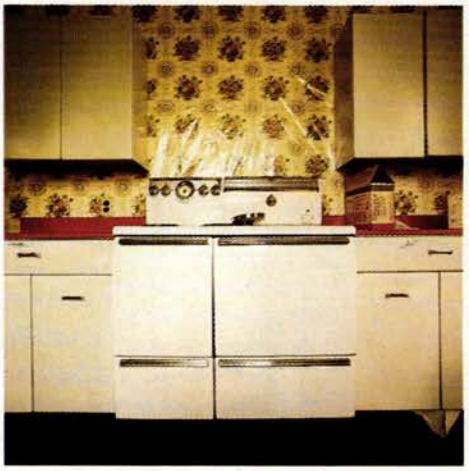
Despite the problems they've found, the crew still believes that what the house needs most is better cosmetics. Paul has even begun to plan a low-voltage lighting system to accentuate the front of the house at night. "This place could be really beautiful," he says.

In the attic, Richard and Steve search fruitlessly for signs of insulation.

the inspector

TO BE ABSOLUTELY CERTAIN, CALL IN THE EXPERT

Stains in ceilings, Sutton says, are a red flag to check for a leaking roof.



Sutton's report suggests that this old, poorly designed kitchen be torn out.

Sagging door frames next to a fireplace indicate uneven settling problems.

Bill Sutton has been inspecting houses in the Boston area for 18 years, so he knows that "when someone tells me they want me to look at a house that's 230 years old, I'm likely to find trouble." We asked him to look at 124 Federal Street, where he found more problems than he expected.

"Many homes in this area date to colonial times, but most of them don't get to be this old unless they're well cared for. This house has not been well maintained in recent years. But frankly, if you love old houses, you have to assume that a certain amount of work goes along with them. In fact, a lot of my clients who are crazy about old houses like to do the work themselves—they get a kick out of it. And besides, anything that even comes close to looking like this in modern construction is, at best, only a reproduction."

Like Steve and Norm, Sutton begins an inspection on the outside. "Take your time and walk around, studying the site itself," he says. "Try to figure out the drainage. Water is the biggest cause of problems in houses. Look at how well the site fits the house."

Eying the place, Sutton found that "the paint has failed, blistered and peeled on most of the exterior; the old windows are well beyond their average useful life and appear to be in poor condition; the wood shutters are in poor condition with evidence of rotting; there are no window screens; the corner of the stockade fence in the rear is rotting and in need of replacement; there are cracks in the foundation; the concrete sidewalks installed in areas around the house have settled and heaved and created potential trip hazards; tree branches overhanging the house and roof should be pruned." Sutton was more concerned than Norm about the siding. In his report, he noted "extensive cracked, damaged and worn-out siding. It is likely that hidden rot exists."

As he studied the roof, Sutton remarked that "between a third and half of all the homes I see have roofs that are past their normal life span." The average life of an asphalt roof, he says, is 20 years, plus or minus five years. Other than the fact that most of it is slate, Sutton didn't like much of anything he saw on this roof. "The chimneys have areas of loose brick and mortar and appear to belly out in places. They may need major repairs and flue linings." He noted loose spots and popped nails on the flashing and declared the asphalt shingling on the wings and entry worn out. Like Norm, he thought the gutters should be removed, but unlike Norm he thought they should be replaced "with a full gutter system" to prevent "splash-back onto the siding."

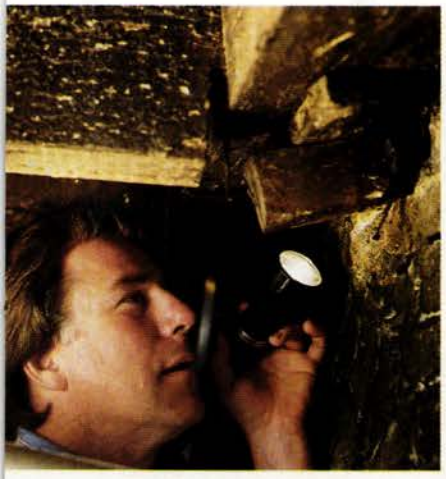
Sutton's 14th entry (of 66 overall) was perhaps the most arresting: "In general," he wrote, "the exterior of this property seems to be a money pit."

After inspecting the outside and the roof, says Sutton, a prospective home buyer should head for the basement to check the heating plant, the electrical work, the plumbing and the structure itself. "Those four systems are where most of the big money will have to be spent." Under the right rear wing, he found that the main girder holding up part of the house was "twisted and rotting" because wood supports cantilevered from the chimney had failed—a safety problem that should be fixed immediately.

Also on his list: another main girder notched for a 4-inch

♦ *See Directory,* on page 130, *for lists and addresses*

Obvious rot in trim and siding usually signals even more extensive trouble inside the wall.



A notched main beam in the basement, crudely shimmed with wood blocks, is dangerous.

Brick is not an ideal foundation material, and on the Victorian addition it needs to be repointed.

BILL SUTTON:

1. A competent house inspector is a seasoned professional. Don't ask how old the firm is, ask if the person inspecting your house has done at least 250 inspections. Call 800-743-2744 and ask for a list of American Society of Home Inspectors (ASHI) members near you.

2. Always go along with the inspector as he does his job—he'll educate you.

3. Never take a recommendation for a particular inspector given by a real estate agent.

4. Don't hire a contractor to do an inspection. The potential for conflict of interest is too great.

5. Never inspect at night. Midday sun reveals the most detail.

6. Trust your instincts. If something seems funny—rusting or rotting or strange—ask the seller about it and have it checked out.

7. In some states (California, for one), sellers must answer a disclosure form with questions about neighbors, pets, odors and stains, TV reception, crime rates, the state of the seller's marriage and many other details. Make your own list of things that concern you (Water in the basement? Commercial traffic?) and ask the seller (*not* the real estate agent) to address each item.

pipe at the "worst location in the center of the span"; evidence of powder post beetle and other insect damage; stone and brick foundation walls needing "extensive" repointing; notched and sagging girders; voids in the main chimney arch support; a rotted and leaking bulkhead; sill and corner-post rot; and open balloon-framed cavities. "These are potentially hazardous in case of fire because they draft like a chimney."

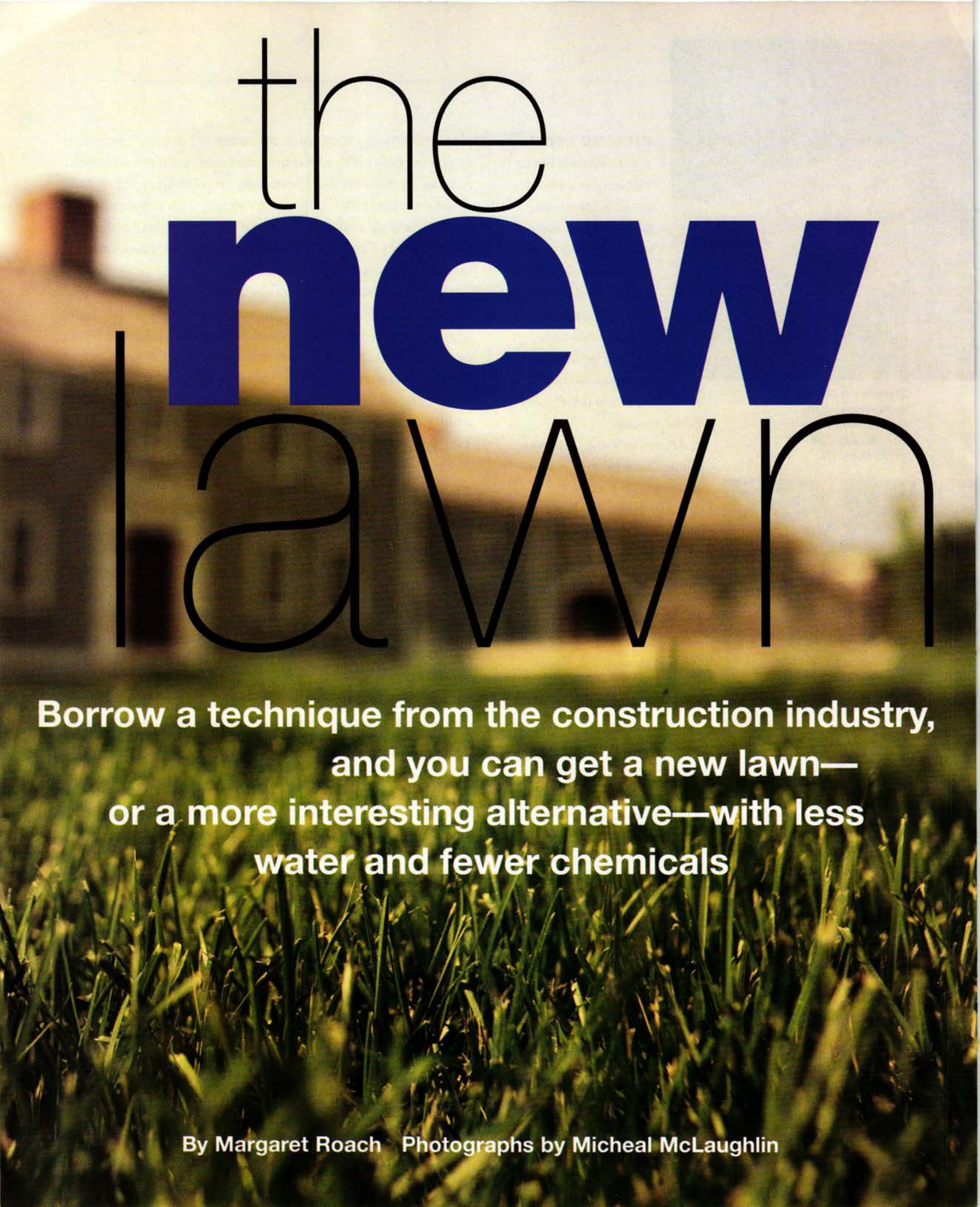
Under the main house, Sutton could not get either of the building's two furnaces to light. He suggested that the older one be replaced and all chimney flues be evaluated by a qualified chimney sweep. "Gas is very corrosive. A gas furnace these days is good for about 15 years. You can get 20 to 25 years out of an oil furnace." He inspected the two oil tanks and found that one was corroded and leaking—"an immediate hazardous waste concern."

Up in the attic, Sutton saw little that Norm and Steve had not already noticed, but he pinpointed the worst water entry at a loose sheet-metal vent pipe where the main house and the addition join. In the interior rooms, he noted water damage to ceilings and walls; sags, deformations and deflections of framing; cracks in plaster; inadequate and outdated outlets; unsafe fireplaces; and the likelihood of lead paint problems.

A basement with lots of nooks and crannies requires extra time and floodlighting to inspect well.

Sutton's final warning was probably his most ominous. He worried that because he couldn't rip off any siding, remove plaster or search more exhaustively for hidden damage, there may be many more needed repairs he did not discover. "As thorough as I am, there's always more to be found. It's a matter of how much time I'm given. I took five hours to inspect this house. I probably should have taken eight."

Sutton is the first to say there are many things a home inspector can't do or see. "An inspection is nothing more than a visual examination of the current state of the house's major structural, mechanical and electrical systems to determine the effects of Mother Nature and Father Time." And when that inspection turns up a lot of problems, as it did at 124 Federal Street, it's still not likely to change a buyer's mind. "People are going to buy what they like the looks and feel of, no matter what's wrong. But it's important to know what the problems are, so you can prioritize repairs and do some realistic planning for fixing up your home. Nobody likes surprises."



the new lawn

Borrow a technique from the construction industry, and you can get a new lawn—or a more interesting alternative—with less water and fewer chemicals

By Margaret Roach Photographs by Micheal McLaughlin

A uniform, ¾-inch covering of moistened, dyed fiber pulp, seed and fertilizer is Sean Bilodeau's aim as he sprays on a future pasture at a client's farmhouse in Concord, Massachusetts.

There is no better time than fall to replace a wimpy lawn. To do it most efficiently, consider a method called hydroseeding.

The process blends seed, starter fertilizer, water and dyed, ground newsprint or wood fiber into an oatmeal-like glop that is sprayed onto the ground. Developed first to heal road cuts along the interstates, hydroseeding is now used on spaces as small as 3,000 square feet because it's fast and effective. Protected by the fiber pulp, new seed needs less water. Seeding wet areas or steep slopes is no longer troublesome, and neither are hungry, seed-stealing birds, who find the cellulose layer a significant deterrent. Hydroseeding works with virtually any seed mix. And the cost is reasonable. Sean Bilodeau, the Massachusetts landscaper who demonstrated the process at the Maitland home in Acton on last season's *This Old House,* said he charges 3¢ to 7¢ a square foot for hydroseeding, compared with 2¢ to 4¢ for hand seeding and 35¢ to 50¢ for sod. About the only bad thing about hydroseeding is that ugly faux-grass color, which helps landscapers see what has been sprayed. Don't worry; the seed below quickly pushes up the real thing.

doing it yourself

Several companies sell bags of fiber mulch mixed with seed and fertilizer as a good way to patch lawns or establish new flower beds, and at least one company has a roll-out mulch mat that does the same. The products work well. But to hydroseed anything larger than a few hundred square feet—really not much of a lawn—you'll actually save money by hiring a landscaper. It costs Bilodeau $6 for a 40-pound bag of mulch (enough for 800 square feet); that's about $1.50 less than a 5-pound bag of the lawn patch mix, enough for just 100 square feet. Could a homeowner buy the stuff where Bilodeau does and just spread it dry over a planted seedbed, following up with a good soaking from a sprinkler? Yes, said several landscapers we asked. But they predicted uneven mulch and, as a result, a spotty lawn.

preparing soil

Whatever you plant, soil preparation is crucial. Most landscapers recommend killing existing vegetation with the herbicide glyphosate (the active ingredient in Roundup), said to be of low residual toxicity. Gardeners who want chemical-free yards should cover the area with black plastic for weeks or months to kill what's below, or till repeatedly until weeds are gone (this could take up to a year, and topsoil may blow or wash away). Some landscapers spray, "scalp" mow to remove stubble and then sow just below the surface with a machine called a slice seeder. For a new lawn, send a soil sample to the county extension service; it will return a detailed list of minerals and organic matter to add. Rototill in a thick layer of organic material—leaf mold, rotted manure or other compost—as grass food.

the test plots

This Old House asked Sean Bilodeau, who has used hydroseeding for a dozen years or more, to test the technique against sod, hand seeding and seeding with a soil-slicing machine. For each planting method, he used two lawn mixes and two watering schedules. In all cases, hydroseeding, shown here at the back of the field, performed best. Sod, the most expensive option, fared worst. The differences were most striking in plots planted with bluegrass, a traditional lawn variety that some now shun because it requires more careful mowing and watering and germinates more slowly than other varieties. At center front is bluegrass sod that got regular water; it did reasonably well but wasn't as uniform as the slice-seeded plot beside it or the hand-seeded plot that barely shows in this picture. At left center is bluegrass sod left to depend only on rainfall; it's about half dead. The slice-seeded, hand-seeded and hydroseeded plots in that row all did reasonably well. The back two rows tested a perennial lawn blend. All of those plots did reasonably well, but the hydroseeded sections were the most weed-free of the sown sections.

the process

1 Hydromulch is made from ground newspaper or shredded wood fiber, or a combination of the two. Bilodeau favors shredded newspaper. The mulch, on which fragments of words can still be seen, is dyed green to help the applicator see which areas have been covered. To help those without a mulching machine apply a uniform layer, lawn patch products sold to consumers are more fluffed-up than products marketed to landscapers.

2 Seed (or a blend of several kinds of seeds) and enough fertilizer to carry the planting through its first month are the other principal ingredients of hydroseed. Landscapers usually mix these elements with the mulch and water for a one-shot application, which is applied by sprayer hose as a uniform ¾-inch wet blanket over the entire area to be planted.

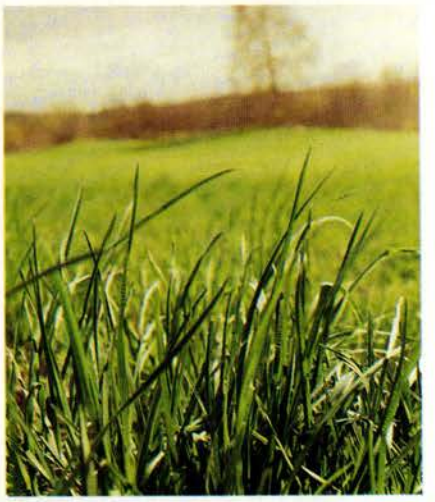
3 Fertilizer and bagged seed are poured into the mixing tank of Bilodeau's truck, a 1,500-gallon hydroseeding rig that he first fills with about 1,300 gallons of water. Then he'll add mulch and, for steep slopes, tackifier—gluelike material that helps the mulch resist washing away. Most of his jobs are large scale, so the equipment suits him, but landscapers who specialize in subdivision-size lots can buy tanks as small as 300 gallons that fit in the back of a pickup truck.

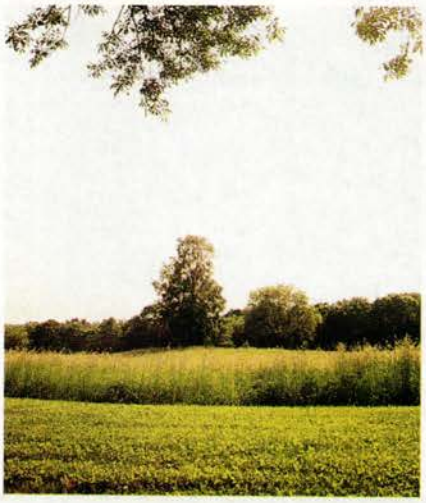
4 Bilodeau's rig has 200 feet of heavy-duty hose, letting him move around a large area for uniform coverage. Around walkways and borders, he may use lower pressure and spray downward for better control. Since water is already mixed in, the area does not need to be watered for at least a day. The thick mulch also helps suppress weeds until the seeds are well on their way.

In some situations, hydroseeding is not recommended—but hydro*mulching* is. When he's using expensive wildflower seed mixes, for example, Bilodeau will sometimes use a machine that injects seed just below the surface, then spray on the seedless mulch. This is also the preferred method in arid climates, where the seed needs the extra protection that a soil layer provides (and where rototilling makes dry topsoil vulnerable to wind erosion). For home use, the seeding machine can be replaced with a rake stiff enough to make grooves in the dirt: The point is to make sure there is good contact between soil and seed.

the new **meadow**

Sean Bilodeau has used his hydroseeding wand to paint a variety of ground-cover scenes. A grass lawn is just one of many possibilities. At right, hydroseeded daisies bloom in Westford, Massachusetts, and the field at far right features rye, orchard grass and timothy—just a few examples of the pasture crops that can be sown with the cost-effective method.





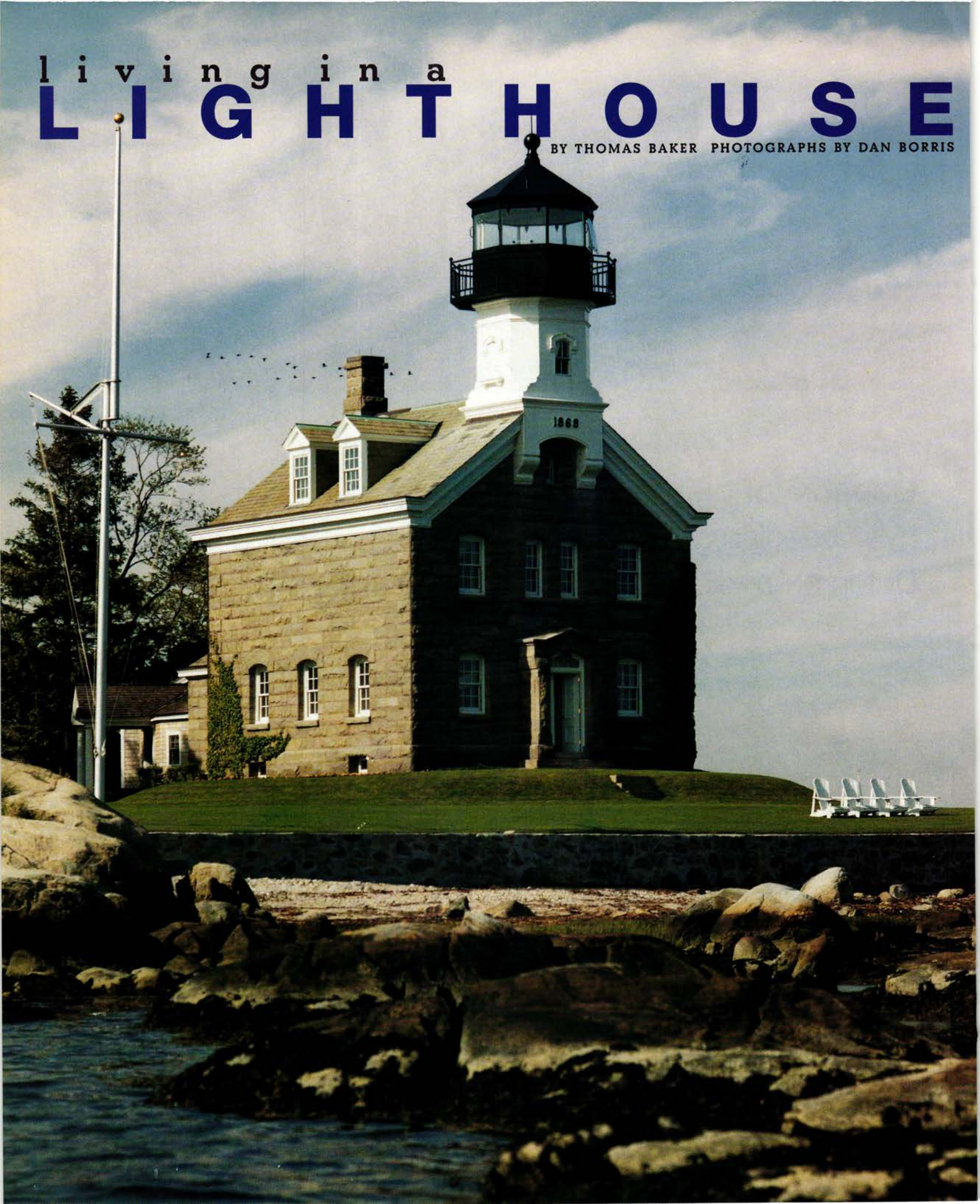
On large plots, a tiered approach can reduce lawn size and upkeep. Closest to the house, a strip of mown lawn may be desirable; farther away, more carefree alternatives such as meadow or pasture mixes can be planted in swaths. Clover and bachelor's buttons, right, need mowing just once a year. If certain flowers peter out, reestablish by slice-seeding into the turf.

Capable of painting infinite textures and colors, hydroseeding got red clover established beside an old Dutch barn relocated to Concord, Massachusetts.

♦ *See Directory,* on page 130, *for lists and addresses*

living in a LIGHTHOUSE

BY THOMAS BAKER PHOTOGRAPHS BY DAN BORRIS



On a spit jutting into Fishers Island Sound stands the granite-clad Morgan Point Lighthouse, built in 1868. For 50 years, this sixth-order lighthouse, one of six identical structures in the region, housed the keeper and his family and guided ships past the shoals of this island-strewn pass. Then, in 1922, the U.S. Lighthouse Service sold it into private hands, after removing the lens and the lantern that housed it.

Seventy-three years later, an advertisement in the *Wall Street Journal* led the current owner to this same lighthouse, vacant and in such poor condition the broker was reluctant to show it. Despite its dilapidated state, the buyer recognized it as a twin of the Greenwich, Connecticut, lighthouse he'd dreamed of living in as a child.

Morgan Point Light now stands transformed, structurally sound, with airy living quarters and a new lantern, fabricated in aluminum by a firm that builds towers for fishing boats. From the octagonal perch, 70 feet above the water, one can scan the horizon in every direction. Says the owner, who spent nearly $1 million on the reconstruction, "When I'm up there, I never want to leave."

KEEPER FOR A DAY

Like many drawn to the sea, Steve Thomas says one of his recurring fantasies is to renovate a lighthouse. It's a dream few have realized. Of the 397 lighthouses with keepers' quarters in the United States, about 90 are in private hands, the legacy of a time in the 1920s and '30s when the government sold surplus lighthouses to individuals. Though such sales are a thing of the past, some lighthouses have been converted to inns and hostels, affording everyone the chance to experience, however briefly, the splendid isolation of lighthouse living.

♦ *See Directory, on page 130, for names and addresses*

SHIPSHAPE DETAILS

In this lighthouse reconstruction, the owner, a former naval officer, and the architect, a former Coast Guard engineering officer, incorporated nautical touches at every turn. From top to bottom:

• In the great room of the living quarters, laminated knee braces and arched beams have the look of an old wooden-ribbed ship.

• A battle lantern with sliding brass covers illuminates the lighthouse tower.

• On the side of the mahogany bar, miniature lighthouses beam light through petite Fresnel lenses.

• A three-strand rope punctuated with Turk's-head knots provides a seaman-like handhold on the steep stairway to the lantern.

• The interwoven boards on the fir deck are reminiscent of the joinery on a boat deck.

materials list

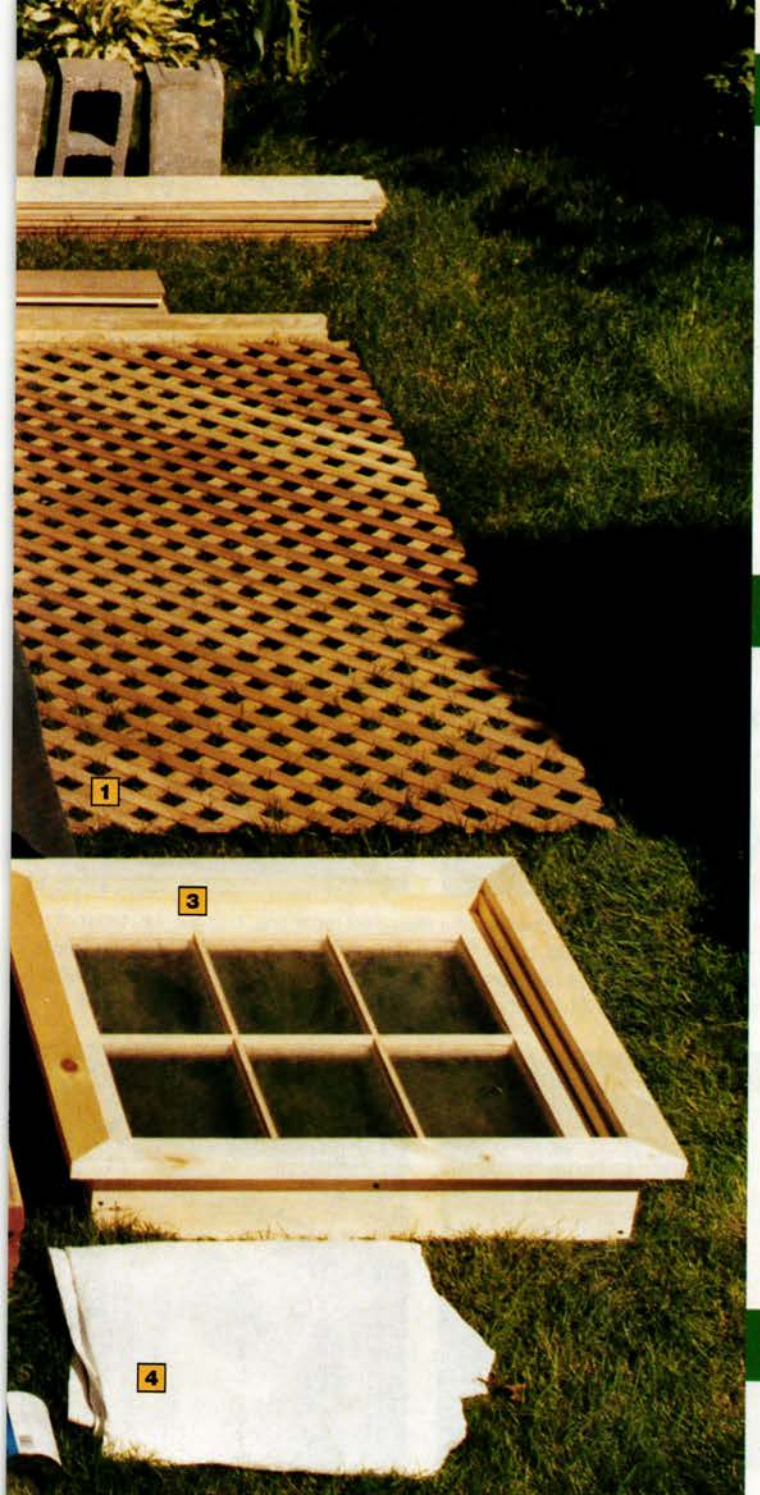
1. cedar lattice panel, 4'x7'4¾"
2. steel crimped ridge roll, 8'
3. six-light prehung barn sash window, 28"x28"
4. canvas drop cloth
5. four 2x4 wall plates, 8'
6. ten 2x4 rafters, five at 3'11½", five at 7'11½", all precut at 60°; one 2x4 ridge beam, 8'; four 2x4 gable rafter nailers, 3'1"; two 2x4 ridge beam supports, 1'9"
7. paint: 2 quarts deck paint; 2 gallons primer; 2 gallons rubber roof paint; 1 gallon exterior paint; 2 quarts exterior paint, second color; 1 quart exterior trim paint; tray and roller
8. brushes: 4" nylon; 2" angular sash; 2½" flat sash; 1½" nylon and polyester blend sash; 5-quart plastic pail
9. one tube vinyl acrylic caulk
10. two-panel 1¾" exterior prehung fir door, 2'8"x6'6"; brass lockset; shims
11. four 2x6 pressure-treated rim joists, two at 7'9", two at 6'
12. four 2x2 pressure-treated ledgers, 3'10½"
13. four 4x4 pressure-treated lattice frame supports, 8'
14. four ¾"x¾" batten strips, 12'
15. five 2x4 pressure-treated floor joists, 5'9"
16. plywood: three sheets ⅝" ACX ply, 4'x8' for roof; two sheets ¾" ACX ply, 4'x6' for floor
17. nails: 10 lbs. 10d galvanized common nails; 10 lbs. 8d galvanized commons; 5 lbs. 8d sinkers; 5 lbs. 6d stainless siding nails; 5 lbs. 8d galvanized finish nails; 1 lb. 10d galvanized finish nails; 1 lb. 1" galvanized commons; 2 lbs. 4d galvanized commons
18. fifteen H-3 hurricane anchors
19. eight ⅝"x6½" galvanized lag bolts with washers

garden shed

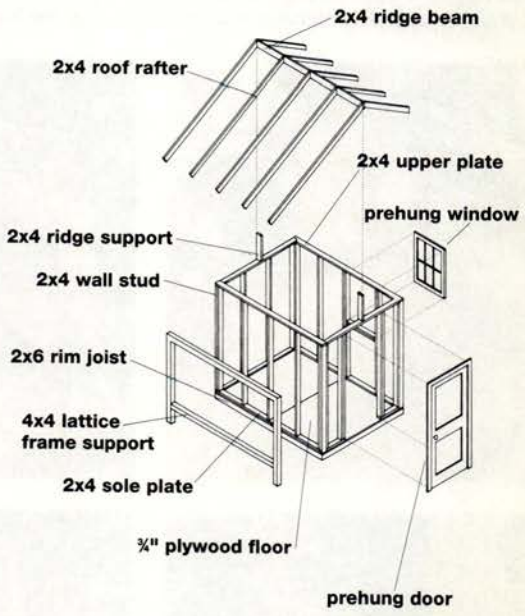
By Pamela Hartford Photographs by J Michael Myers

Weatherproof storage for the lawn mower?

A handsome outbuilding to complement the house and enhance the garden? With careful design and construction, a garden shed can be both. Nick and Susan Dazzo wanted a shed tailored to their garden and made of high-quality materials. *This Old House* enlisted the help of Les Walker, an architect who specializes in tiny houses. His plan took into account that the Dazzos are adventurous but not experienced do-it-yourselfers. Norm Abram provided long-distance advice, and a local carpenter, John Gladdis, lent his expertise. A small band of friends wielded hammers, paintbrushes and the all-important camera. Lumber was cut to size and delivered by a lumberyard. In three days they created a shed that is the pride of the garden. Total cost: $2,046 (not including film and developing).



20. two 4x4 aluminum post bases
21. 8" aluminum flashing, 30' roll
22. four ¼"x⅝"x12' cedar lattice stops; eight ¼"x4" cedar cornerboards, 8'; two ¼"x4" cedar roof trim (fascia), 8'; two ¼"x4" cedar roof trim (rake), 14'
23. ½"x6" cedar clapboard, 504 linear feet
24. thirty 2x4 wall studs, 6'7"; four 2x4 wall plates, 5'4"; two 2x4 window liners, 3'6"; three 2x4 sills, 2'x8½"; six 2x4 braces, 8'
25. eight semisolid concrete blocks, 8"x8"x16"

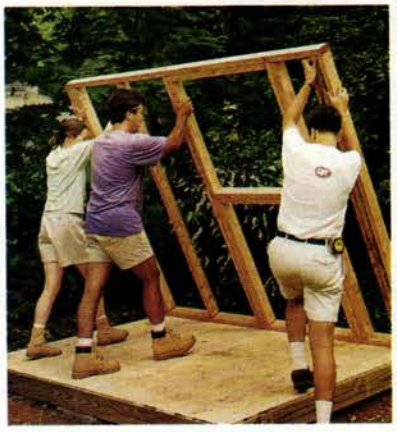


tools required

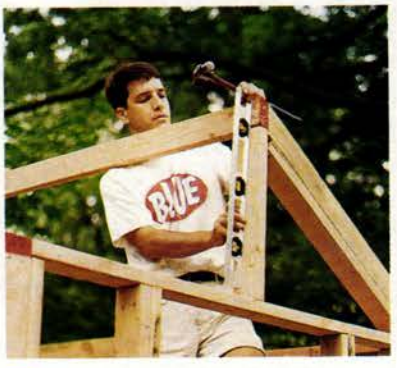
Spade shovel	Snips
24" Level	Phillips, common screwdrivers
Framing square	Mason's line
Hammer	Handsaw
Chalk line	Circular saw
Tape measure	Extension cord
Caulking gun	Drill with ¼" bit
Nail set	2 Large clamps
½" Open-end wrench	8' Stepladder

1 After getting a construction permit from the town building department (cost: $45), the first step is to **decide where the shed will go**. The Dazzos used the lattice rigged to a pair of posts and a drop cloth folded to the ground dimensions of the shed. Drive stakes at the four corners and clear the building site of overgrowth.

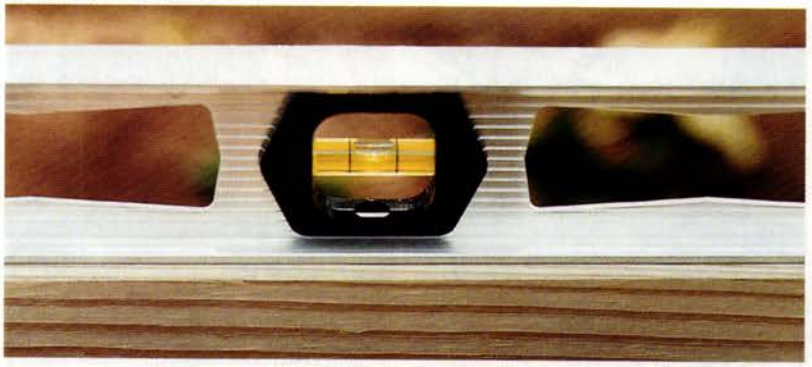
2 Mark the rim joists on 16" centers for floor joist locations. Nail the 2x2 ledgers to the left and right rim joists, using 10d common nails 8" apart. **Nail the rim joists together**, using three nails per joist. Nail in the floor joists with two 10d commons through the rim joists and two 8d commons toed in. Brace the base with a 2x4.



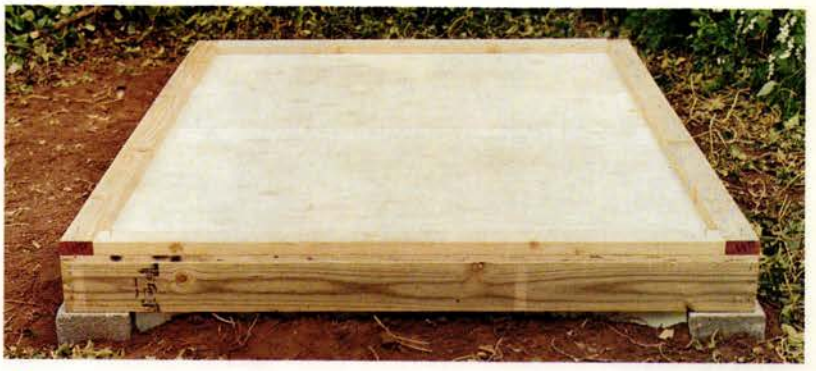
5 Remove sole plates. Transfer marks to upper plates (top and bottom) and ridge. **Nail studs to plates** with two 10d nails through each end. Frame window. Raise side walls, level, nail down. Cut out sole plate for door. Raise end walls and nail to sides with two nails at top, then every 16" down corner studs. Brace with 2x4s.



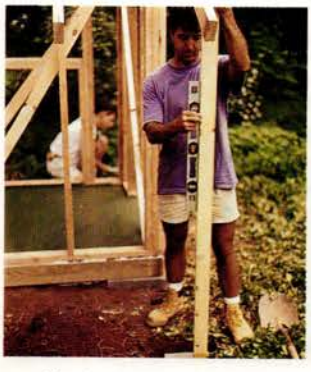
6 Attach the 2x4 nailers for the clapboards to the bottoms of the end rafters. Position ridge support, level, toe in and nail from below with two 10d commons. **Install end rafters** first, checking level of ridge support before and after. Toe at ridge with three 8d common nails. Toe one 8d common nail at the upper wall plate.



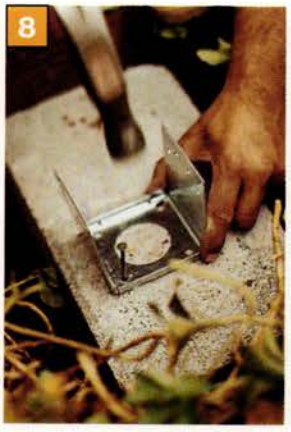
3 Position frame to determine where to **place foundation blocks**. Dig holes for blocks and set loose gravel or sand in the bottom for a stable surface. Set corner blocks first, then interior blocks, continually monitoring frame for level. This step takes patience: Base must sit level, or everything to follow will be out of plumb.



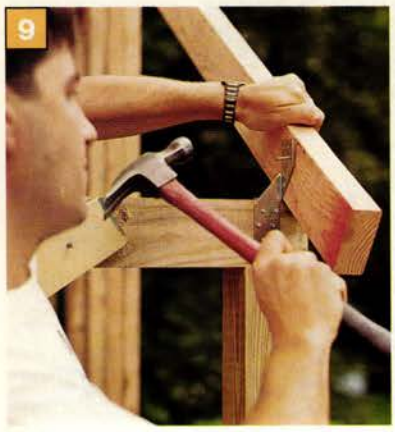
4 Dig trough around the inside of the frame and set flashing at least 4" deep. Backfill trough. Remove brace and **lay back-primed ply flooring**, making sure the joint lays on a joist. Using 8d sinkers, nail down the plywood at 8" on center. Rough tack 2x4 sole plates and mark stud locations 24" on center.



7 Dig the holes for the blocks that will support the lattice posts, sinking blocks below grade (ground level). Measure and cut each 4x4 to fit under a rafter. Double-check the squaring as you **bolt together the lattice frame**. Predrill bolt holes using a ¼" drill bit. Install lag bolts and then tighten with a wrench.



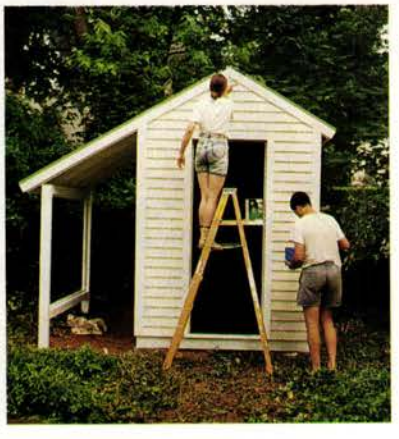
8 Nail post bases to blocks using masonry nails provided with post bases. **Set lattice frame into bases** and level, then attach with 4d common nails. Toe an 8d common nail through each rafter to secure. Prime frame and stops. Install outside stops using 8d finish nails. Install lattice and inside stops.



9 Nail hurricane anchors to rafters with 4d commons. **Install roof sheathing**, placing one sheet of ply horizontally on the short side, two sheets vertically on the long side. Make sure sheets abut on the center rafter. Use chalk line to mark rafter locations, then nail down plywood with 8d sinkers 8" on center.

10 **Trim fascia and rake.** Install fascia using two 8d finish nails in each rafter and rake using 8d finish nails 16" on center. Prime trimmed ends. Install cornerboards and door trim with 8d finish nails. Install battens with sinkers 8" on center and ridge roll with 1" roofing nails 12" on center. Caulk batten covering ply joint.

13 To **fit a clapboard under the window**, measure where the window hits the clap. First make vertical cuts with the circular saw, then score the horizontal cut with a utility knife and straightedge. Snap off the clapboard. Caulk claps where they meet window, door and cornerboards. Countersink all finish nails, putty in holes.



14 Michael and John begin to **paint the trim** with a semigloss white while Susan and Nick cover the clapboards with the tan finish color. Paint colors were selected to match the main house. At the end of the three-day project, Pamela, Tim, Page, Francesca and Susan step back to admire their handiwork.

11 Remove the front interior brace and **install the prehung door**, shimming the frame as necessary and monitoring with level. Nail with 10d finish nails, countersink and putty holes. Install the prehung window and nail with 10d finish nails; countersink and putty. Prime all window and door trim.

12 **Install claps** on the long sides first—so any miscut boards can be used on the short sides—cutting as you go with a circular saw fitted with a fine blade. Nail with 6d stainless siding nails, leaving a 4" reveal on each clap. Take care when hammering: Cedar is softer than fir or spruce and splits easily.

the finish

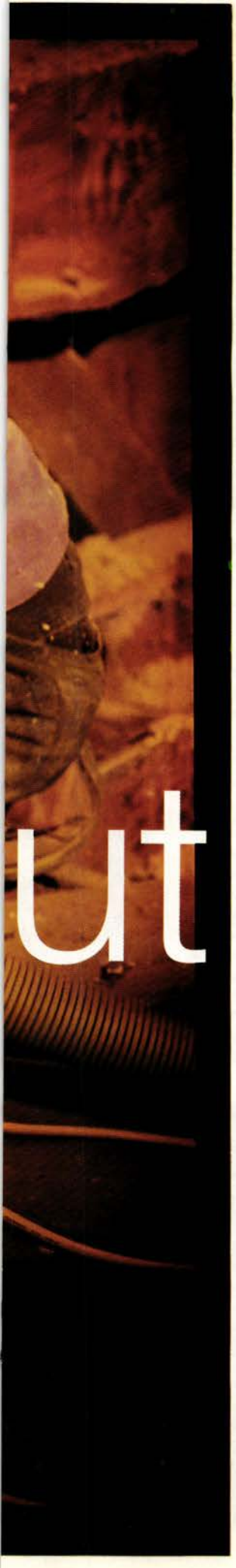
The roof, including the battens and the steel-crimped ridge roll, was given two coats of Acrymax, a rubberlike paint that bonds with surfaces to create a highly weather-resistant finish. The door and the lattice were painted a khaki color. The cedar clapboards were left unfinished in the interior.

♦ *See Directory,* on page 130, *for lists and addresses*

For more than a decade, Fred Lugano insulated buildings with fiberglass, plastic vapor barriers and cases of caulk. Three years ago, he switched to cellulose insulation (basically old newspapers, shredded and treated with fire retardant). Cellulose has been around for a while, but Lugano and a network of contractors have a new trick: They pump in the cellulose at 3.5 pounds per cubic foot, twice the normal density. Trapped moisture has been the traditional danger in even the best insulation jobs, but "if I pack the wall tight," Lugano says, "there's no air movement and thus no vapor transmission." In an ideal world that's true, says Richard Trethewey, *This Old House*'s plumbing and heating expert, "but this is a method that relies on perfect installation, and levels of expertise are low these days. If you're sure it's done right, there's no downside to it."

keeping o

Common sense and new technology wrap a blanket around a Vermont church



ut

the cold

Ever been tempted by those advertisements hawking "free" windows? The windows actually cost plenty, though they're "guaranteed" to pay for themselves in energy savings. But a Vermont project shows that windows are probably the least of your energy problems. The biggest savings come from insulating walls and ceilings and plugging holes, cracks and other heat leaks.

The people at Lake Construction use a powerful **chopper-blower,** above left, to break up the 30-pound cellulose bales and pump the shredded newsprint. To **fill a wall,** left, Steve Perron feeds a 2-inch hose into the cavity from the attic. When the cellulose stream stops, he knows he's pumped in the right amount and pulls the hose back a couple of feet at a time to fill higher and higher sections of the cavity. After the walls are packed, Perron "open blows" the **joist bays** in the attic, above right. The attic isn't a high-density application because there's no enclosure to pack.

When the 8-day job was done, air leakage was down by 72 percent. The total bill came to $9,500 (high-density cellulose runs about a dollar per square foot). The contractor projects that oil costs will be cut by at least two-thirds this winter.

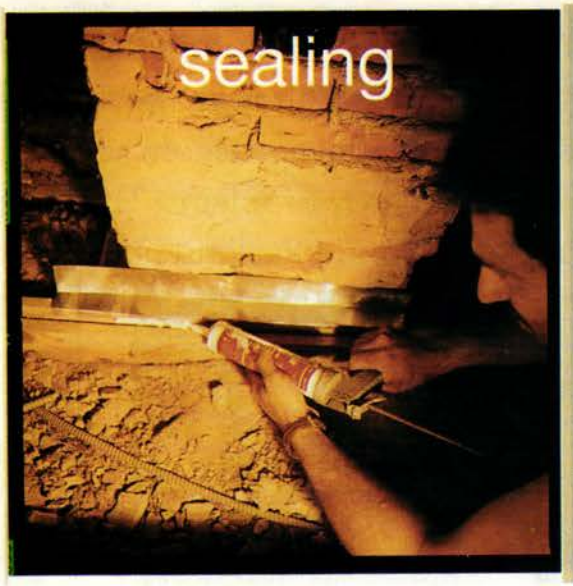
In a Vermont winter, freezing days pile up higher than snowdrifts, and that was a problem for members of the Cornwall Congregational Church. Keeping the place warm had become too expensive. Though sturdy, the 1803 timber-frame was a sieve, losing warm air almost as fast as the oil furnace could deliver it. Heating the place for services took about 200 gallons, but the Sunday collection wasn't even covering the cost. That led lifelong member Charlotte Phillips to a most generous decision. She donated 100 shares of IBM stock, enabling the stewardship committee (of which she was chairwoman) to hire an insulation contractor. As Phillips recalls, the first few candidates wanted to cover up the church's tall windows. To Fred Lugano of Lake Construction, the windows weren't the problem. He saw that the biggest heat losses were in the walls' drafty, 14-inch-deep cavities, the barely insulated attic and the leaky furnace ducts. Lugano's solution: Using a method developed as a cost-effective way to insulate low-income housing, he and his crew sealed up any large holes, then added a 10-ton blanket of cellulose insulation.

By Joe Carter
Photographs by
Patricia McDonough

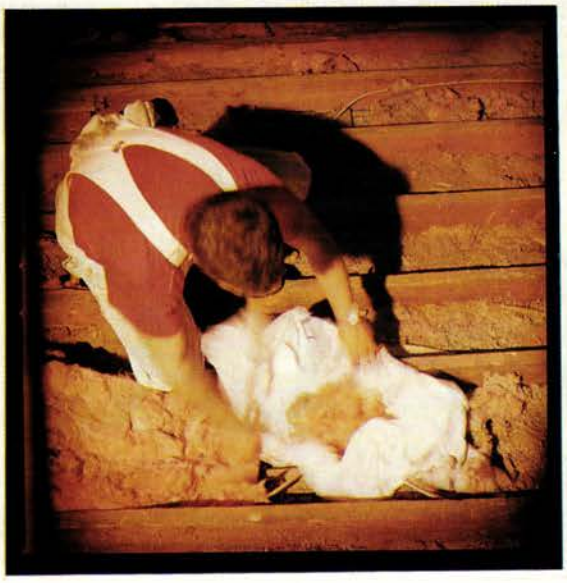
In older homes especially, it's the air leaks that steal most of the heat. But finding them can be as much of a challenge as fixing them. That's why good winterizing and insulation contractors use the blower-door apparatus pictured above. Basically a big fan and a trio of gauges, a blower door pumps air into

or out of a house to tell a contractor how much overall leakage there is. As holes, cracks and seams are filled, the blower door verifies progress by moving less and less air through the house. Contractors use a smoke tool, above, to pinpoint leaks, but on a windy day you can use an incense stick instead. Another easy detection technique: Lift up batt insulation and look for dark patches, evidence of an air leak right below.

sealing



Warm air wants to rise; when it hits the ceiling, it flies out through holes around wiring, light fixtures, plumbing vents and, most of all, the **chimney**. For fire safety, insulation should not come in direct contact with the chimney. Above left: Steve DiMaggio installs **metal flashing** to bridge the gap between the masonry and the wood framing (the caulk seals metal to wood only). Above right: He adds a **metal dam** to keep the deep pile of cellulose away from the chimney.

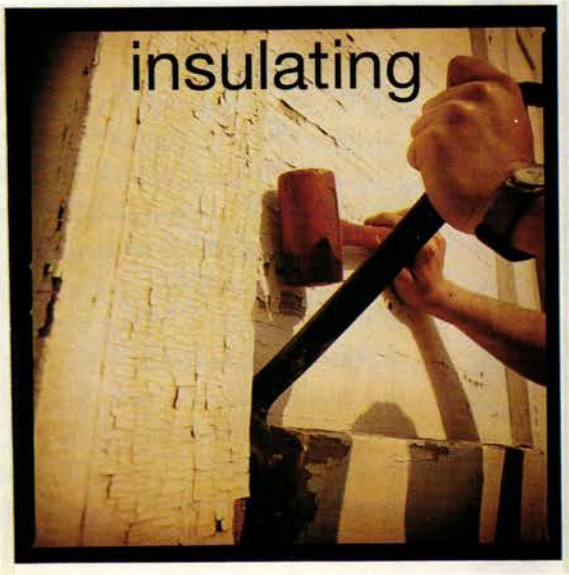


Left: Sometimes an air leak is just too big to plug with caulk or foam. Fred Lugano's fast, low-tech solution is to wrap **plastic sheeting around a wad of fiberglass insulation** and stuff it into the void. The plastic is essential, because fiberglass itself doesn't block air.

Warm air escapes through the upper levels of a house; cold air creeps in through the **basement**. Right: Helen Lugano makes an **air barrier** from the basement sill up to the subfloor with ¼-inch foam boards sealed all around with aerosol foam. Far right: The church's stone walls, also a potential leak source, were sealed with 6-mil **polyethylene** draped to the dirt floor. Old fiberglass batting from a previous attempt at insulation was left in place. With the air leaks controlled, it should be more effective.

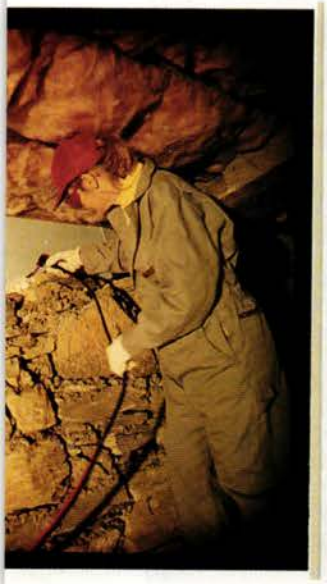
insulating

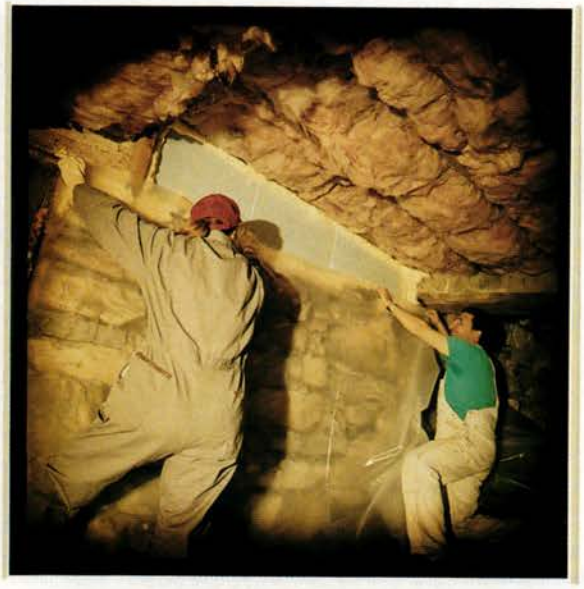
Insulation contractors have to fill a wall from the outside when there is no access from the attic or when internal bracing or blocking means a wall must be filled from two or more levels. The best way to do any of this outside work is to **remove the siding** first and then drill into the sheathing. (Don't hire a contractor who suggests drilling holes in the siding and then closing them afterward with wood plugs.) Right: Lugano starts by gently working a pry bar under a course of siding, moving down the length of it until a whole board is loosened. Middle: With a powerful ½-inch drill, he makes a **2-inch hole** in each cavity. Far right: The cellulose tube is fed in and positioned for blowing.

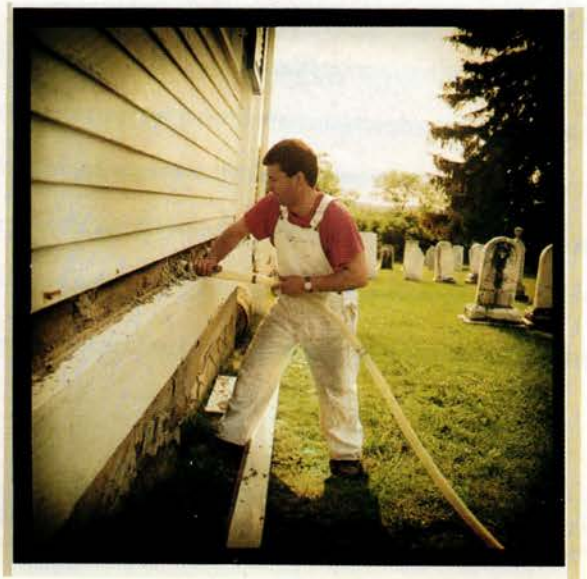


Lugano seals gaps wider than ⅜ of an inch with **polyurethane foam**. He pokes the tube into the opening; the foam expands inside.

In homes with forced-air heating (and/or central air conditioning), **leaky ducts** can cut the system's efficiency by 25 percent or more. Above left: Helen Lugano butters a joint with RCD #6, a water-based, fiber-reinforced mastic. Then she wraps it with mesh-type drywall tape, finishing with another layer of mastic. Above right: Duct insulation is variously sized to fit around standard ducts. Seams are closed with reinforced foil tape.







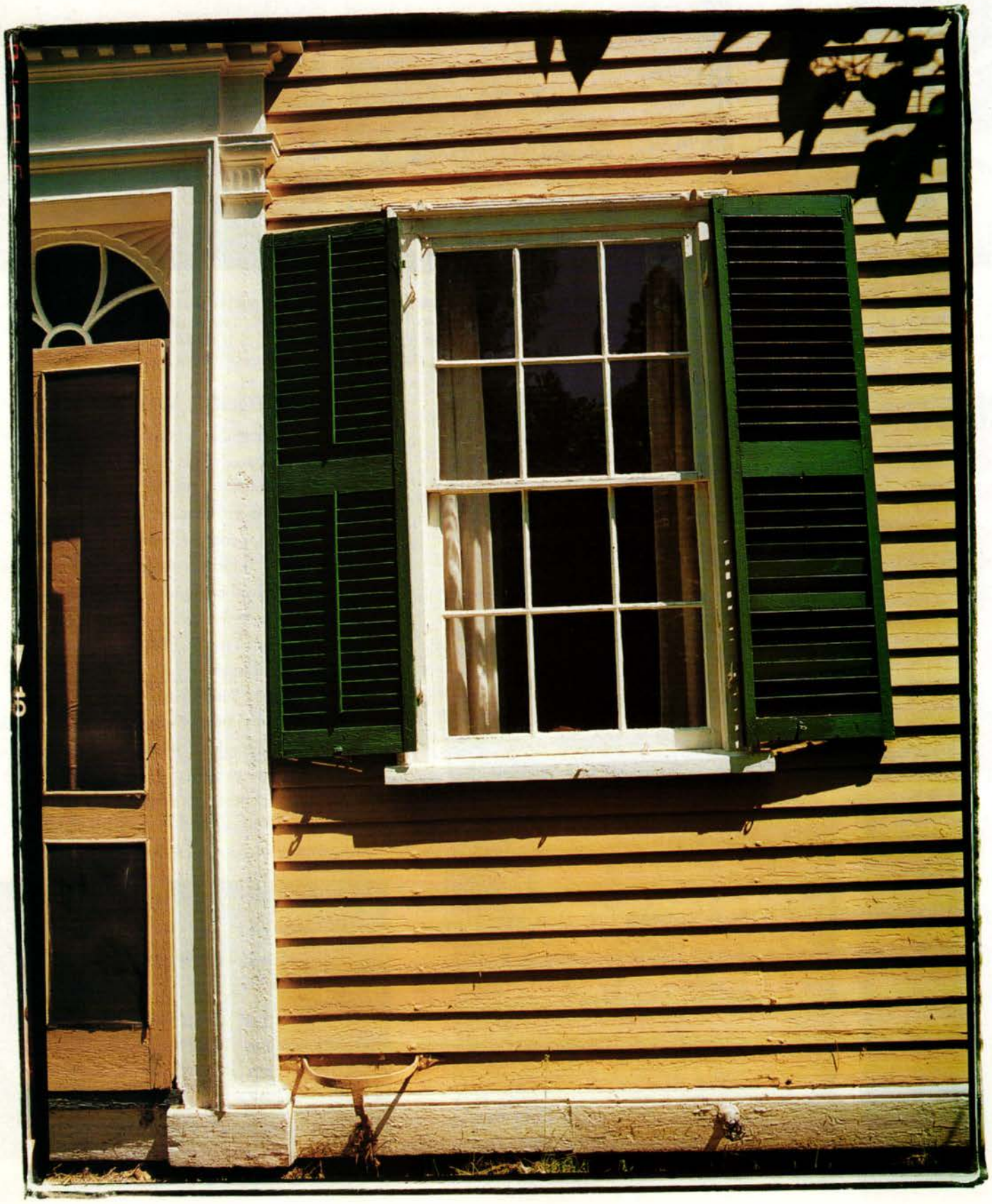
seeing through walls

John Snell has looked at hundreds of houses as few others can; he's bared walls and revealed otherwise invisible flaws. Snell is a thermographer: Using an infrared video camera, he scans a structure's "thermal shell" to search for cold air invasions, heat leaks and insulation voids. "Once we traced a path of cold air from an outside wall to some frozen plumbing 30 feet inside. The engineer couldn't believe it." We asked Snell to tape Fred Lugano pumping cellulose into a bay. The dramatic result: The upper section of the thermograph glows with escaping heat, and the cellulose mound below is clearly visible through the wall. Thermographers can be found through the Yellow Pages; on any insulation project, their work is insurance for contractors and consumers. Snell charges up to $400 per visit; he provides a videotape or stills from his scans and a diagnosis of problems.

♦ *See Directory,* on page 130, *for lists and addresses*

TRUE HISTO

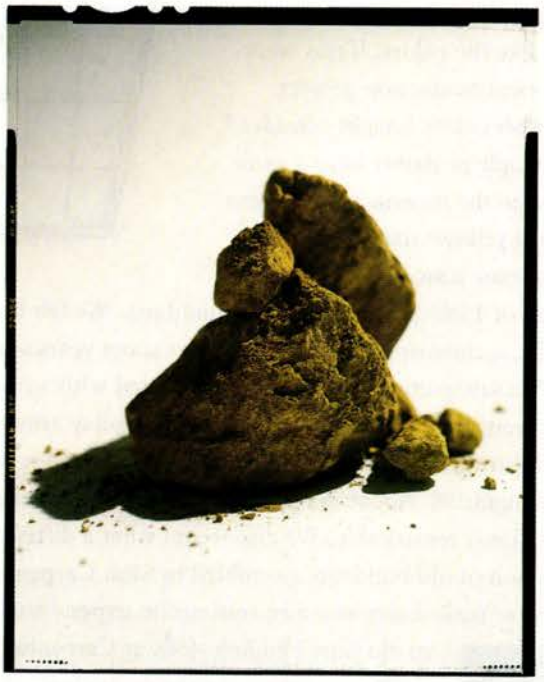
Why early American hou



RIC COLORS

ses looked as they did

Before paint came in a can, tinted with precise squirts of universal colorants, it was mixed one batch at a time from materials that mostly came from the earth. To folks who wonder what their old houses might have looked like when new, that's a handy fact. Know what used to go into paint, and you'll see why certain colors simply were not available. You'll also realize no precise list of colors is "correct." Intensity and tone varied according to how the pigments were made, the proportions that were used and even how hard the painter was willing to work. Prussian blue, for example, gets darker the more it is ground or brushed. Maybe it was painter fatigue that resulted in each of the blue rooms at Mount Vernon turning out a different shade. George Washington was not pleased—he wrote a note to that effect—but for people like Deborah and Kevin Guinee, such news could be a liberating revelation. Sometime this fall, they must select colors to use in painting their half-and-half Federal/Victorian house in Salem, Massachusetts, the centerpiece of this season's *This Old House* broadcasts. They can select colors they like, secure in the knowledge that within certain limits, anything from bright to pastel could be appropriate. "Painting," observes one historic paint expert, "was the art of the possible."

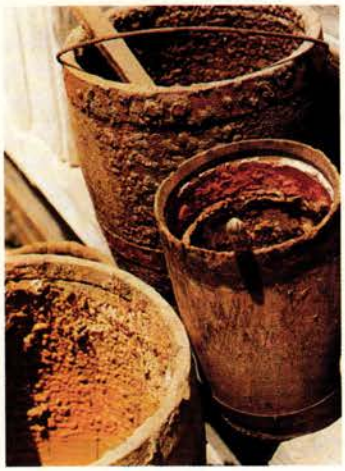


THIS PAGE: Georgia earth like this was used for yellow ocher paint. OPPOSITE PAGE: This 1748 house in Deerfield, Massachusetts, had yellow ocher clapboards, white lead trim and a verdigris (green) varnish over its gray shutters in the early 1800s. The look is now reproduced with modern paints.

By Jeanne Huber

Photographs by Melanie Acevedo and Darrin Haddad

Four years ago, *This Old House* viewers watched as Chris Hagger went before the Wayland Historic District Commission for permission to return his family's house to the colors it wore in 1888: medium yellow with trim in cream and shutters in park-bench green. Some at the meeting in the small Massachusetts town were aghast. "When people think about New England and New England house colors, they think white," noted one resident. Maybe "something softer," urged a commissioner, suggesting that medium yellow was "too intense a color for such an enormous structure." Finally Hagger was asked whether he actually liked the color scheme, revealed in a laboratory analysis by the Society for the Preservation of New England Antiquities. "Um...," he said. Asked again, he replied: "I like the colors. If this were not a historical renovation project, there are other colors I might consider."



Old paint made with yellow and red ocher and red lead crusts buckets in Eastfield Village's historical collection.

Many people probably have a similar reaction to the browns, olive greens and mustard yellows that have been painted on some historically correct restorations of 18th- and 19th-century buildings. We felt that way too when we began to research this story. Then we talked to Georg Kremer, Ph.D., a chemist in Germany who has spent years searching out the pits that once supplied pigments to Europe and early North America. We saw pictures of his home, protected with a lime-based paint he made from natural pigments, and were stunned. Earth pigments suddenly seemed far more pleasing than present-day attempts at re-creating old colors.

We visited Chris Ohrstrom, president of Historic Paints Ltd., a tiny company in East Meredith, New York, that sells interior paints made with linseed oil and mostly traditional pigments. Above his paint lab is an 1830s tavern that he restored. Woodwork brushed with his company's paint glows with a soft sheen that is remarkable. We discovered what a difference texture could make.

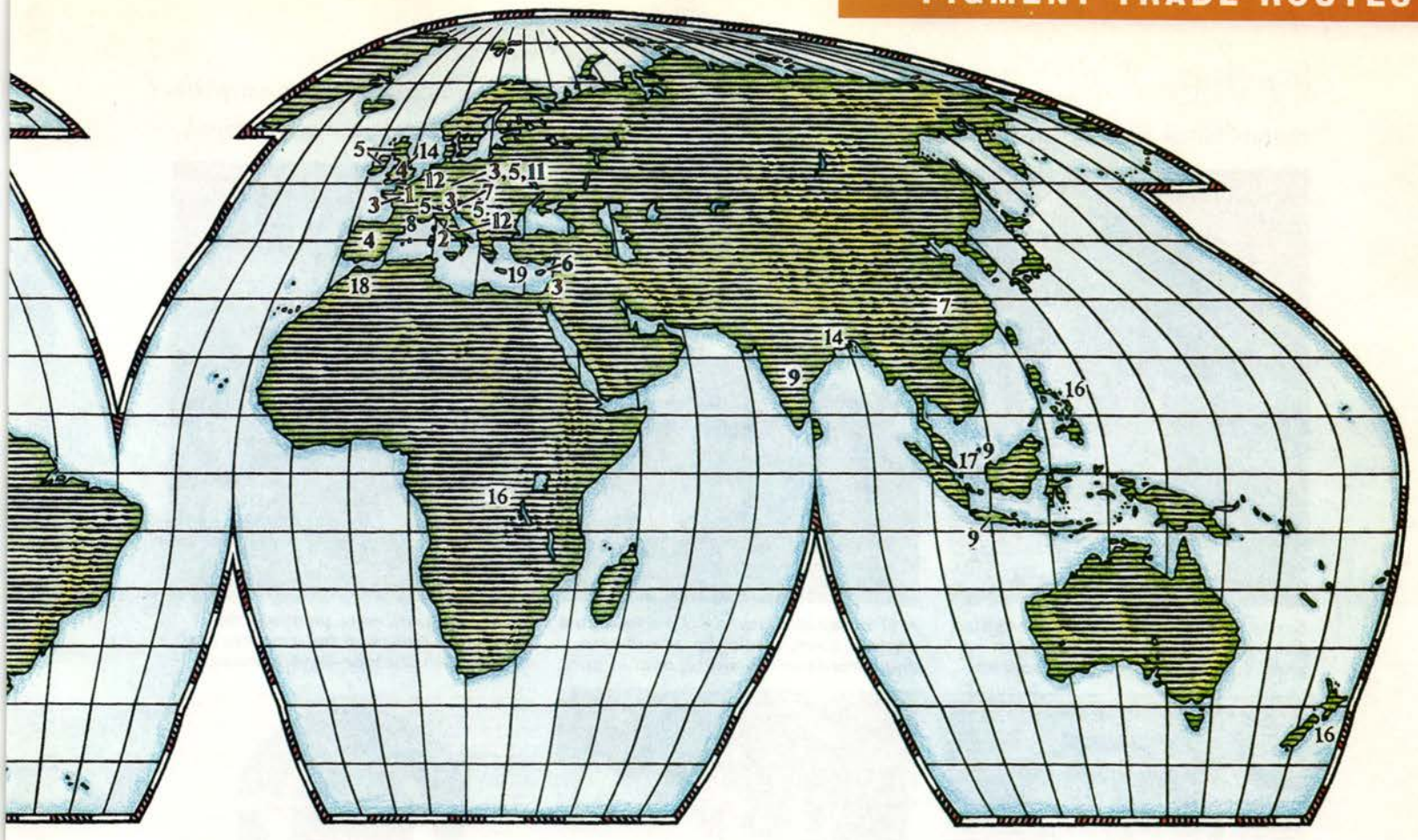
And we went to Eastfield Village, a collection of old buildings assembled by Don Carpentier over the past 20 years on what used to be his father's "east field" in East Nassau, New York. Every summer, restoration experts and other curious folks show up to take classes in old-time building skills at Carpentier's school of historic construction techniques.

Paint made from natural pigments covers Georg Kremer's house in Aichstetten, Germany.

We were there for the paint class, at which Matthew Mosca, an adviser to Historic Paints, demonstrated how to grind and grind and grind to get pigment particles small enough to mesh with oil. Given that chore, it was easy to see why most interior walls used to be painted instead with water-based paints. Mosca stirred up a quantity of milk, lime, linseed oil, chalk and bone black to make pale gray paint for the upper walls of a room in an Eastfield tavern building. An earlier class had already painted the room's lower walls with a glue-based light pink. Both colors dried matte and somewhat streaky—just what Carpentier wanted. This kind of technique, something less than factory perfect, could easily be more beautiful.

Resin, the pitch of various conifers, was dissolved in different solvents to make varnish and added to oil paint to make enamel. Clockwise from top right: Manila copal, damar, mastic, sandarac, elemi. Sandarac and some copals were dissolved in alcohol, other copals in oil and mastic in turpentine.

HOUSE PHOTOGRAPH COURTESY OF GEORG KREMER



LEGEND

SOME MATERIALS, SUCH AS VENETIAN RED, ARE FOUND THROUGHOUT THE WORLD BUT ARE STILL NAMED FOR THE PLACE WHERE THEY FIRST ENTERED TRADE.

· PIGMENTS ·

1 **PARIS YELLOW**: *France*.
2 **RAW SIENNA**: *SIENNA, Italy*.
3 **VENETIAN RED**: *VENICE, Italy; France; Germany; DAMASCUS, Syria*.
4 **SPANISH BROWN**: *Spain; England*.
5 **TERRE VERTE**: *VERONA, Italy; Saxony (Germany); Hungary; Great Britain; Ireland*.
6 **UMBER**: *Cyprus; Virginia*.
7 **VERMILION**: *China; TRIESTE, Serbo-Croatia; SAN JOSE, California (after 1850)*.
8 **VERDIGRIS**: *MONTPELLIER, France*.
9 **INDIGO**: *India; Malaysia; Java; Guatemala; Jamaica; South Carolina*.
10 **COCHINEAL**: *Central and South America, especially OAXACA, Mexico*.
11 **PRUSSIAN BLUE**: *Prussia (Germany)*.
12 **WHITE LEAD**: *Holland; Italy; BALTIMORE, Maryland*.
13 **CHROME YELLOW**: *BALTIMORE, Maryland*.

· OTHER MATERIALS ·

14 **LINSEED OIL**: *CALCUTTA, India; England; United States*.
15 **TURPENTINE**: *North Carolina; Georgia*.
16 **COPAL**, *a resin: Philippines; Congo; New Zealand; the Caribbean; Central America; northern South America*.
17 **EAST INDIES RESIN**: *Singapore*.
18 **SANDARAC**, *a resin: ATLAS MOUNTAINS, North America*.
19 **MASTIC**, *a resin: island of CHIOS, Greece*.

old recipe books

Modern paint experts have learned much by studying paint manuals of the past. One of the most useful is *Directions for House and Ship Painting,* published by Hezekiah Reynolds in 1812. It's believed to be the first paint book written in this country. The American Antiquarian Society of Worcester, Massachusetts, owns this copy, one of two known.

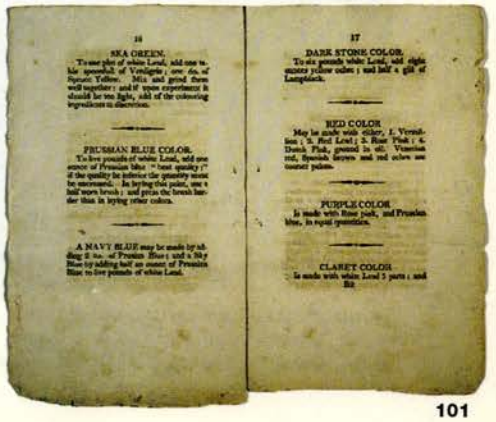
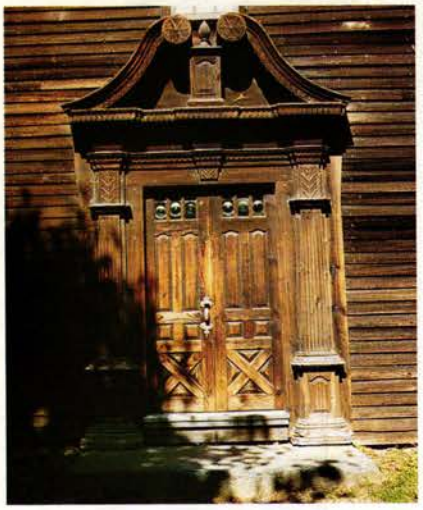
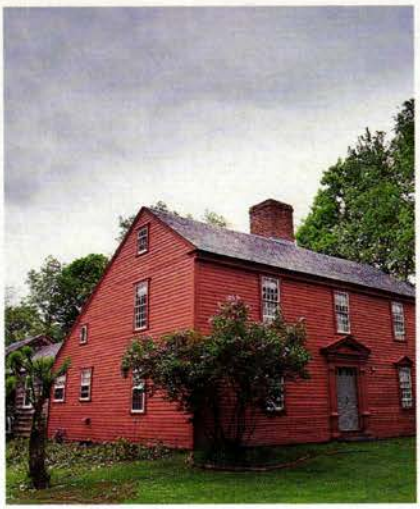


ILLUSTRATION BY CLANCY GIBSON

In the 1700s, homes in this Massachusetts town were bare or bright. With the early 19th-century Greek Revival, virtually every house was painted white. No longer. Old colors have been restored.

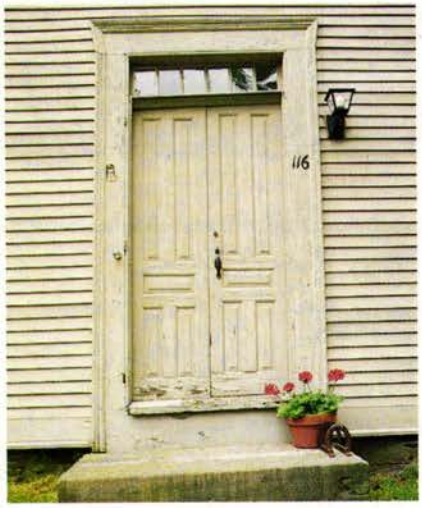


Earliest houses, like Parson Jonathan Ashley house of 1733, were often bare. Traces of 1830s white remain.



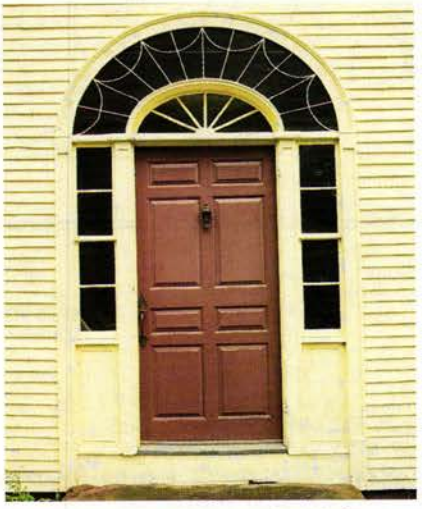
A 1765 saltbox, moved to Deerfield from another town, is minium, or red lead color. Windows are white, door is gray.

When exteriors were painted, trim came first. Venetian red protects sash at the 1743 Sheldon-Hawks house.

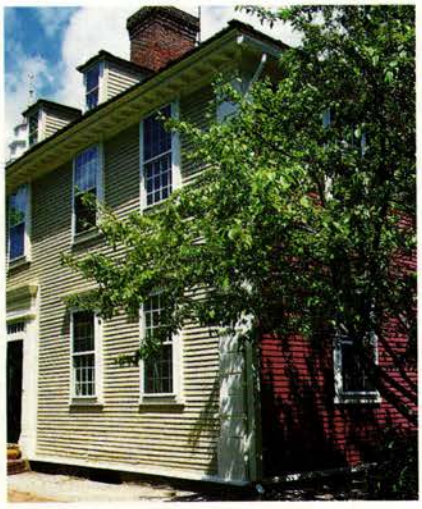


Bardwell-Humphrey house of 1771 has a putty color appropriate to the period. The original color isn't known.

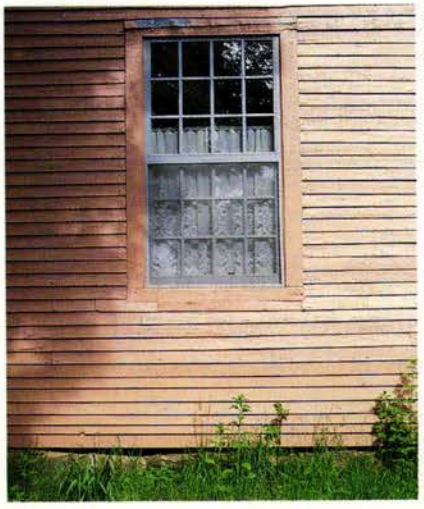
Hinsdale and Anna Williams house, white with green shutters since an 1817 remodeling, has gilded fanlight.



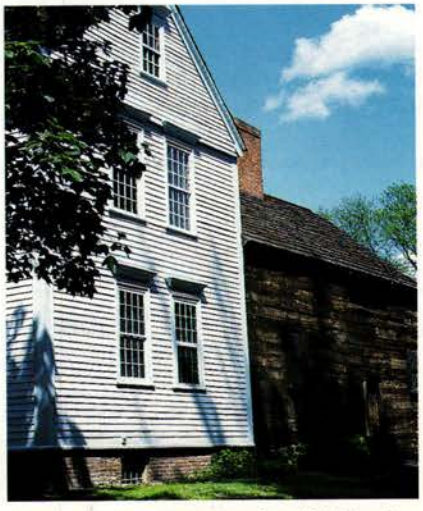
David Dickinson house of 1783 has 1800s door surround. Second floor hits fanlight, so glass is painted black.



Houses often had stylish colors in front, cheap Spanish brown in back. Here, the 1768 Joseph Barnard house.



Rossiter house of 1797 is salmon, a color that could be made by mixing red ocher and white lead paint.



Wells-Thorn house has its 1800 look: The front, built in 1751, is "light sky blue"; original 1725 wing is bare.

Most people, though, aren't about to make their own paint. We want nonstreaky, fast-drying stuff that comes in a can. "Latex acrylic does really great things," paint expert Frank Welsh says. "In my own house, it's what I'd use." But what color?

One way to answer this question is to hire someone like Welsh or Mosca. For between $500 and $1,000, they'll search for and remove undisturbed paint blobs and examine them under a microscope. They'll determine whether the bottom paint layer was the first on the house—or just the first since it was last stripped—and whether it is a faded or yellowed version of some originally brighter color. (Welsh will analyze a submitted sample for $50.) With luck you'll end up like Hagger did, with color swatches a paint store can match.

The other way is to learn something about exterior paint styles and paint materials and then just wing it.

The earliest homes in America were bare outside. By the 1700s, color had become common in cities but was still rare in the countryside. Bright colors prevailed before the Revolution, gradually giving way to lighter colors after the war. By the 1830s, Greek Revival white was the norm, even in the countryside.

Don Carpentier freshens house trim with whitewash.

Softer earth colors came into vogue in the mid-1800s, and by the Victorian period, dark green and dark brown were the fashion. Interestingly, the paint palette varied little among the colonies, regardless of whether they were tied to England, Spain, France or even Russia. The Orthodox bishop's house in Sitka, Alaska, was painted mostly in yellow ocher.

Even after paint began to be sold in cans in the 1860s, many painters mixed their own. And whether found in a can or mixed from scratch, the ingredients were mostly what they had been through the ages. The invention of synthetic pigments is what really opened up a whole rainbow of options—and at the same time began to close some doors.

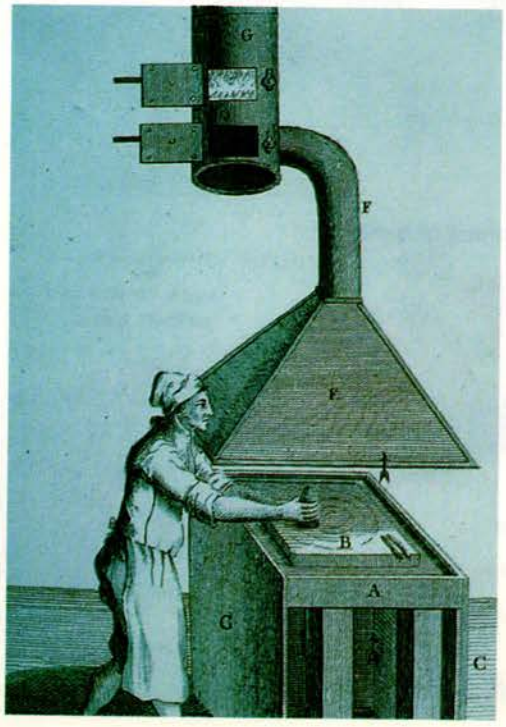
No longer do most people have any idea of what goes into paint, or any thought that they can adapt it as they like.

During one break at Eastfield, we talked to Carpentier about the possibility of mixing some of the old pigments into modern paints as a way of getting the best of both worlds. Just what he had done inside another building, it turned out. The walls were white latex, with a little bone black mixed in. "Guess what?" he said of the strategy. "It was fun."

Early factory-made paints: water-based calcimine and white lead.

lead and arsenic

The highly poisonous nature of many early paint materials was no secret to painters of old. Training manuals often described symptoms of "painter's colic" and offered tips about minimizing risks. Some books told which pigments to shun, especially arsenic-laced orpiment (a bright yellow) and Paris green. But lead, with its ability to coat well, dry fast and stay flexible, was too useful to avoid. So painters were urged to be neat and to wash their hands often. *Practical House Painter*, published in 1902, went a bit further: "To guard the stomach, through which you are in the most danger of taking in the poison, make it a rule to keep the mouth closed as much as possible...especially when sandpapering." It went on to urge that painters, while sanding, plug their nostrils with damp sponges. The lead might not kill them, but the lack of air might.



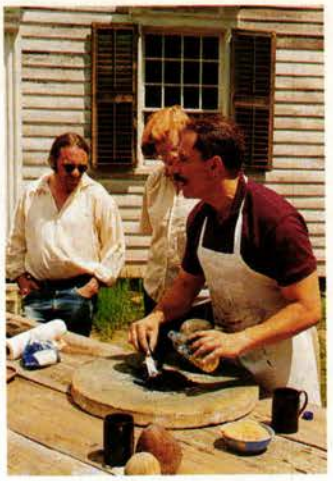
The risk of inhaling lead was greatest before it was mixed with oil. One solution was to grind white lead where dust could be whisked away in a chimney. Note the fire in the duct; its purpose was to increase draft.

COURTESY OF CHRIS OHRSTROM

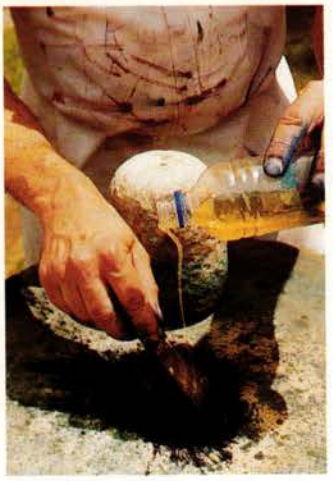
A hands-on lesson with traditional pigments at Eastfield Village, a collection of historic buildings in upstate New York, reveals why old blue paint often showed streaks of lighter blue.

Prussian blue is available today, just as in the 1700s.

Pigment is dumped on a slab like those used for centuries.



Teacher Matthew Mosca adds linseed oil to pigment.



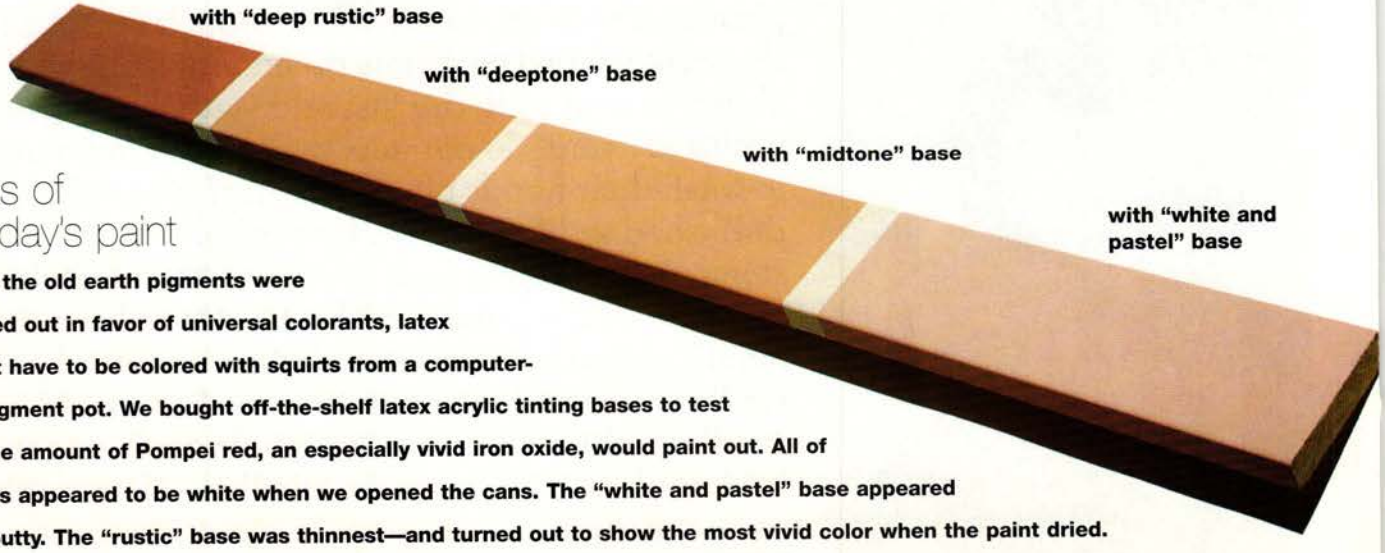
With a putty knife, the oil is blended in to make a paste.

Circular action with a stone muller melds oil and pigment.

The finished blue, ready for addition to white paint base.

A bit of blue in a bowl of white titanium dioxide paint.

Typical Prussian blues: Brush action can change the color.



Pigments of old in today's paint

Even though the old earth pigments were mostly phased out in favor of universal colorants, latex paint doesn't have to be colored with squirts from a computer-controlled pigment pot. We bought off-the-shelf latex acrylic tinting bases to test how the same amount of Pompei red, an especially vivid iron oxide, would paint out. All of the tint bases appeared to be white when we opened the cans. The "white and pastel" base appeared as thick as putty. The "rustic" base was thinnest—and turned out to show the most vivid color when the paint dried.

♦ *See Directory,* on page 130, *for lists and addresses*

Historic Paint

The **pigments** and **binders** that gave early paint its **color**

Chart

Fold out this insert to view the chart

earth-based pigments

burnt **umber**

Umber, from the Latin word for "shadow," is a dull brown or greenish-brown clay when dug. Roasting deepens the color. It contains an iron oxide (thus its reddish tint) and a manganese oxide (the source of its brown). It was often painted on trim in Georgian paneled rooms or combed on doors to simulate mahogany grain.

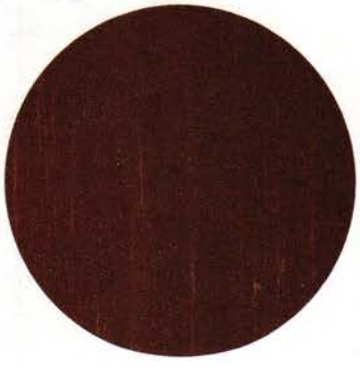
burnt umber from Cyprus

venetian **red**

Venetian red was one common name for earth rich in iron oxide. It provided the "barn red" so popular for exteriors.

iron ore from France

spanish **brown**



Spanish brown was made from a variety of less brilliant iron oxides. Used as a primer and a cheap finish coat.

red jasper

red earth from Tuscany

hematite

terre **verte**

French for "green earth." Made from a variety of rocks long thought to contain copper. Now we know the color comes from iron silicate. Somewhat drab and

transparent, terre verte was mostly replaced after the mid-1800s by chrome green, a combination of man-made chrome yellow and Prussian blue.

celadonite

Verona green

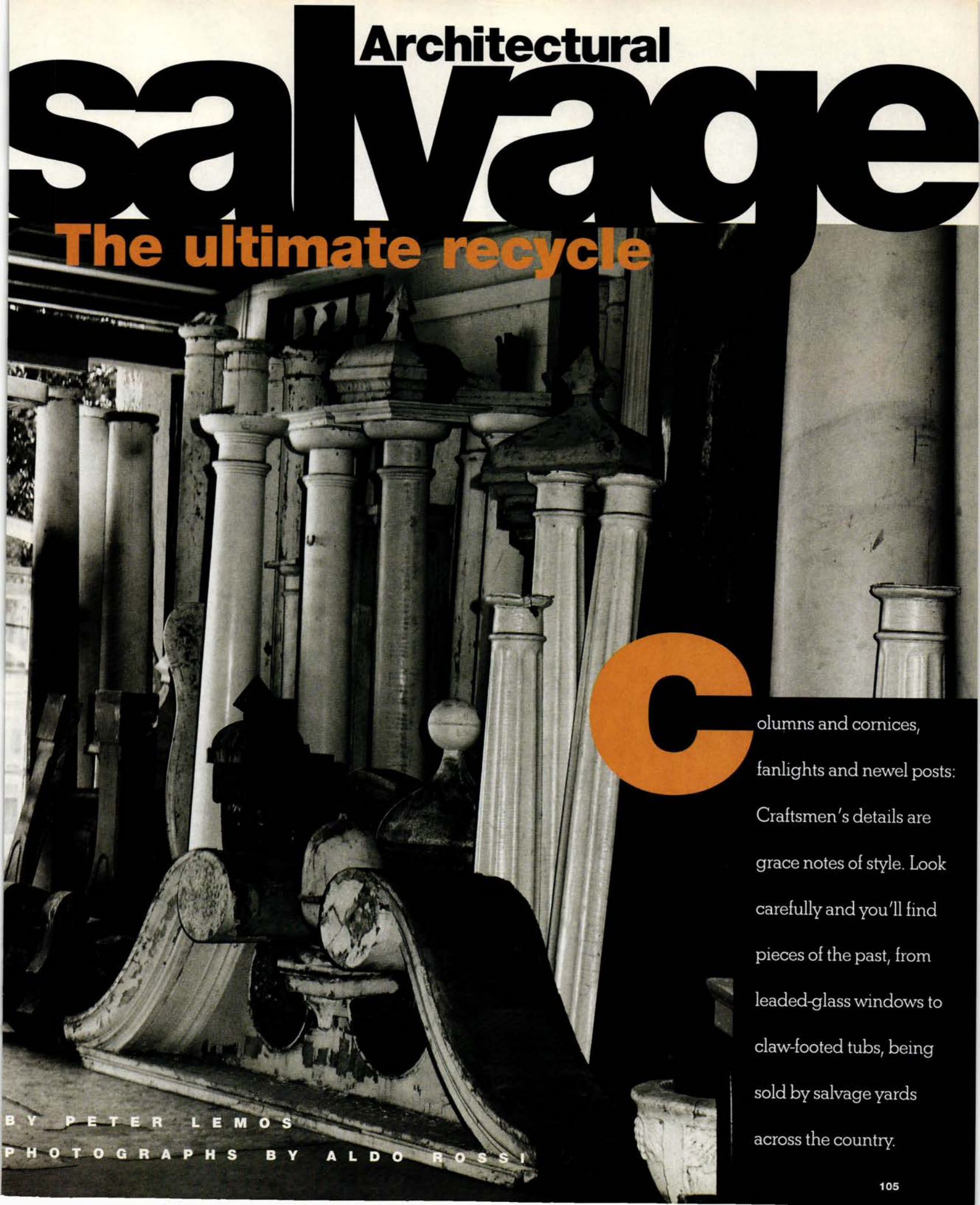
yellow **ocher**

Yellow ocher is the most common iron oxide. Often tinged with brown or orange, it was sold under a variety of names, including spruce yellow and French ocher. Early paint books proclaimed the imported varieties superior. Popular for walls and trim inside and out, it could also be mixed with white to make straw, stone or cream colors. It was often roasted to make an artificial Venetian red.

gold ocher from Spain

Architectural salvage

The ultimate recycle



Columns and cornices, fanlights and newel posts: Craftsmen's details are grace notes of style. Look carefully and you'll find pieces of the past, from leaded-glass windows to claw-footed tubs, being sold by salvage yards across the country.

BY PETER LEMOS

PHOTOGRAPHS BY ALDO ROSSI

ANTIQUE SHOPS OFTEN have isolated bits and pieces of old houses, as do commercial demolition companies, which may salvage parts from their wrecking jobs. With time on your hands you can nose about promising-looking renovation sites as a save-it-yourselfer, but the most reliable source of architectural salvage is a specialist like The Brass Knob in Washington, D.C. Serious salvage yards don't wait for things to turn up serendipitously—they're constantly on the prowl and have their own workers to handle the dismantling.

Demolish This House

SALVAGE MEANS RESCUE. It also means saving money and time. Period renovations, like the Guinees' house in Salem (see page 72), often require items no longer made and expensive to reproduce. Victorian brass faucets may have to be sacrificed for lack of a valve stem, and special-order windows may take weeks to arrive. The house shown here is actually an anonymous 1960s box graced with Georgian-or-whatever charm through salvaged items. Those same details will soon be moving again as Brass Knob co-owner Ron Allan (with full beard) and assistant Bill Hopper (with goatee and glasses) strip them out just before the house is demolished to make room for a *new* mansion. Some are relatively easy: Doors are swiftly unhung; columns pop out once props take the overhead weight. Other parts are tricky. Plaster ceiling roses are fragile, and unbuttoning a craftsman-built staircase with a springbar takes the skill of a burglar. But the stair, with its heart-pine treads and risers and cherry balustrade, deserves the extra care: It will cost someone plenty (but save him even more). By day's end, the crew has taken all the gems—mantels, hardwood paneling, windows, hardware, light fixtures, even a large gilt mirror—off to the warehouse.

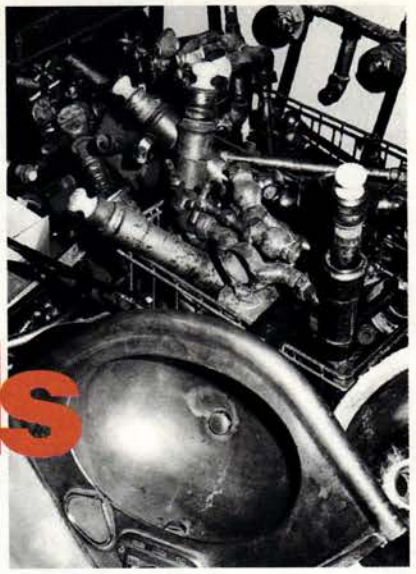
Warehouse of Recycled Goods

The Brass Knob grew from the pack-rat tendencies of co-owner Ron Allan, a man constitutionally unable to throw out anything even remotely useful, and the essential sanity of his wife, Kathy, who understood that, as the British say, "Where there's muck, there's brass."

In 1973, Allan began collecting attractive-looking bits and pieces and stashing them away against the day he'd build their dream house. It was all too easy: George Washington University owned many fine older homes in the area and periodically knocked a couple down during expansion programs. Allan worked in GWU's sign-making department. "From that position I got first wind of any upcoming demolition jobs," he says. Thus he was ideally situated to scamper in and harvest the doorknobs. "I just couldn't bear to see them thrown away like that. What waste!" One day Allan asked himself, "Why don't I take the doors too?" and a magnificent obsession was born. By 1981 he had four rented garages full of the stuff that dreams are made of—though Kathy observed that the house itself had yet to materialize.

When she also observed that house renovation was booming, she suggested Allan go into business with Donetta George, a friend with experience and contacts in the interior decorating field. The Brass Knob opened in November 1981 as one of the first upscale stores in D.C.'s architecturally rich Adams-Morgan neighborhood, helping it become a hot spot to rival Georgetown. Eventually, two warehouses totaling 16,000 square feet were needed, as well as one full-time employee and several part-timers.

The bulk of The Brass Knob's stock comes from the gritty work of going out and pulling the stuff out of old houses, or rooms of houses, that are about to disappear. Allan, who oversees the salvage operations, combs the contents of 10 whole-



Pullman sink (from a train lavatory) atop a jumbled heap.

These stone stair parts were retrieved from old row houses.

Faucets and components line the walls of the plumbing room.

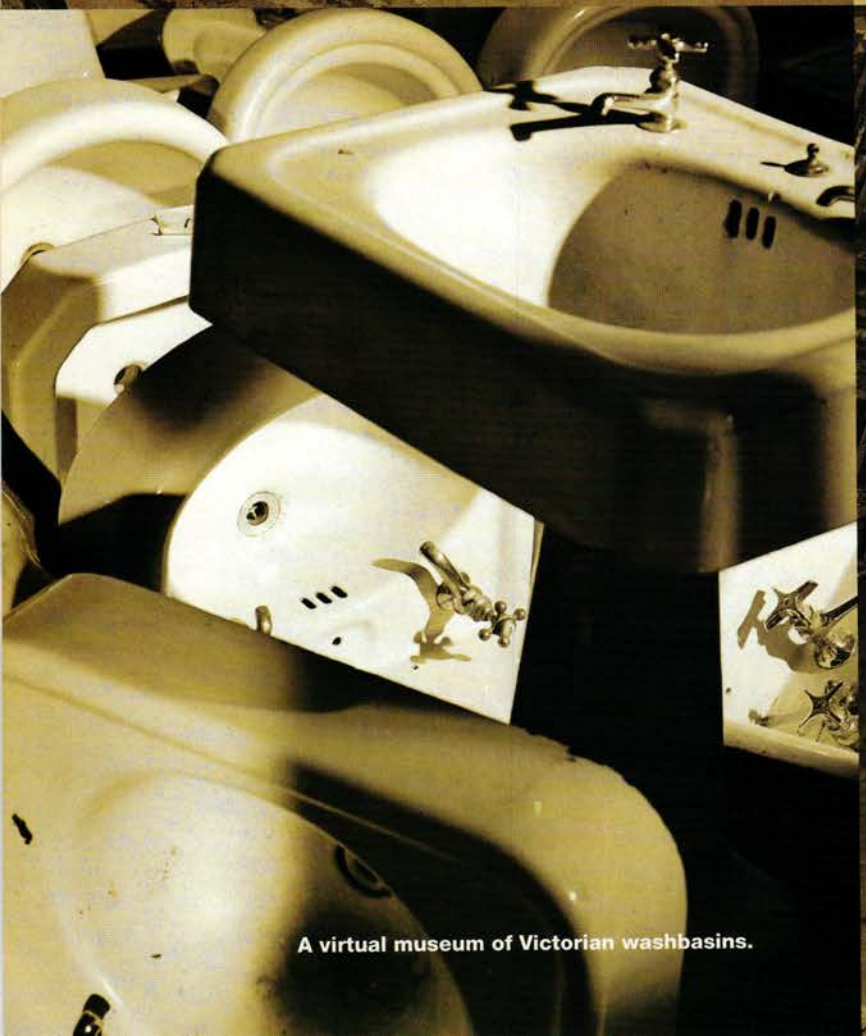
Codes & Cautions

New building codes can be hostile to old fixtures and fittings. Victorian toilets are charming but water wasteful; federal law requires newly installed toilets to use just 1.6 gallons per flush. Faucets can be trouble if spouts clear the sink by less than an inch (2 inches for tubs). And those handsome etched-glass door panels? In some situations, entry doors are required by local building codes to contain shatterproof glass. So always review your municipality's codes before you write the check.

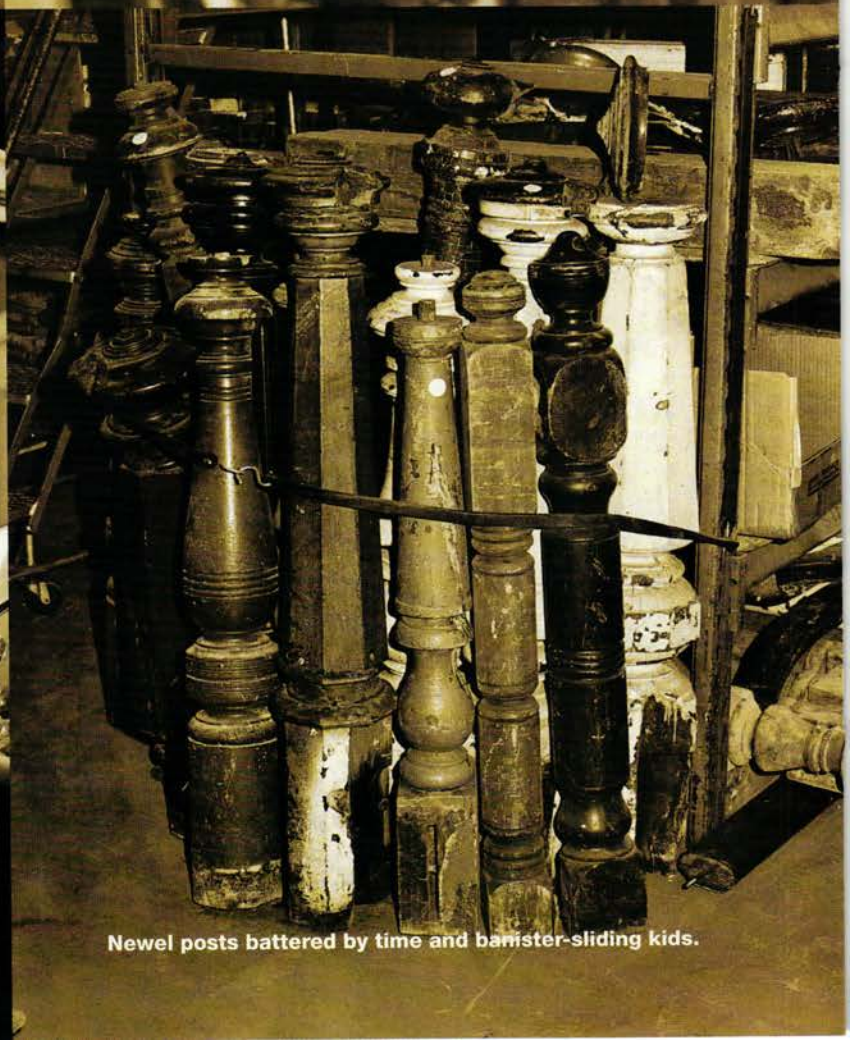
Allan kept old cast-iron tubs in a field and moved them to the warehouse when they proved surprisingly hot commodities.

Once junked, cast-iron radiators are now restorers' gold.

The end of one iron fence—or the beginning of another.



A virtual museum of Victorian washbasins.



Newel posts battered by time and banister-sliding kids.

This is the drawer where we found the faucet that we show being restored on page 55.

Columns, capitals and cornices added grandeur to houses then as now.

Stone corbels and finials are sought after today by garden designers.

house demolitions and dozens of renovations a year.

"Time is the biggest factor," he says. "I look things over very carefully, because often my bid on a given item will depend on whether it'll take me two hours to pull it out or 10 minutes. In the end, I try to bid on jobs as a whole rather than by the item—it's much more efficient." Stamina counts too. "You can't make money in this business if you stop when you're tired. Or even when you're dead tired."

But the critical thing is winning the trust of contractors, who sell him discarded goods. "They don't want anybody who'll take advantage of them, but more important, they don't want amateurs who'll go on a job site and get hurt or get in the way and slow them down," Allan says. "I make sure I deal with the proper contact and that they never have to worry about my being there. You have to be careful—but fast too. I've worked on houses where I've pulled out windows just a couple of steps ahead of the bulldozer. One even collapsed on a backhoe just after I finished up. It's kind of exciting."

As with most salvage dealers, The Brass Knob gets another part of its inventory from "pickers," small wholesalers who sell bits and pieces of salvage that they in turn picked up from contractors, demolition crews and even flea markets. To avoid buying stolen house parts, Allan verifies the provenance of each item he buys. He also trades with other dealers. In this manner, The Brass Knob has in the past acquired fountains from Paris and street lamps from Seattle.

"It's nice to never have to wear a tie," Allan says of his work. "On the other hand, sometimes when we start on a job the neighbors think we're vandals. Customers can be skeptical too. The professionals—craftsmen and decorators—know what we're all about, but some of the do-it-yourselfers act as if we're gypsies running a junkyard.

"Maybe we'd have a better image if we had our own jargon," he says. "We might get a little more respect if we talked about vestigial extractions, vertical temple supports and hardwood futures instead of pulling out fixtures, old columns and secondhand lumber."

Salvage Your Own

Contractors often accept spot cash for recyclable items; keep your eyes peeled for upcoming demolitions (dumpsters are always promising signs). If not allowed to remove stuff yourself (usually due to insurance risk), make the deal contingent on undamaged removal with the contractor's help. And check community "big trash" days, when hard-to-jettison items are set out. We got a turn-of-the-century pedestal sink free that way; it would have cost $300 or more from a dealer.

PHOTOGRAPHS BY MARK WEISS

Catalog

What can you get from architectural salvage yards? We dug into the Yellow Pages (printed and CD-ROM versions) and scoured the country for those we thought were doing a good job of preserving pieces of the past. We asked each to send us representative samples of their wares—an understandably difficult task. We also learned that the Federal Express freight service accepts items up to 1,500 pounds. Here's our own own catalog of salvaged specialties.

1. Mantel, circa 1850. Dip-stripping reveals plain pine, not upscale oak or mahogany; $600, Irreplaceable Artifacts, New York, New York.

2. Cast-iron registers, circa 1890. The arched one was a wall-mounted heat outlet, the other a floor-fitted cold-air return; $125 each, Decorum Hardware, Portland, Maine.

3. Brass doorknobs and lockset by Eastlake, a highly collectible make, circa 1880; $35 and $125, Ohmega Salvage, Berkeley, California.

4. Brass hinges, circa 1860–1900, with typical elaborate engraving; $300 to $500 per pair, Adkins Architectural Antiques, Houston, Texas.

5. Wood corner rosettes, circa 1860–1900. They began as a downscale way to avoid mitered corners on door and window molding but later moved upscale as decorative features; $9 each, Adkins Architectural Antiques.

6. Leaded clear-glass window, emphasizing tracery rather than color, circa 1880; $850, Irreplaceable Artifacts.

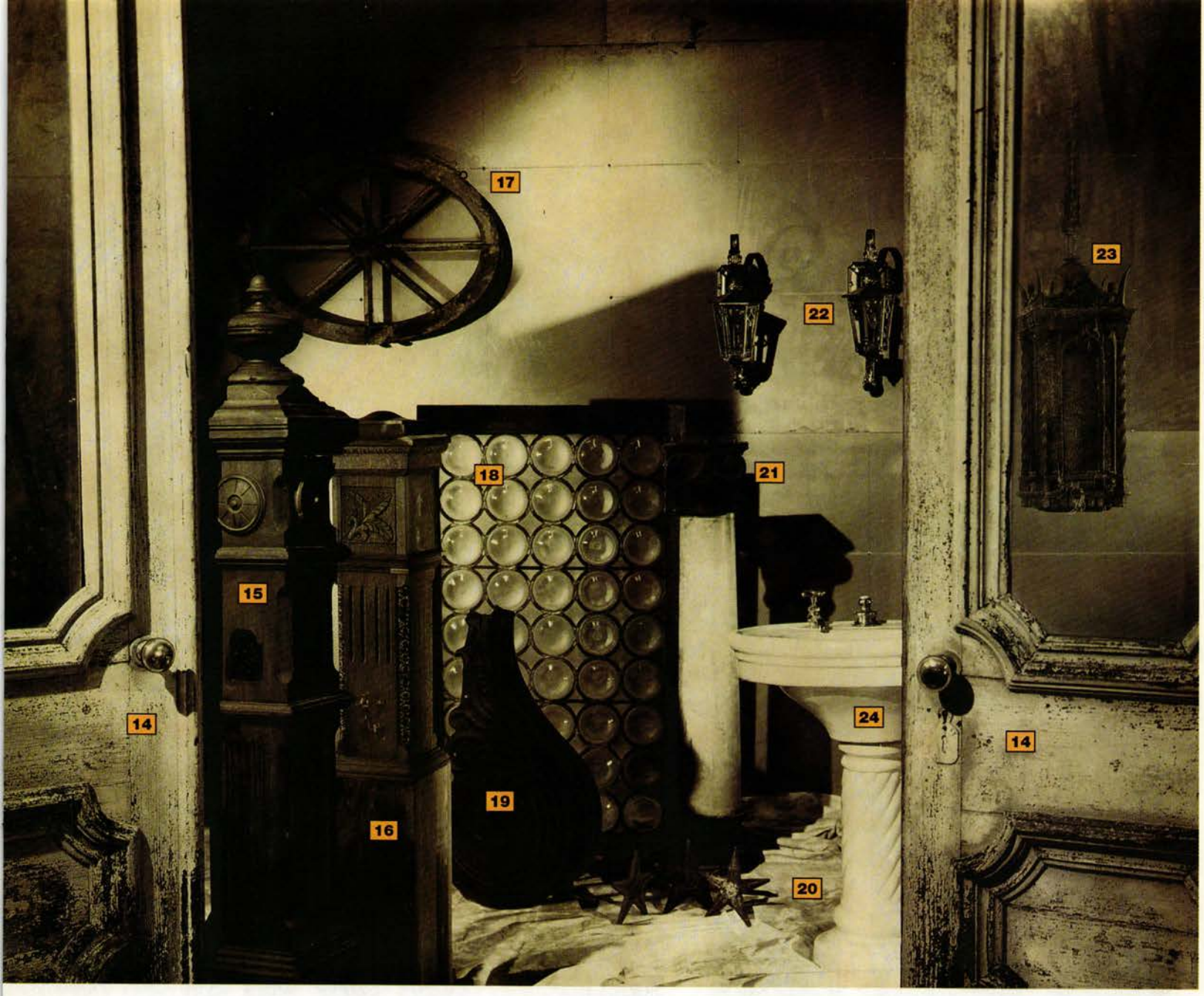
7. Cypress window cornice from Louisiana, circa 1910, painted in Gulf Coast green; $125, The Bank, New Orleans, Louisiana.

8. Lightning rod with weather vane and glass ball (it broke when struck to prove you'd been saved), circa 1890; $250, Olde Theatre Architectural Salvage, Kansas City, Missouri.

9. Cast-bronze lion's-head door knocker, circa 1920, inspired by the traditional lion of Venice; $550, Salvage One, Chicago, Illinois.

10. Terra-cotta decorative facade pieces, circa 1880. Architects ordered the mass-produced pieces by the ton

♦ *See Directory,* on page 130, *for lists and addresses*



from catalogs; $115 to $850 each, Salvage One.

11. Tin roof finial, circa 1890, a staple of finicky Victorian exterior decor; $125, The Brass Knob, Washington, D.C.

12. Art Deco nickel/bronze grate, circa 1930, probably from a large apartment lobby; $690, The Brass Knob.

13. Cypress bracket, circa 1890. Machine-carved detail and fussy pendant say Victorian as surely as the date; $100, The Bank.

14. Wooden doors, circa 1870, with French accents in the deep molding around the arched windows; $2,000 a pair. Hollow glass doorknobs, silvered inside, circa 1880; $75 a pair. All from Florida Victorian Architectural Antiques, Deland, Florida.

15. and 16. Victorian newel posts, circa 1850–1900, show the difference between hand-cut detail and machine carving with mass-produced rosette, finial and trim; $300 to $500, United House Wrecking, Stamford, Connecticut.

17. Oval window (without glass, as found) of a type usually mounted in a gable, circa 1885; $450, Irreplaceable Artifacts.

18. Leaded roundel-pattern Gothic Revival window, circa 1865; $300, Architectural Antiques, Minneapolis, Minnesota.

19. Cast-iron corbel, circa 1880, probably from a commercial building; $500, Ohmega Salvage.

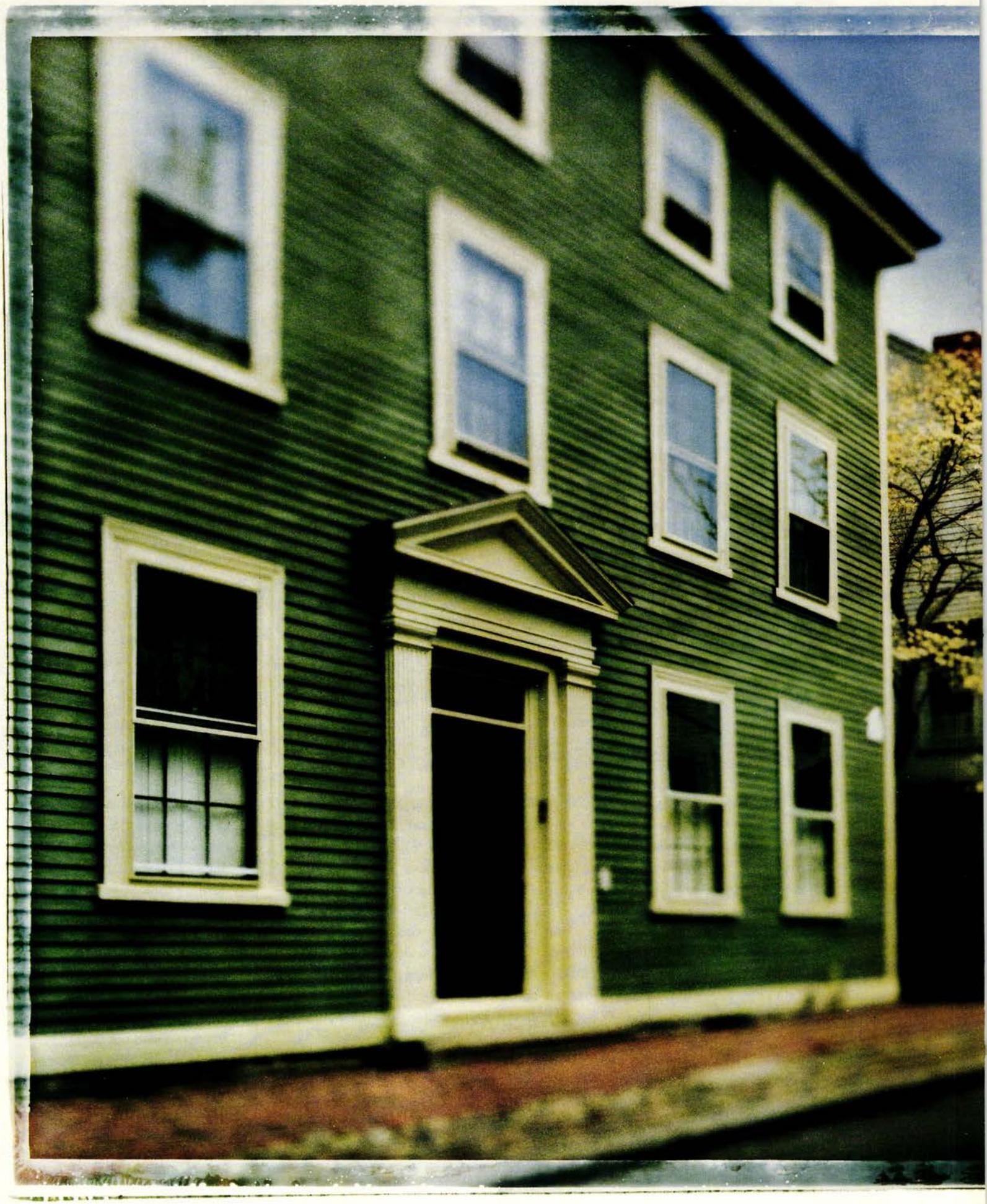
20. Iron star braces, which tied wooden floor joists to bearing brick exterior walls, circa 1860–1900; $9.50 each, Adkins Architectural Antiques.

21. Marble column, circa 1895. Mahogany capital and base suggest indoor use, as in a bar; $500, United House Wrecking.

22. A pair of brass and bronze coach lamps (originally electric, not oil) from a Connecticut mansion, circa 1925; $550, Salvage One.

23. Large hanging coach lantern, also electric, circa 1900. Like the coach lamps, it was not mounted on the carriage but was used to illuminate the portal or porte-cochere where it pulled up; $2,200, Architectural Antiques.

24. Pedestal sink, circa 1915. Its twisted-column, double-rimmed bowl and other details suggest an upscale past; $1,250, Irreplaceable Artifacts.



FEDERAL STYLE

SALEM, MASSACHUSETTS, IS a city forever known for its worst moment—the execution of 19 accused witches in the summer of 1692. Few today are aware of its best moment. From the eve of the Revolutionary War until the War of 1812, Salem was the preeminent trading port of the colonies and of the new federal republic, surpassing Boston, New York and Philadelphia.

The merchants of Salem (including the nation's first millionaire) celebrated their success by building impressive houses in a style now known as Federal. Third-story windows on the facade, elliptical and oval-shaped rooms and curving staircases made Federal houses lighter and more graceful than their gable-roofed Georgian predecessors.

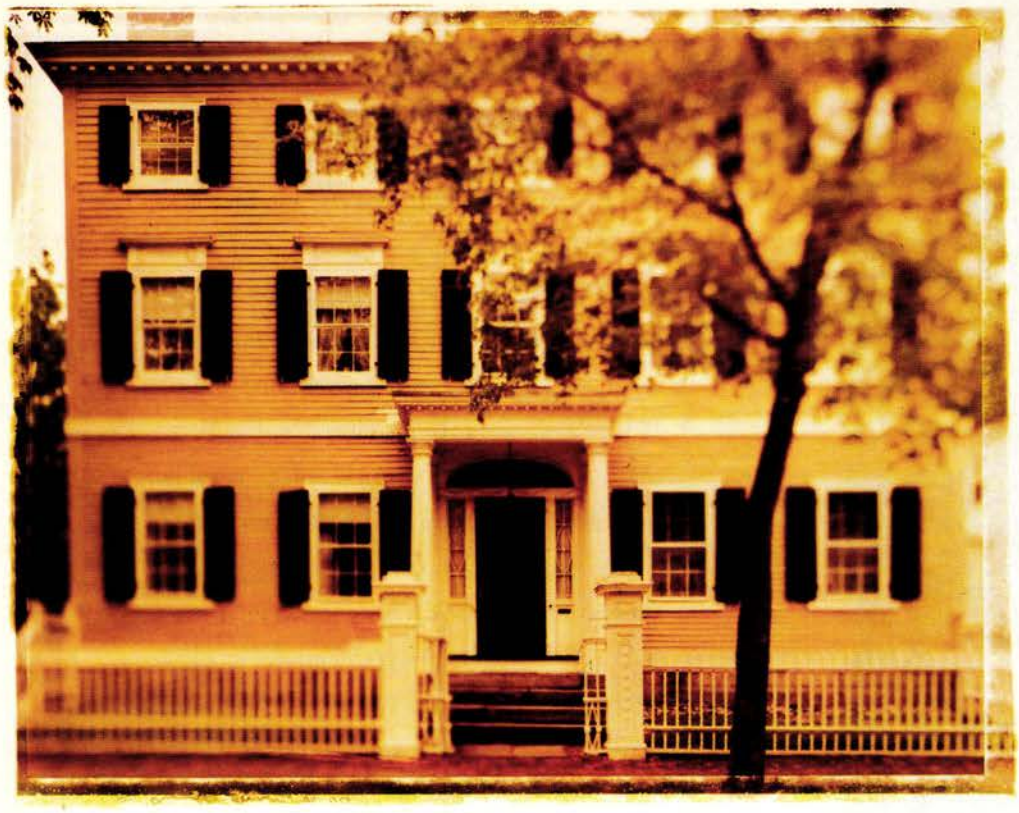
Salem's Federal style was directly adapted from the houses designed by Robert Adam, England's premier architect in the mid-18th century. Craftsman-builder Samuel McIntire was the most influential of those who interpreted Adam's designs for wealthy Salemites.

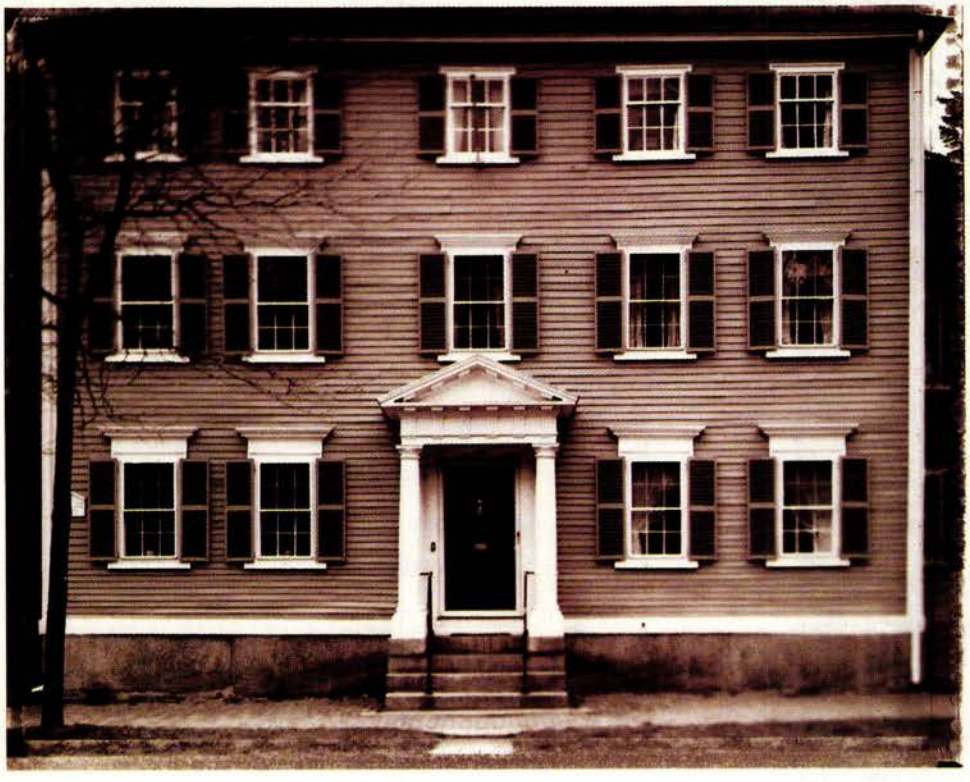
Federal style lasted in the United States from 1780 until 1820. Salem's best moment lasted no longer. By the middle of the 19th century, the city's harbor had been judged too shallow for the newer, faster trading ships of an industrial era. But Salem's proud legacy remains its distinguished collection of Federal-style houses.

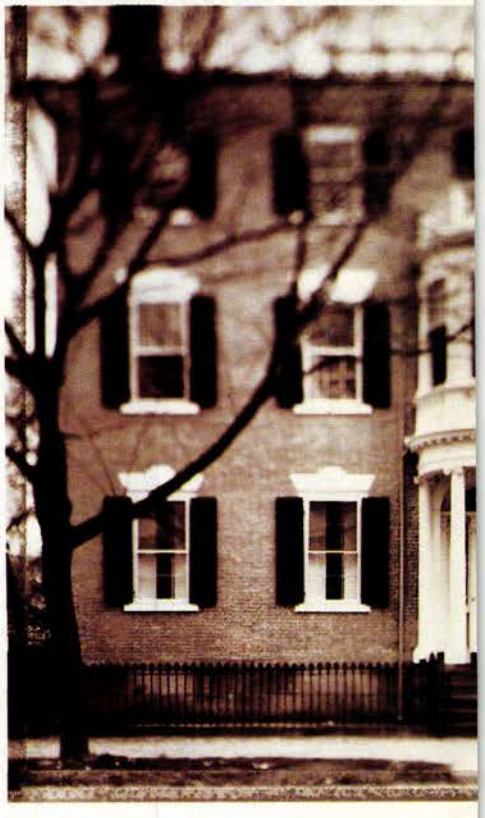
BY PAMELA HARTFORD

PHOTOGRAPHS BY CRAIG CUTLER

Federal houses line the street of the same name in Salem. A block away is the Ropes-Waldo House, the current *This Old House* project under renovation.



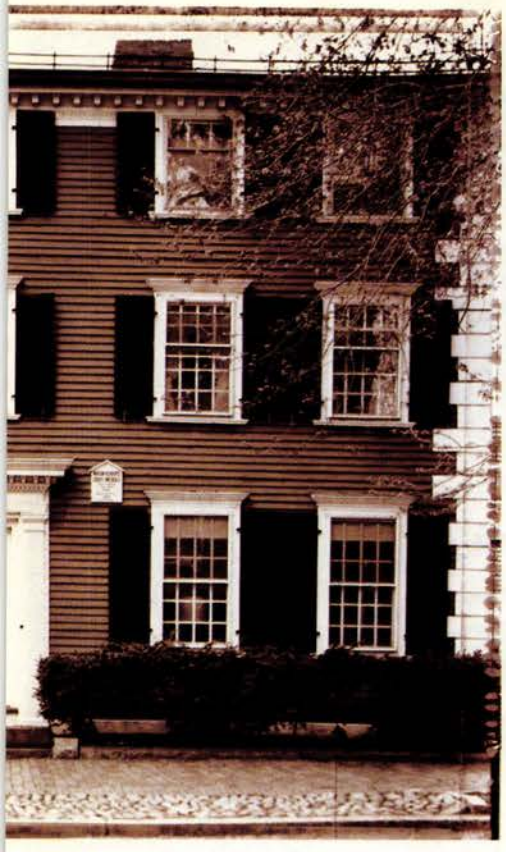


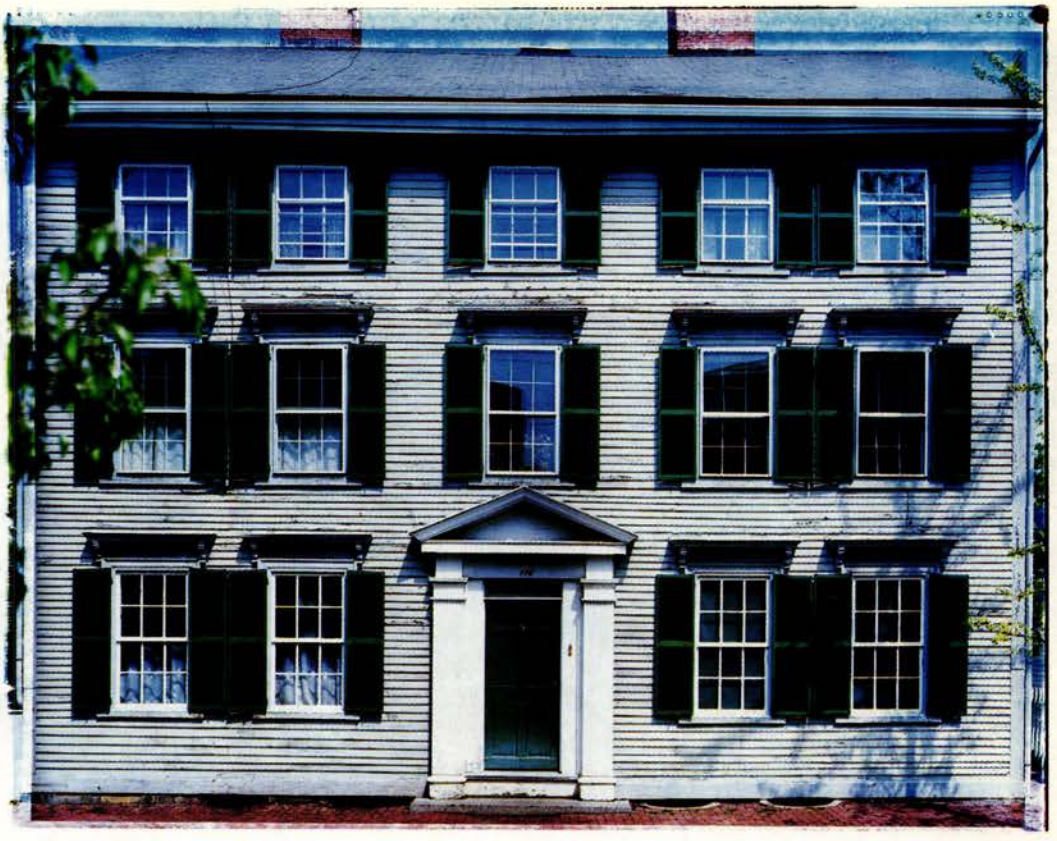


THESE HOUSES ARE in a neighborhood of about 500 houses that has been designated the Samuel McIntire Historic District. While they date from 1690 to 1920, those built in the Federal era (1780–1820) predominate.

Windows and doorways are the most distinctive features of the three-story Federal facade. A cornice or a balustrade define the top edge of the house, and twin chimney stacks rise on either side. The wall surface is left plain, with occasional use of a stringcourse to define the stories; more imposing homes featured plaques with classical motifs of urns, swags or sheaves of wheat.

Clapboard was the choice for exterior sheathing until about 1800, when fear of fire prompted many builders to use brick. Clapboard houses could be decorated with other wood elements such as window casings, cornerboards and full-height pilasters. There were few stonemasons in the colonies, so the marble columns and

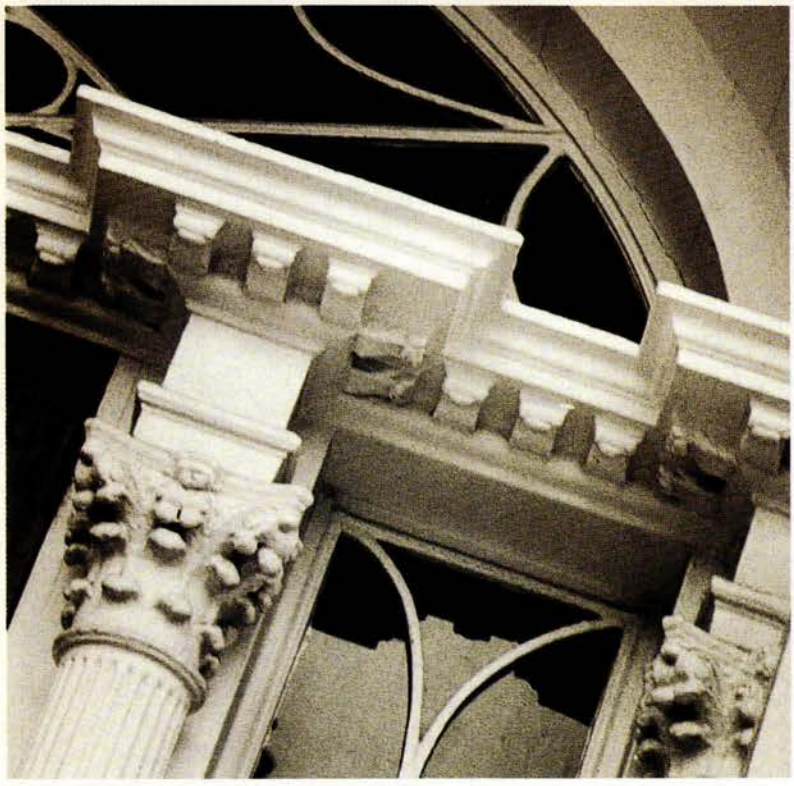




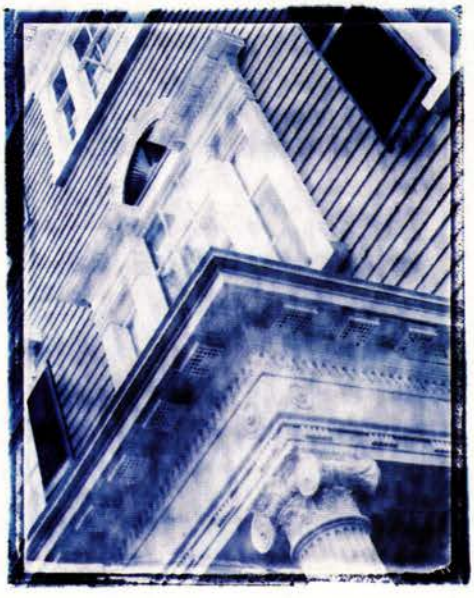
stone urns and balustrades that decorated English houses of the time could not be duplicated in Massachusetts.

Sash windows, invented in 1700, took on new importance in the Federal style. Local manufacture of glass had begun, giving Salem builders an ample and more affordable supply. Thinner muntins (narrow strips of wood that hold the glass panes) and more and bigger windows gave houses a welcoming look. Windows were often graduated—larger on the first floor, slightly smaller on the second and smaller still on the third. They were topped by decorative lintels (on brick houses) or wood casing (on clapboard), and functional blinds were mounted on either side.

The doorway, with its pilasters, entablature and pediment or columned entrance porch, became the focus of the facade. In very elegant houses, the entrance was further enhanced by placing a Palladian window on the second story above the front door.



MANY COLONIAL HOUSES had windowpanes, or "lights," around the front door. McIntire and others of his time embellished this feature until it became a distinctive mark of a Federal house. They made both top and side lights larger—a practical as well as decorative move that brightened the entrance hall—and gave the top light an elliptical or fan shape with lead-divided glass.



FEDERAL STYLE is an American version of neoclassical architecture. Colonial pattern books featured drawings of plans and details, like this pediment, taken directly from Greek and Roman buildings. English architect Robert Adam adapted classical details in his houses, and American Asher Benjamin translated many of Adam's design ideas into builders' pattern books.

SAMUEL McINTIRE (1757–1811)

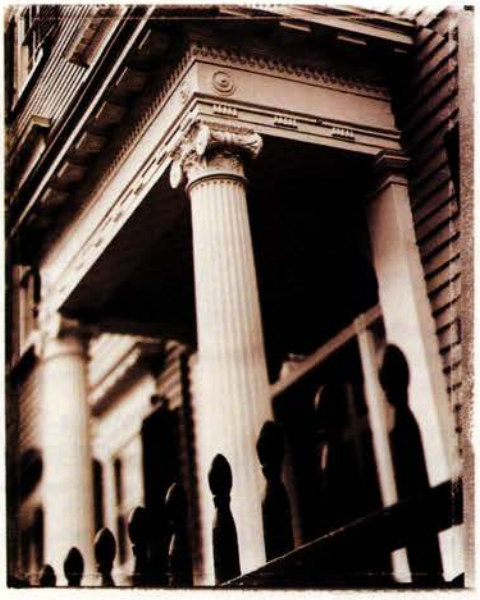
A Salem native, he was descended from a family of carvers, joiners and housewrights. His woodcarving skills and sophisticated sense of design made him well-equipped to please the wealthy and ambitious patrons of thriving Salem.

McIntire was self-taught as an architect-builder, learning classical and contemporary styles by studying pattern books inherited from his father and

art books bought with early earnings. He developed his own decorative themes using classical motifs—urns, flower swags, wheat sheaves, dentil courses—incorporating them into the mantelpieces, molding and trim work that were important elements of Federal interior decoration. Outside, a swagged urn atop a gatepost (left), carved from a single block of wood, makes a handsome entry note.

McIntire is believed to have worked on more than

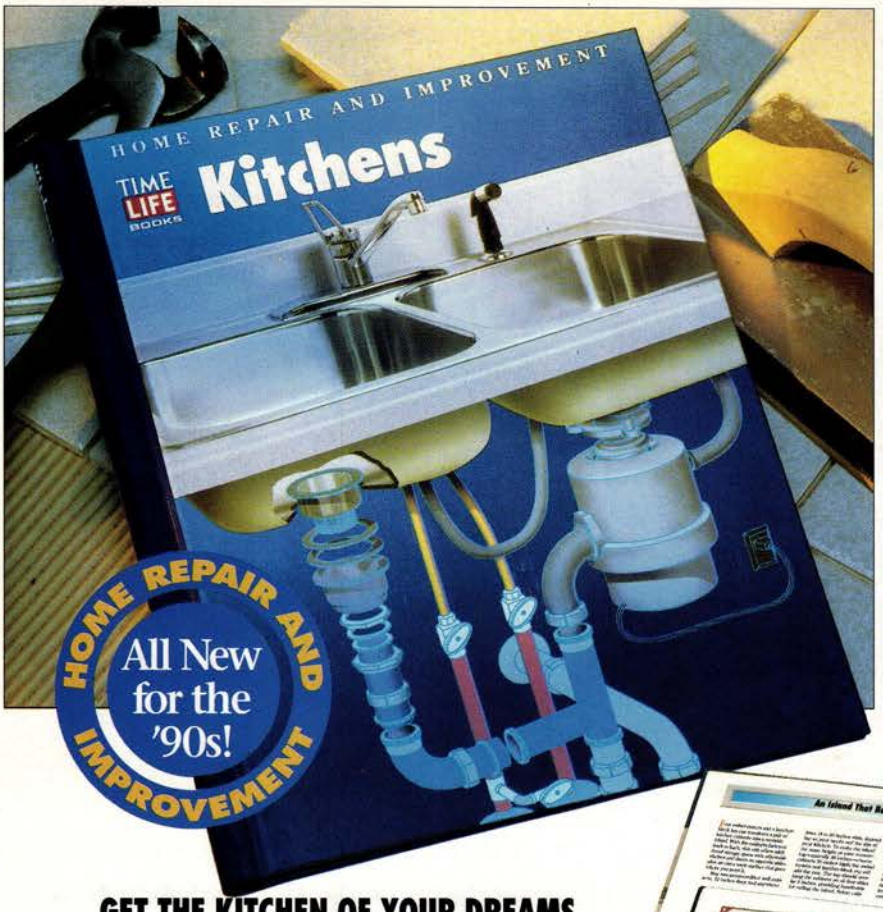
A PALLADIAN WINDOW, consisting of a half-round window atop a double-sash window, was frequently used on the second story directly above the front door. A decorative frame of masonry or carved wood, or a segmented brick arch, topped the window and its two side lights. This window has a carved marble keystone and imposts, a hand-tooled fanlight casing and a cornice carried across the lintel.



THE LINTEL is a structural member that supports the wall while spanning an opening. In brick Federal houses, lintels were often the only exterior decoration. This splayed lintel features a decorative marble keystone. In wood-sheathed houses the lintel was covered, so window casings were treated with hand-carved architrave moldings and sometimes with additional frieze and cornice molding.

100 houses in his 30-year career, often supervising a building team consisting of his two brothers, his son and his nephew. The Peirce-Nichols House at 80 Federal Street is considered by many his most outstanding design. It was built in 1782 when he was only 25. The windows are treated with simple caps and casings. The entrance porch, with its Doric columns (center left and right), features McIntire's particular interpretation of classical motifs in the repeated triglyph of the frieze and the dentils in the pediment.

♦ *See Directory,* on page 130, *for further information*



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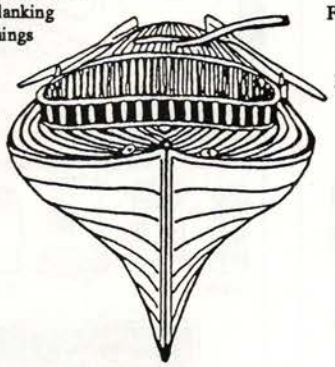

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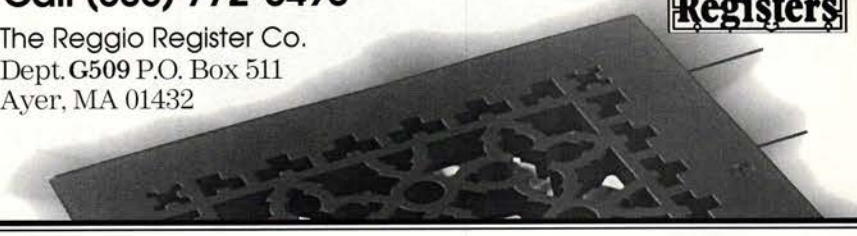

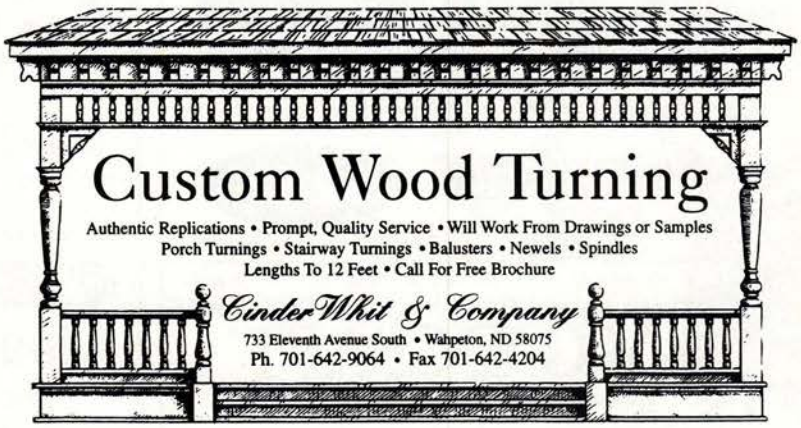

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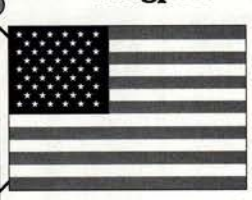

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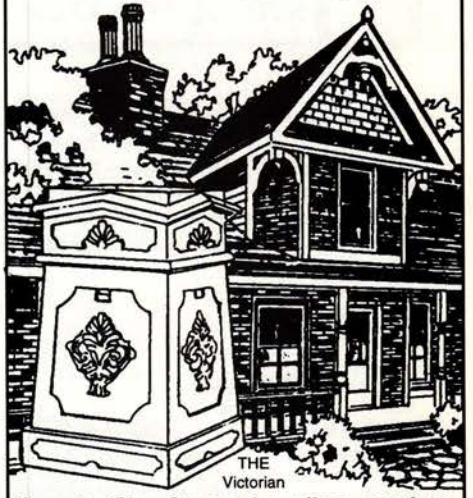

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Extras *pp. 24–29*

p. 24—Old House Fair: *The National Trust for Historic Preservation, 1785 Massachusetts Ave. NW, Washington, DC, 20036; 202-673-4044; for fair information call 413-298-3579.* **National Tour of Independent Homes:** *Real Goods Trading Corp., 555 Leslie St., Ukiah, CA 95482; 707-468-9292.* **Upholstery class:** Course fee, $65, includes weekend pass. *Historic Deerfield, MA 01342; 413-774-5581.* **National Trust for Historic Preservation Conference:** *Worthington Hotel, 200 Main St., Ft. Worth, TX 76102; 817-870-1000; for conference information, call 800-944-6847.* **Dripless caulk gun:** #CH200, $7; *Dripless Inc., 52 Mission Circle, Suite 210, Santa Rosa, CA 95409; 800-960-1773.* **Video rentals for woodworkers:** *Nemy Electric Tool Co., 7635-A Auburn Blvd., Citrus Heights, CA 95610; 916-723-1088.*

p. 25—Frank Lloyd Wright: *Taliesin Architects, Taliesin West, Scottsdale, AZ 85261; 602-860-2700.* **Portable plumbing:** Tajima Plumb-Rite, #P450Z, $38.95; *Nayso Inc, 303 E. Eighth St., New York, NY 10009; 800-229-6770.* KDS Anchor Line, #SF4522, $35.95; KDS 14-oz. plumb bob, $9.75; *The Japan Woodworker, 1731 Clement Ave., Alameda, CA 94501; 510-521-1810.*

p. 26—Metal Repair Day: Items accepted from 10 am to 5 pm, Oct. 20 and 21; 10 am to noon, Oct. 22. *National Ornamental Metal Museum, 374 W. California Ave., Memphis, TN 38106-1539; 901-774-6380.* **Antique Tool Discovery Day:** From 10 am to 3 pm, Nov. 12; $5 admission charge. *Mercer Museum, 84 S. Pine St., Doylestown, PA 18901-4999; 215-345-0210.* **Folk classes:** $205-$225 per week, plus materials. *John C. Campbell Folk School, Rte. 1, Box 14A, Brasstown, NC 28902-9603; 800-FOLK SCH.* **Antique tool auction catalog:** *Country Auctioneer, 63 Poor Farm Rd., Hillsboro, NH 03244; 603-478-5723.* **Auction and parking lot sale:** *Holiday Inn, 9 Northeastern Blvd., Nashua, NH 03062; 603-888-1551.* **Home-building chart:** "Value of New Construction Put in Place," $27 for 12 reports; *Orders, Supt. of Documents, Box 371954, Pittsburgh, PA 15250; fax 202-512-2233.*

p. 27—CO detectors: "Questions and Answers About Carbon Monoxide Detectors," 8 pp., free; *Underwriters Laboratories, 333 Pfingsten Rd., Northbrook, IL 60062; 708-272-8800.* **PinkPlus with Miraflex itch-free insulation:** 33-sq.-ft. roll, $15; *Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, OH 43659; 419-248-8000.* **Saitek Eco-Charger:** $59; *Real Goods.* **Bench Vise:** #23468, 24x36 in., $10.50; *Vermont American Tool Co., Box 340, Lincolnton, NC 28093; 704-735-7464.* **Reusable abrasives:** Dragonskin steel sanding sheets, #3331, 4½x5 in., $2.99; with holder, #3309, $4.98; *Red Devil Inc., 2400 Vauxhall Rd., Union, NJ 07083; 800-423-3845.* Foam sanding blocks, #907 (extra fine/fine), #908 (fine/medium), #909 (medium/coarse), $2.09 each; Contour Softback foam sanding pad, twenty-four 4½x5½-in. sheets, $1.56; *3M Product Information Center, Building 515-3N-06, St. Paul, MN 55144; 800-3M-HELPS.* Foam-backed Rinse and Reuse sanding sheets, #CS-150 (fine), #CS-100 (medium), #CS-060 (coarse), two 9x10-in. sheets, $3.99; sanding gel and pad, #NSG-111, $9.99; *NicSand Inc., Box 29480, Cleveland, OH 44129; 216-351-3333.*

p. 28—Fastap screws: About $7 per lb. for 3-in. exterior screws with Durocoat; *Faspac Inc., 13909 NW Third Court, Vancouver, WA 98685; 800-847-4714.* ***The Old Way of Seeing:*** Jonathan Hale, 1994, 256 pp., $24.95; *Houghton Mifflin Co., 215 Park Avenue South, New York, NY 10003; 800-225-3362.* ***American Bungalow:*** $6 per copy or $24.95 for four issues plus eight newsletters; *123 S. Baldwin Ave., Sierra Madre, CA 91024; 800-350-3363.* **A.I.A. contest:** A.I.A. Atlanta, *231 Peachtree St. NE, Suite B-04, Atlanta, GA 30303-1603; 404-222-0099.* Habitat for Humanity Atlanta, *519 Memorial Dr. SE, Atlanta, GA 30312; 404-223-5180.* Design Traditions, *1200 Ashwood Pkwy., Suite 250, Atlanta, GA 30338; 404-671-9100.*

p. 29—Barracks recycling: *Directorate of Public Work, Ft. McCoy Army Base, 2160 S. "J" St., Ft. McCoy, WI 54656-5162; 608-388-3386.* **Siding strippers:** Paint Shaver Pro, #PS105TS, $599; *American International Tool Industries Inc., 1116-B Park Ave., Cranston, RI 02910; 800-932-5872.* Power Paint Remover, #7403, $284; *Porter-Cable, 4825 Highway 45 North, Jackson, TN 38302-2468; 800-487-8665.* **Our thanks to:** Art Davey, planner-estimator, and Fred Weiner, chief, *Planning and Estimating Branch, Ft. McCoy.*

Routers Made Simple *pp. 31–35*

Plunge router: 1½-hp, #693, $328; **router table:** #696, $238; **Magic Router edge guide:** #5043, $67.50; **Quicksand random-orbit finishing sander:** #333 with dust pickup, $99; *Porter-Cable, 4825 Highway 45 North, Jackson, TN 38302-2468; 800-487-8665.* **Router bits:** Roundover with bearing, #838-817, 1¼-in. diameter, 7/16-in. length, $34.30; *CMT Tools, 310 Mears Blvd., Oldsmar, FL 34677; 800-531-5559.* Wavy Edge ogee, #169-2805, ⅜-in. diameter, 2⅛-in. length, $28.99; *Eagle America, Box 1099, Chardon, OH 44024; 800-872-2511.* Cove bit, #30-104, 1¼-in. diameter, 2⅛-in. length, $35.60; mortise bit, #16-104, ¾-in. diameter, 2-in. length, $19.65; *Freud, 218 Feld Ave., High Point, NC 27263; 800-334-4107.* Beading bit, #85496M, 1¼-in. diameter, 2⅜-in. length, $31.31; core box bit, #85446M, ½-in. diameter, ¼-in. shank, ¼-in. radius, $24.70; rabbet bit, #85151, ⅛-in. width, ¼-in. flute diameter, $9.20; *Bosch, S-B Power Tool Co., 4300 W. Peterson Ave., Chicago, IL 60646; 800-815-8665.* Also pictured: slot cutter with bearing, ¼-in. shank, ⅜-in. depth of cut; chamfer bit with bearing, ¼-in. shank, 45° angle; V-groove, ¼-in. shank, 90° angle; dovetail, ½-in. shank, ¾-in diameter. **Clamp N' Guide fence:** #CT50C, 50 in., $39.95; *Griset Industry, 3034 S. Kilson Dr., Santa Ana, CA 92707; 714-662-2888.* **Brass bushing kit:** #880-002K, $29.90; *CMT Tools.* **Glue:** Titebond II, $23.99 per gal., *Franklin Industries, 2220 Bruck St., Columbus, OH 43207; 800-347-4583.* **Further reading:** *Dictionary of Working Tools,* by R.A. Salaman, 1990 (rev. ed.), 546 pp., $27.95; *Taunton Press, 63 S. Main St., Newtown, CT 06470; 203-426-8171. The New Router Handbook,* by Patrick Spielman, 1993, 384 pp., $16.95; *Sterling Publishing Co., 387 Park Ave. South, New York, NY 10016; 212-532-7160.*

Veneer Plaster *pp. 37–40*

Accelerator: carton of eight 2-lb. bags, $17; **Imperial basecoat plaster:** 80-lb. bag, $13.99; **Imperial blueboard:** type 1px1, ½ in., $8.19 per 4x12-in. sheet; ⅝-in. fire code, $11.28 per 4x12-in. sheet; **Structo-Gauge gauging plaster:** 100-lb. bag, $26.10; **Redtop retarder:** 24 oz., $4; *US Gypsum Co., 125 S. Franklin St., Box 806278, Chicago, IL 60680-4124; 800-874-4968.* **Aluminum hawk:** #5, 12x12 in., $14.26; **angle float:** #5766, 10x4½x⅞ in., $11.22; **Xtralite curved-handle trowel:** #MXS7, 12x5 in., $24.49; **drywall corner trowel:** #23, 4x5 in., $10.98; **jiffler mixer:** #893, $17.20; **pointing trowel:** #45-S, 5x2½ in., $9.68; *Marshalltown Trowel Co., Box 738, Marshalltown, IA 50158; 800-888-0127.* **White fiberglass mesh tape:** #84389-15774, 2½ in., $9.53; **blister brush:** #84389-03224, $25.14; *Goldblatt Trowel Trade Tools, div. Stanley-Proto Industrial Tools, 14117 Industrial Park Blvd. NE, Covington, GA 30209; 404-787-3800.* **Ivory finish lime:** 50 lbs., $8.99; *Gem-lime Group, Box 158, Genoa, OH 43430; 800-537-4489.* **Plaster mixer:** #1101-1, single-speed, triple-gear reduction Hole Shooter for ½-in. drill bits, 500 rpm, $292; *Milwaukee Electric Tool Co., 13135 W. Lisbon Rd., Brookfield, WI 53005; 800-274-9804.* **Dura-Stilts:** #D24-40, $304 per pair; *Dura-Stilt Co., 8360 SW Eighth St., Oklahoma City, OK 73128; 800-225-2440.* **Thorobond:** $29.40 per gal.; *Harris Specialty Chemicals, 8570 Philips Hwy., Jacksonville, FL 32256; 800-327-1570.* **Plasterers:** Rory Brennan, *RFD Box 772, Putney, VT 05346; 802-387-4623.* Jim Marshall, *Box 157, Old Mystic, CT 06372; 203-536-3941.* John Marshall, *16 Long Pond Rd. South, Ledyard, CT 06339; 203-536-8432.* **For more information:** *Plastering Skills,* by F. Van Den Branden and Thomas Hartsell, 1984, 543 pp., $31.96; *American Technical Publishers Inc., 1155 W. 175 St., Homewood, IL 60430; 708-957-1100.* **Our thanks to:** Ed Jakacki, business line product manager, *Trowel Trade Products, US Gypsum Co.* John Boland, administrator, *Chicago Plastering Institute, 6547 N. Avondale, Chicago, IL 60631; 312-774-4500.*

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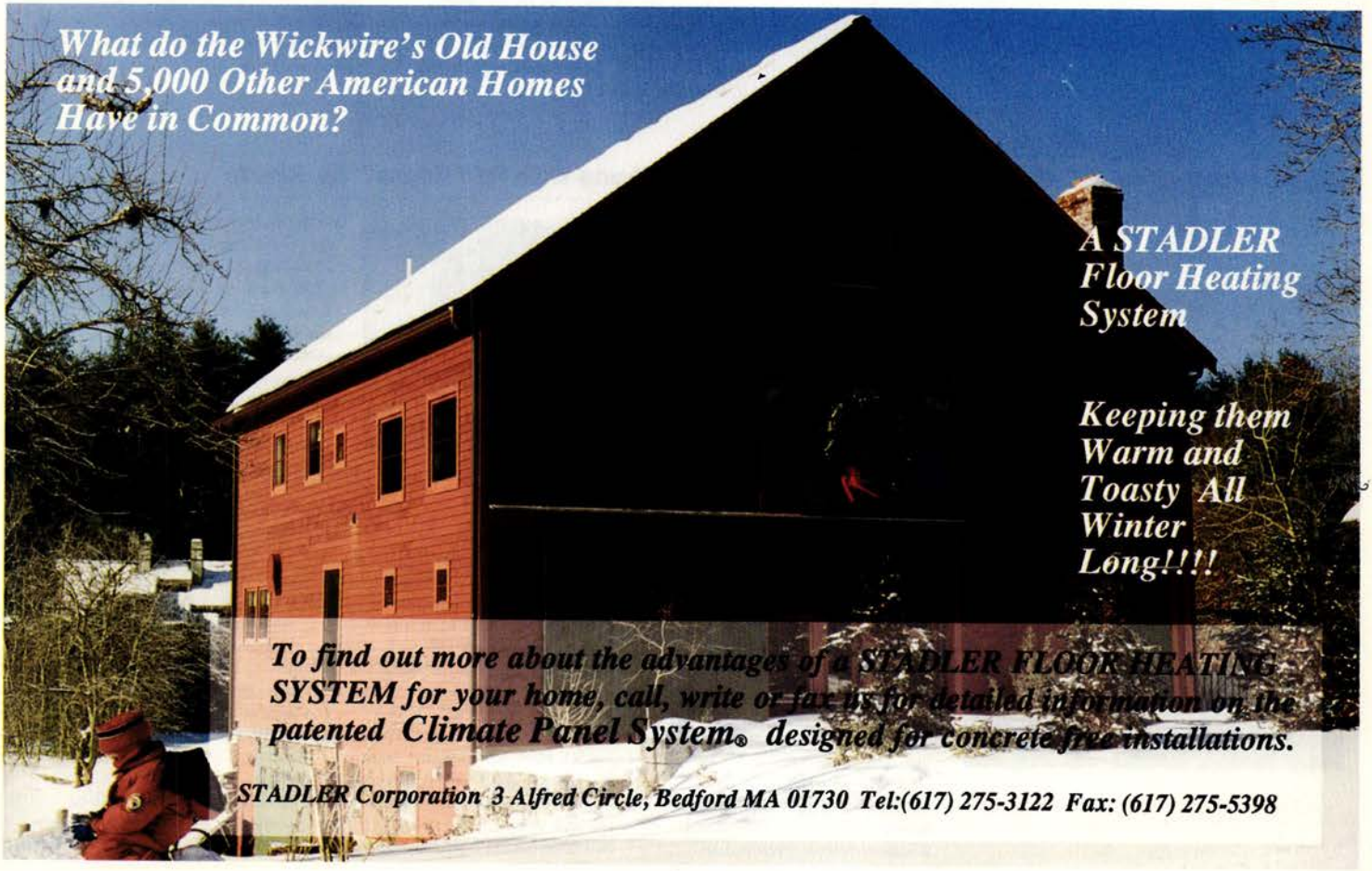
Protecting Your Lungs *pp. 43–47*

Recommended half-face respirators: *This Old House* consultant Charles Schwartz, who has taught hundreds of people how to use respirators, says four brands of silicone half-mask respirators consistently offer good fit and comfort. All are sold by *Lab Safety Supply, Box 1368, Janesville, WI 53547-1368; 800-356-0783.* Prices cited are from this company. Manufacturers sell directly only in large quantities. GPT MX/PF #950 respirator, $30.85; *Bilsom Group, 5300 Region Court, Lakeland, FL 33801; 800-733-1177.* 3M #7000 series, $25.95; *3M Customer Service, 3M Center, Building 275-6W-01, St. Paul, MN 55144; 800-328-1667.* Willson Premier #6000 series, $27.40; *Willson Safety, 205 Washington St., Reading, PA 19601; 800-345-4112.* North #7700-30M, $26.50; *North Safety Products, Safety Equipment Division, 2000 Plainfield Pike, Cranston, RI 02921; 800-581-0444.* MSA Advantage 100, #806681, $8.85; *Mine Safety Appliances Co., 121 Gamma Dr., Pittsburgh, PA 15238; 800-672-2222.* **Masks suitable for those with beards:** Air-Mate 1, for dust/mist protection only (assuming beard is trimmed so Tyvek headpiece seals), $325; Breathe-Easy 10, for a full range of filters and cartridges (and full beard), $676.30 with organic vapor/HEPA combo cartridges; *Racal Health & Safety, 7305 Executive Way, Frederick, MD 21701-8368; 800-682-9500.* **Masks pictured on page 44 (top to bottom):** 3M Comfort Mask, #8651, five for $2.99; 3M Latex Paint & Odor Respirator (certified as a dust/mist respirator), #8656, $3.97; *3M Do-It-Yourself Division, 3M Center, Building 223-4S-02, St. Paul, MN 55144-1000; 800-247-3941.* North silicone half-mask respirator, #YC-7210, $26.50; organic vapors cartridge #N7500-1, $31.55; paint spray/mists prefilter #YC-7125, $11.25; cover #YC-7125-2, $4.20; *North Safety Products, Safety Equipment Division, 2000 Plainfield Pike, Cranston, RI 02921; 800-581-0444.* Racal Air-Mate 3 powered air purifying respirator, with dust/mist filter and helmet, $329 to $455. *Racal Health & Safety, 7305 Executive Way, Frederick, MD 21701-8368; 800-682-9500.* Draeger ProAir self-contained breathing apparatus, with 30-minute 22116-psi cylinder, $1,170; *National Draeger, 101 Technology Dr., Box 120, Pittsburgh, PA 15230; 412-787-8389.* **Additional mask mentioned:** Airlite Air Visor, $234; *Racal Health & Safety, 7305 Executive Way, Frederick, MD 21701-8368; 800-682-9500.* **HEPA vacuums:** Nilfisk #GS-90, $684; *Nilfisk, 300 Technology Dr., Malvern, PA 19355; 800-645-3475.* **Other mail-order suppliers of respirators:** *US Safety Products, 8101 Lenexa Dr., Lenexa, KS 66214; 913-599-5555. Direct Safety Co., 7815 S. 46 St., Phoenix, AZ 85044; 800-528-7408.*

For more information: 3M Technical Service hotline, *3M Occupational Health and Environmental Safety Division, 3M Center, Building 275-6W-01, Box 33275, St. Paul, MN 55133-3275; 800-243-4630.* Safety TechLine, *Lab Safety Supply, Box 1368, Janesville, WI 53547-1368; 800-356-2501.* NIOSH, *Division of Safety Research, 1095 Willowdale Rd., Morgantown, WV 26505-2888; 800-356-4674.* **Further reading:** *Guide to Industrial Respiratory Protection* and *NIOSH Pocket Guide to Chemical Hazards,* both free; *NIOSH Publications, Mail Stop C-13, 4676 Columbia Pkwy., Cincinnati, OH 45226-1998; 800-35-NIOSH; fax 513-533-8573.* "Protecting Your Lungs on the Job," by Charles Miller, in *Fine Homebuilding,* April–May 1994, pp. 72-77. **Our thanks to:** Charles Schwartz, *Environmental Assessments and Solutions, 100 High Point Dr., Suite 404, Hartsdale, NY 10530; 914-761-1717.* Bill Hoffman, *National Institute of Occupational Safety and Health.* Maureen Cox, *New York State Dept. of Labor.* Craig Colton, *3M Occupational Health and Environmental Safety Division.* Bridget Traynor, *Racal Health & Safety.* Arnold J. Tschantre, *Hazardous Environment Safety Equipment, Box 189, Purchase, NY 10577; 914-742-3969.*



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Wood Floor Finishes *pp. 49–52*

Varnish: BenWood Satin Finish, #404, $23.78 per gal.; *Benjamin Moore & Co., 51 Chestnut Ridge Rd., Montvale, NJ 07645; 800-344-0400.* **Shellac:** Bulls Eye Amber #701, $18.50 per gal.; *Wm. Zinsser & Co., 173 Belmont Dr., Somerset, NJ 08875-1285; 908-469-4367.* **Flocked applicator:** Floor Coater, #6118, 18-in., $25.75; *Padco Inc., 2220 Elm St. SE, Minneapolis, MN 55414; 800-328-5513.* **Paste wax:** Butcher's Boston Polish, 1-lb. can, $6; *The Butcher Co., 67 Forest St., Marlborough, MA 01752; 508-481-5700.* **Prefinished flooring,** ¾-in. thick, 3¼-inch face width, oak with semigloss finish; $6.60 per ft.; *Mirage, 1255 98th St., Saint-Georges, Beauce, Quebec, CN G5Y 5C2; 418-227-1181.* **Water-based urethane:** Pacific Ultra, $90 per gal.; **oil-based urethane:** Woodline Poly, $25 per gal.; *BonaKemi USA Inc., 14805 E. Moncrieff Pl., Aurora, CO 80011-1207; 800-872-5515.* **For more information:** *Hardwood Floors,* 6 issues, $36; *National Wood Flooring Association, 1846 Hoffman St., Madison, WI 53704; 608-249-0186.* **Contractor:** Jeff Hosking, *Hosking Floor Refinishing, 456 Lincoln Rd., Walpole, MA 02081; 508-668-8315.* **Our thanks to:** Jim Ochs, technical director, *Wm. Zinsser & Co., 323 Campus Dr., Somerset, NJ 08875; 908-469-4367.*

Old Faucets *pp. 55–57*

Architectural salvage dealer: *The Brass Knob, 1701A Kalorama Rd. NW, Washington, DC 20009; 202-986-1506.* **Parts and repair:** *George Taylor Specialties, 100 Hudson St., New York, NY 10013; 212-226-5369.* **Replating:** *HyGrade Polishing and Plating, 22-07 41st Ave., Long Island City, NY 11101; 718-392-4082.*

Tapes and Rules *pp. 61–63*

ProTape 16-ft. Home Contractor with digital display: $29.95; *Seiko Instruments Inc., 2990 W. Lomita Blvd., Torrance, CA 90505; 800-873-4508.* **Calcu-Tape Plus:** $14.99; *Sonin Inc., Milltown Office Park, Suite A202, Rte. 22, Brewster, NY 10509; 914-278-0202.* **Powerlock II:** 25-ft., $24.95; *The Stanley Works, 600 Myrtle St., New Britain, CT 06053; 800-262-2161.* **Tape Slate notepad:** $2.99; *Tape Slate, RR 3, Box 920, Banner Elk, NC 28604; 704-963-7306.* **Tape Mate solar calculator:** $24.95; *DigiTool Corp., Box 12350, Aspen, CO 81612; 303-925-8177.* **Ultrasonic ProMeasure Plus Home Contractor:** $49.95; *Seiko Instruments Inc.* **Disto laser measuring tool:** $1,495; *Sonin Inc.* **For more information:** Early American Industries Association, $25 membership includes subscriptions to *Shavings* (newsletter) and *Chronicle* (magazine); *Elton W. Hall, executive director, 167 Bakerville Rd., S. Dartmouth, MA 02748; 508-993-4198. Stanley Tool Collector News,* 3 issues, $23; *The Tool Merchant, Box 227, Marietta, OH 45750; 614-373-9973.* Store buys and sells classic tools.

Disaster Insurance *pp. 66–67*

For more information: National Insurance Consumer Help Line, *Insurance Information Institute, 100 William St., New York, NY 10038; 800-942-4242.* Provides access to companies doing business in specific areas and phone numbers for state insurance plans and departments.

What's Wrong With This House? *pp. 72–79*

Our thanks to: *Bay Colony Home Inspection Consultants Inc., Box 261, Milton, MA 02186; 617-698-0945 or 508-756-2700.* **For more information:** *American Society of Home Inspectors, 85 W. Algonquin Rd., Arlington Heights, IL 60005; 800-743-2744.* Provides a free list of member inspectors by fax. Publishes "The Home Inspection and You" ($20 per 100), "Marketing Tips for Home Sellers" ($40 per 100), "ASHI Standards of Practice" ($25 per 50).

The New Lawn *pp. 80–85*

Mulch: Cellulose paper hydromulch, 40-lb. bag, $6; *National Fiber Inc., 3 Depot St., Belchertown, MA 01007; 413-283-8747;* Soil-Guard wood-fiber mulch or fiber-and-glue mixture, 50-lb. bag (price on request); *Weyerhaeuser Co., CCB-5D6, Tacoma, WA 98477; 800-443-9179.* **Mulch binder:** RMB-Plus, 50-lb. bag, $40; *Reinco Mulch Binder Corp., Box 584, 520 North Ave., Plainfield, NJ 07061; 800-526-7687.* **Grass seed:** lawn seed and blends, pasture mixes, custom mixes and regional wildflower blends, perennial and annual; *Lofts Seed Inc., 347 Elizabeth Ave., Somerset, NJ 08873; 800-526-3890.* **Wildflower seed and other alternatives:** Ecology lawn blends, 5-lb. bag (covers 5,000 sq. ft.), $135 to $145; *Nichols Garden Nursery, 1190 Northeast Pacific Hwy., Albany, OR 97321-4598; 503-928-9280.* Native Western grasses for high-altitude zones, $2.45 to $17.70 per lb.; catalog, $3; *High Altitude Gardens, Box 4619, Ketchum, ID 83340; 800-874-7333.* Prairie grasses and wildflowers, individual species or blends, $15 to $1,500 per lb.; 2-year catalog subscription, $3; *Prairie Nursery, Box 306, Westfield, WI 53964; 608-296-3679.* **Sod:** About 35¢ to 50¢ per sq. ft., available through nurseries and landscape contractors. **Hydroseeder spray units:** Hydrograsser #HG-13GX, 1,550-gal. capacity, $21,000 plus options (diesel engine, $1,000 additional; 200-ft. hose, $2,900 additional); 650-gal. unit, $11,900 and up; *Reinco Inc., Box 512, 520 North Ave., Plainfield, NJ 07061-0512; 800-526-7687.* **Patching products:** PatchMaster lawn grasses (premixed mulch, fertilizer and seed);

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The New Lawn *pp. 80–85*

about $8 per 5-lb. bag (covers 100 sq. ft.); wildflower mixture, $7 to $8 per 1.4-lb bag (covers 20 sq. ft.); *The Scotts Company, 14111 Scottslawn Rd., Marysville, OH 43041; 513-644-0011.* First Aid (premixed mulch, fertilizer and seed), about $9.50 per 5-lb. bag (covers 100 sq. ft.); *Lofts Seed Inc., 347 Elizabeth Ave., Somerset, NJ 08873; 800-708-8873.* **Fertilizer:** Hydroturf 15:31:15, $10.90 per 50-lb. bag (covers 1,200 to 1,500 sq. ft); *Lofts Seed Inc.* **Landscaper:** Sean Bilodeau, *Acorn Tree and Landscaping, 9 Murray La., Harvard, MA 01451; 508-635-0409.* **For more information:** *National Wildflower Research Center, 4801 LaCrosse Ave., Austin, TX 78739; 512-292-4200.*

Living in a Lighthouse *pp. 86–87*

Architect: *Herman Hassinger Architects, Box 594, Moorestown, NJ 08057; 609-235-5760.* **Contractor:** *John Hassinger Builders, 116 Pearl St., Noank, CT 06430; 203-572-1090.* **Mahogany bar:** *Homewood Cabinet Co., 262 S. Broad St., Pawcatuck, CT 06379; 203-599-2441.* **Lantern:** *Atlantic Architectural, Inc., Box 369, Toms River, NJ 08754; 908-240-4779.* **For more information:** *Inventory of Historic Light Stations,* 1994, 430 pp., $25; *National Park Service, Superintendent of Documents, Box 371954, Pittsburgh, PA 15250; 202-512-1800. America's Lighthouses,* by Francis Ross Holland, 1988, 240 pp., $11.95; *Dover Publications, 180 Varick St., New York, NY 10014; 212-255-3755. The Keeper's Log,* 4 issues, $35 (included in membership); *U.S. Lighthouse Society, 244 Kearny St., San Francisco, CA 94108; 415-362-7255. Lighthouse Digest,* 12 issues, $24; *Box 1690, Wells, ME 04090; 207-646-0515.* **Our thanks to:** Wayne Wheeler, president, *U.S. Lighthouse Society.* Timothy Harrison, editor, *Lighthouse Digest.* James Hyland and Rya Lehman, *Lighthouse Preservation Society, Box 736, Rockport, MA 01966; 508-281-6336.* Richard Moehl, president, *Great Lakes Lighthouse Keepers Association, Box 580, Allen Park, MI 48101; 313-426-4150.* Peter Ralston, executive vice president, *Island Institute, 60 Ocean St., Rockland, ME 04841; 207-594-9209.*

Lighthouse inns, B&Bs and hostels: Big Bay Point Lighthouse, *3 Lighthouse Rd., Big Bay, MI 49808; 906-345-9957.* East Brother Light Station, *117 Park Pl., Point Richmond, CA 94801; 510-820-9133.* Friends of Plymouth Light, *Box 269, Scituate MA 02066; 617-545-6842.* Keeper's House, *Box 26, Isle au Haut, ME 04645; 207-367-2261.* Lighthouse Inn, *Lighthouse Rd., W. Dennis, MA 02670; 508-398-2214. Middle Island Light, 5671 Rockport Rd., Alpena, MI 49707; 517-595-6722.* New Dungeness Chapter, *U.S. Lighthouse Society (members only), Box 1283, Sequim, WA 98382; 360-683-9166.* Pigeon Point Lighthouse, *Pigeon Point Rd., Highway One, Pescadero CA 94060; 415-879-0633.* Point Montara, *16th St. and Cabrillo Hwy., Montara, CA 94037; 415-728-7177.* Sand Hills Lighthouse, *Box 414, Ahmeek, MI 49901; 906-337-1744.* The Lighthouse Marina, *Box 228, Pulaski, NY 13142; 315-298-6688.* Tibbets Point Lighthouse Hostel, *33439 County Rte. 6, Cape Vincent, NY 13628; 315-654-3450.*

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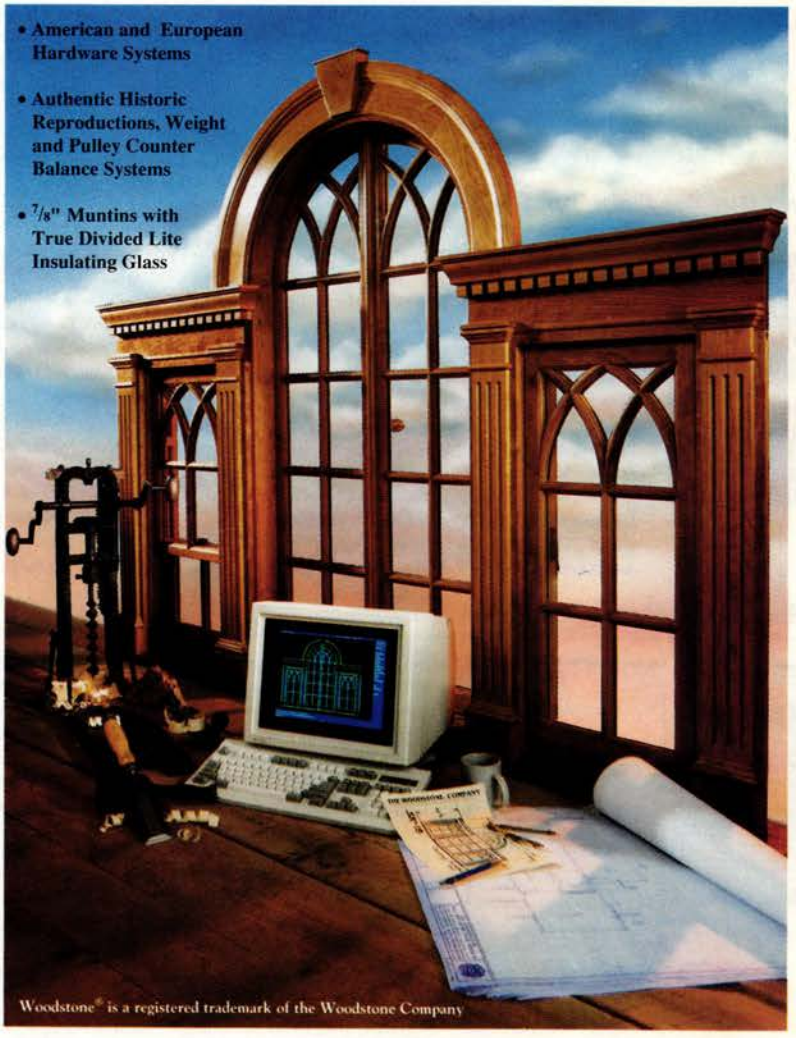

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Building a Garden Shed *pp. 88–93*

Door: Morgan F-82 VGFP (vertical grain, flat panel) fir exterior door, prehung on 3½-in. jambs with no sill, out-swing, standard bore, $375.25; *Morgan Mfg., Box 2446, Oshkosh WI 54903-2446; 414-235-7170.* Wholesaler (hanger of door): *Reeb Millwork Co., Box 5332, 600 Brighton St., Bethlehem, PA 18015; 800-523-9305.* **Window:** Weathershield A-11 clear insulated pine barn sash window, $263; *Weathershield Mfg. Co., 1 Weathershield Plaza, Medford WI 54451; 715-748-2100.* **Crimped ridge roll:** 14-in. galvanized steel, $1.04 per ft.; *Wheeling Corrugating Company, 1134 Market St., Wheeling, WV 26003; 304-234-2400.* **H-3 hurricane anchors:** 35¢ each; **aluminum post bases:** $3.51 each; *Simpson Strong-Tie Co., 1450 Doolittle Dr., Box 1568, San Leandro, CA 94577; 800-999-5099.* **Lockset:** Schlage F51NV Plymouth 605 bright brass keyed entry door set, $33.20: *Schlage Lock Co., Box 193324, San Francisco, CA 94119; 415-467-1100.* **Roof paint:** Acrymax Coating System, HP 5000 dark green, $33.25 per gal.; *Chemical Coatings/Preservation Products, 221 Brooke St., Media, PA, 19063; 610-566-7470.* **Primer:** Bulls Eye 1-2-3 Latex 2001, $21.10 per gal.; *Wm. Zinsser & Co., 173 Belmont Dr., Somerset, NJ 08875-1285; 908-469-4367.* **Floor paint:** Benjamin Moore Green C112 40, $9.29 per quart; **clapboard paint:** Benjamin Moore HC174 Base 1-105-1A flat, $18.99 per gal.; **door and lattice paint:** Benjamin Moore HC95 Base 3-096-3A satin, $9.99 per qt.; **trim paint:** Benjamin Moore 844 Base 1-096-1A satin, $9.99 per qt.; *Benjamin Moore & Co., 51 Chestnut Ridge Rd., Montvale, NJ 07645; 800-826-2623.* **Putty:** Elmer's Professional Carpenter's Wood Filler, $4.49 per pt.; *Borden Inc., 180 E. Broad St., Columbus, OH 43215; 614-225-4000.* **Some materials supplied by:** *Huston Supply Co., Inc., Rte. 523, Oldwick, NJ 08858; 908-439-2424. Westfield Lumber and Home Center, 700 North Ave. East, Westfield, NJ 07090; 908-232-8855. Tower Window & Door, 101 Rte. 46 East, Pinebrook, NJ 07058; 201-244-1011. Amos Martin Co., 150 Slate Rd., Ephrata, PA 17522; 717-445-6885.* **For more information:** *Tiny Houses,* by Lester Walker, 1987, 224 pp., $29.95; *Tiny Book of Tiny Houses,* by Lester Walker, 1993, 96 pp., $9.95; *Overlook Press, 2568 Rte. 212, Woodstock, NY 12498; 914-679-6838.* Catalog of custom-designed, preassembled garden sheds, $6; *Walpole Woodworkers, 767 East St. (Rte. 27), Box 151, Walpole, MA 02081; 508-668-2800.* **Our thanks to:** John Gladdis, *The Hunterdon Builders, Box 491, Whitehouse, NJ 08888; 908-284-0221.* Les Walker, *Box 678, Woodstock, NY 12498.* Page Hickok, production assistant. Susan and Nick Dazzo, homeowners.

Keeping Out the Cold *pp. 94–97*

Contractor: Fred and Helen Lugano, *Lake Construction, RR 2, Box 2621, Charlotte, VT 05445; 802-425-3090.* **Thermography:** John Snell, *John Snell & Associates Inc., Box 6, Montpelier, VT 05601; 800-636-9820.* **Infrared camera:** Inframetrics #740, $48,900; Tom Scanlon, *Inframetrics, 16 Esquire Rd., N. Billerica, MA 01852; 508-670-5555.* **Cellulose insulation:** Thermo-Cel, $5.25 per 30-lb. bag; *National Fiber, Inc., 3 Depot St., Belchertown, MA 01007; 413-283-8747.* **Insulation shredder-blower:** All-fiber machine #2000, $5,604; *Krendl Machine Co., 122 Summers La., Delphos, OH 45833; 419-692-3060.* **Foam caulk:** Handi-foam, 12 oz., $5; *Fomo Products, Box 1078, Norton, OH 44203; 216-753-4585.* **Minneapolis Blower Door:** #3, $1,450; *Energy Conservatory, 5158 Bloomington Ave. South, Minneapolis, MN 55417; 612-827-1117.* **Caulk:** General Electric 5091, Silicone 2, all-paintable caulk, 10.1 fl. oz., $4.36; *GE Silicones, 260 Hudson River Rd., Waterford, NY 12188; 800-255-8886.* **Mastic:** RCD #6, about $30 per gal.; *RCD Corp., 2850 Dillard Rd., Eustis, FL 32726; 800-854-7494.* **Styrofoam board:** ¼-in. Blucor underlayment sheet, 50x4-ft. fan-fold, about $32.50 for two squares; *Dow Chemical Co., Box 1206, Midland, MI 48641-1206; 800-441-4369.* **For more information:** *The Consumer Guide to Home Energy Conservation,* by Alex Wilson and John Morrill, 1995, 275 pp., $7.95; *American Council for an Energy-Efficient Economy, 2140 Shattuck Ave., Berkeley, CA 94704; 510-549-9914. Home Energy,* 6 issues, $39; *2124 Kittredge St, #95, Berkeley, CA 94704; 510-524-5405. Environmental Building News,* 6 issues, $67; *RR 1, Box 161, Brattleboro, VT 05301; 802-257-7300.*

True Historic Colors *pp. 98–104*

Historic paint class: Three-day course, $390, including lodging in historic buildings; three- and five-day courses on traditional building techniques; *Eastfield Village, Box 539, Nassau, NY 12123; 518-766-2422.* **Historic Deerfield:** admission pass, $10, includes a week of unlimited visits; *Deerfield, MA 03142; 413-774-5581.* **Natural resins:** Manila copal, damar, $1 to $2 per lb.; mastic, $60; sandarac, $20; elemi, $2.75; *P.L. Thomas & Co., 4 Headquarters Plaza, North Tower, Suite 203, Box 612, Morristown, NJ 07963-0612; 201-984-0900.*

Foldout Chart: Linseed oil-based paints: burnt umber brown, Spanish brown, terre verte, yellow ocher, lead gray, minium, Prussian blue (deep), Prussian blue (light), verdigris (deep), light willow green (verdigris, light), lampblack, 1-pt. can, $12.50; *Historic Paints Ltd., Burr Tavern, Rte. 1, Box 474, East Meredith, NY 13757; 800-664-6293.* Also available: pigments, oil, resin, water-based paint ingredients. Cochineal and dark indigo paint samples were mixed for *This Old House* using authentic pigments by *Williamsburg Art Supplies, 266 Elizabeth St., New York, NY 10012; 800-334-5278.* Chrome yellow was commercially color-matched to a sample provided by Matthew J. Mosca, *Historic Paint Research, 216 E. University Pkwy., Baltimore, MD 21218; 410-466-5325.* **Natural pigments:** Burnt umber, #4074, $3; cochineal carcasses, #3604, $12.50; indigo chunks, #3600-B, $15.30; Prussian blue, #4520, $3.60; chalk from Champagne, France, #5800, 1-km. bag, $6.80. Minerals from Dr. Georg Kremer's personal collection: red jasper (sold ground as #1130, $49.05); hematite, #4866, $42.50; Verona green (sold ground as #1100, $7); Spanish gold ocher (sold ground as #1150, $13.50); red earth from Tuscany, #11615, $63.75; celadonite (sold ground as #1125, $8); iron ore, #11600, $15 (all prices are for 100 grams except where noted); *Kremer Pigments, 228 Elizabeth St., New York, NY 10012; 212-219-2394.* Crocoite, 1x2-cm. specimen, $19; minium, 6x5-cm. specimen, $25; *Excalibur-Cureton Co., 1000 N. Division St., Peekskill, NY 10566; 914-739-1134.* **Indigo plant** grown by Jansen Cox, *Charlestown Landing, 1500 Old Towne Rd., Charleston, SC 29407; 803-852-4200.* Admission ($5) includes visit to experimental crop garden, where indigo dye is processed from plants grown at site. **Period oil lamp:** $85; *Faire Harbour Ltd., 44 Captain Pierce Rd., Scituate, MA 02066; 617-545-2465.* **Test tubes:** 6-in. tube, $1; *Arista Surgical Supplies, 67 Lexington Ave., New York, NY 10010; 212-679-3694.* **Linseed oil:** 1-qt.

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a listing of goods and services

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bottle, $11; *Williamsburg Art Supplies, 266 Elizabeth St., New York, NY 10012; 800-334-5278.* **Flax seeds:** 16-oz. bag, $1.59; *Nature Food Centres, Pittsburgh, PA 15222; 800-334-5278.* **Hide glue** (ground), $9.39 per lb.; *Behlen, Rte. 30 North, Amsterdam, NY 12010; 518-843-1380.* **For more information:** *Paint in America,* 1994, 318 pp., $19.95; *John Wiley & Sons, 1 Wiley Dr., Somerset, NJ 08875; 800-225-5945. A Treatise and General Primer on the Properties of Early American Paints,* $3.50; $5 with hand-painted color chart; *Historic Paint Research, 216 E. University Pkwy., Baltimore, MD 21218; 410-466-5325.* "Paintpamphlet," a guide for taking paint samples to be sent in for analysis, $5 ($20 to $45 per sample); "Finish Notes," free newsletter about investigation of architectural finishes; *Frank S. Welsh Co., Box 767, Bryn Mawr, PA 19010; 610-525-3564.*
Our thanks to: Chris Ohrstrom, president, *Historic Paints Ltd.* Mark Bridges, *New Riverside Ochre, Box 460, River Rd., Cartersville, GA 30120; 404-382-4568. American Antiquarian Society, 185 Salisbury St., Worcester, MA 01609-1634; 508-755-5221.*

Architectural Salvage *pp. 105–113*

Architectural salvage dealers: Adkins Architectural Antiques, *3515 Fannin St., Houston, TX 77004; 713-522-6547.* Architectural Antiques, *801 Washington Ave. North, Minneapolis, MN 55401; 612-332-8344.* The Bank, *1824 Felicity St., New Orleans, LA 70113; 504-523-2702.* The Brass Knob, *1701A Kalorama Rd. NW, Washington, DC 20009; 202-986-1506.* Decorum Hardware, *231 Commercial St., Portland, ME 04101; 207-775-3346.* Florida Victorian Architectural Antiques, *112 W. Georgia Ave., Deland, FL 32720; 904-734-9300.* Irreplaceable Artifacts, *14 Second Ave., New York, NY 10003; 212-777-2900.* Ohmega Salvage, *2407 San Pablo Ave., Berkeley, CA 94702; 510-843-7368.* Olde Theatre Architectural Salvage, *2045 Broadway, Kansas City, MO 64108; 816-283-3740.* Salvage One, *1524 S. Sangamon St., Chicago, IL 60608; 312-725-8243 or 312-SAL-VAGE.* United House Wrecking, *535 Hope St., Stamford, CT 06906; 203-348-5371.* **For more information:** "Architectural Salvage to the Rescue," by J. Randall Cotton and Matt Schultz, in the March/April 1990 issue of *Old-House Journal,* pp. 28-35; *2 Main St., Gloucester, MA 01930; 508-283-3200. The Salamander and the Web, Box 1834, Topeka, KS 66601-1834; 800-9-THE-WEB.* A finding service for architectural salvage; $38 membership includes monthly newsletter.

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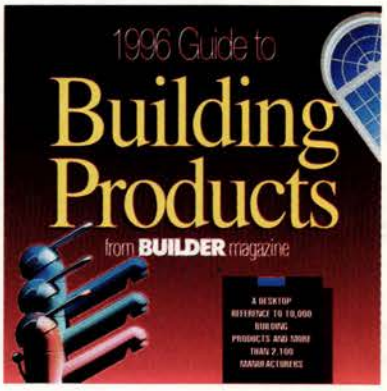

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CONTACT

Preservation North Carolina
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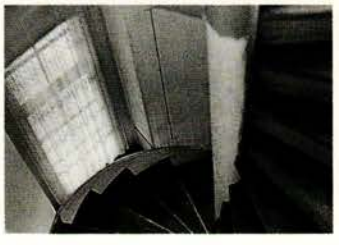

The wraparound porch (left) disappeared in the late 1970s. Eight pine mantels remain in place (middle), as does the original spiral staircase from 1859 (above).

TOP PHOTOGRAPH BY ALEX BEE. ALL OTHERS, BETTY C. PAYNE